

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
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# ECONOMICS AND BUSINESS MANAGEMENT

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## LARGE ENERGY STORAGE SYSTEMS – PROCRASTINATION IS FRAUGHT WITH LOSSES

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**Key words:**

energy storage systems, renewable energy sources, “green” technologies, energy system flexibility, electricity markets, recovery of Ukraine.

The latest researches on the current development and prospects for the further spread of large-scale energy storage systems were analyzed. Trends and forecasts of energy storage technology cost reducing due to an increase in production were traced. The world experience of implementing industrial energy storage systems, which are a key technology for the development of new energy system, an important direction for the advancement of high-tech sectors of the economy, as well as an important starting point for promoting «green» and low-carbon transformation of energy production and consumption was given. The current state of development of energy storage systems in Ukraine and their critical role in maintaining the stable and safe operation of the energy system was considered. Positive changes that have taken place in the field of regulation of energy storage facility operators due to the entry into force of the Law of Ukraine «On Amendments to Certain Laws of Ukraine on the Development of Energy Storages» were emphasized. A declarative nature of the Draft Plan for the Recovery of Ukraine proposed by the National Council for the Recovery of Ukraine from the Consequences of the War in the issue of the development of large energy storage systems and an absence of specific measures aimed at the introduction of such systems in Ukraine was noted. The vision of reasons preventing implementation of plans for the construction of large energy storage systems in Ukraine was drawn. A calculation of the investment payback period, when using the large energy storage facility on the balancing market of NEC «Ukrenergo» was carried out. Based on the obtained calculations the conclusion about the absence of development prospects for energy storage systems without the possibility of obtaining long-term credit resources at low interest rates was made. In this context the need to create conditions for attracting investments from private and public financial institutions of Europe and the USA was noted. The determining role of the government of Ukraine in the development and implementation of the strategy for the advancement of energy storage systems, as well as the importance of efforts to encourage the development of new and the promotion of existing projects was emphasized. Urgent actions to accelerate the introduction of energy storage systems allowing the Integrated Power System of Ukraine to cope with the challenges that will arise as a result of the recovery of industry and the return of refugees to Ukraine after the victory have been called.

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## ВЕЛИКІ СИСТЕМИ ЗБЕРІГАННЯ ЕНЕРГІЇ – ВІДТЕРМІНУВАННЯ ЗАГРОЖУЄ ЗБИТКАМИ

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### Ключові слова:

системи зберігання енергії, відновлювальні джерела енергії, «зелені» технології, гнучкість енергосистеми, ринки електроенергії, відновлення України.

Проаналізовано новітні дослідження, присвячені поточному стану і перспективам подальшого розповсюдження великих систем зберігання енергії у світі. Розглянуто тенденції та прогнози зниження вартості систем зберігання енергії завдяки вдосконаленню технологій та нарощуванню обсягів їх виробництва. Наведено світовий досвід впровадження промислових систем зберігання енергії, які є ключовою технологією для розбудови нової енергетичної системи, важливим напрямком розвитку високотехнологічних галузей економіки, а також важливою відправною точкою для просування «зеленої» і низьковуглецевої трансформації виробництва та споживання енергії. Розглянуто сучасний стан розвитку систем зберігання енергії в Україні та їх критичну роль у підтримці стабільної та безпечної роботи енергетичної системи. Наголошено на позитивних змінах, що відбулись в сфері регулювання діяльності операторів установок зберігання енергії завдяки набуттю чинності Законом України «Про внесення змін до деяких законів України щодо розвитку установок зберігання енергії». Зауважено декларативність Плану відновлення України запропонованого Національною радою з відновлення України від наслідків війни, у питанні розвитку великих систем зберігання енергії, та відсутність у ньому конкретних заходів направлених на впровадження таких систем в Україні. Викладено бачення причин, що стримують реалізацію планів з будівництва великих систем зберігання енергії в Україні. Проведено розрахунок строків повернення інвестицій у промислову установку зберігання енергії, за умови її використання на балансуєчому ринку НЕК «Укренерго». На підставі отриманих розрахунків зроблено висновок про відсутність перспектив розвитку систем зберігання енергії без можливості отримання довгострокових кредитних ресурсів під низькі відсотки. У зв'язку з цим, відзначено необхідність створення умов для залучення інвестицій з боку приватних та державних фінансових установ Європи і США. Підкреслено визначальну роль уряду України у розробці та імплементації стратегії розвитку систем зберігання енергії в державі, а також важливість зусиль по сприянню розробці нових та просуванню наявних проєктів. Закликано до вжиття невідкладних заходів спрямованих на прискорення впровадження систем зберігання енергії, без яких Об'єднана енергосистема України може не впоратись із викликами, які постануть внаслідок повернення біженців та відновлення промисловості, що буде відбуватися після здобуття перемоги.

### Statement of the problem

Implementation of the energy storage system is a strategically important task for our country. This is a way to increase the flexibility of the Integrated Power System of Ukraine, which in the future will make it possible to increase the amount of generation of clean electricity from renewable energy sources.

Ukraine is consistently moving towards the European Union and integrating its own network with ENTSO-E. The Fourth Energy Package, also called the Clean Energy for all Europeans package is one of Ukraine's benchmarks in restoring and ensuring reconstruction based on the principles of energy efficiency and decarbonization. The Fourth Energy Package is aimed among other things at developing renewable energy sources.

Intensification of efforts aimed at decarbonization of the Ukrainian energy sector, in particular due to the

increase in the share of electricity produced by renewable energy sources and the development of distributed generation requires not only measures to stimulate these segments, but also measures to increase the flexibility of the energy system. The ultimate goal is to put into operation highly maneuverable capacities and storage systems that will provide balancing of unstable power output of solar and wind power plants, and will be a tool for guaranteeing uninterrupted and reliable electricity supply for all categories of consumers.

On June 8, 2023, the first decision to issue a license for energy storage activities was made at National Commission for State Regulation of Energy and Public Utilities meeting. On the one hand, this is a significant event, because energy storage is very important and useful for the energy system, but on the other hand, it is a rather dubious achievement, because at a time when the energy storage systems is being

intensively increased all over the world, the implementation of such installations in Ukraine is at an initial stage.

The purpose of the article is to highlight the role of large energy storage systems in the energy system and the reason for their today’s low development level in Ukraine.

**Analysis of latest research and publications**

The benefits of large energy storage systems and the flexibility they bring to power grids are easy to understand, but often quite difficult to measure. However, the need for their accelerated deployment is obvious. It was confirmed by a study conducted by Frontier Economics [1].

In December 2023, the German government launched a strategy for the development of energy storage systems. In this context, the mentioned study offers important evidence for the future role of energy storage for the German energy system.

According to the study, the volume of industrial storage systems in Germany could increase to 60 GW / 271 GWh by 2050, which proves their great importance for the energy system in the future. The capacity of large storage systems in Germany is forecast to increase to 15 GW / 57 GWh by 2030 caused by battery storage sharply falling costs and an ever-growing demand for energy system flexibility. This corresponds to a forty-fold increase in the storage capacity compared to today’s 1.4 GWh [1].

Due to the decrease in cost and speed of diffusion, storage systems are expected to make significant progress similar to photovoltaic systems in recent years. But the difference is that large-scale storage facilities are built without support from the government and they are purely market-based.

Storage systems can create significant economic value by shifting the time of electricity production from periods of excess to periods of shortage. According to estimates by

Frontier Economics, by 2050 the added value from savings in the wholesale market alone is estimated at approximately 12 billion euros. This includes in particular fuel savings and lower costs due to lower CO<sup>2</sup> emissions. This figure also includes the use of storage facilities to provide system services necessary for the stable operation of the electricity system and participation in intraday electricity markets [1].

The study presents a graph showing the impact of energy storage on reducing price volatility in wholesale markets. Reducing the cost of electricity during periods of high prices leads to an overall reduction in electricity costs for end-users, even though energy storage slightly increases the cost of electricity during periods of low prices.

The construction of new gas-fired power plants in Germany has been faltering for several years and depends on public funding as part of the federal government’s power plant strategy. The modeling by Frontier Economics shows that if large storage systems are not built, in addition to the 26 GW of already planned new gas-fired power plants, a further 9 GW will need to be built by 2030. Although large energy storage systems will not be able to make the construction of gas-fired power plants unnecessary, but they can make a significant contribution to reducing the investment pressure on their financing. However, gas-fired power plants are still needed to ensure supply in the 2030s and should be considered as part of an efficient fleet of time-limited power plants [1].

Until recently, for German politicians the issue of energy storage has been mostly irrelevant. The strategy for the development of energy storage systems released by the German government in December 2023 was the first important step that underlines the serious attitude of the state to the role of storage systems in the context of the energy transition. The strategy aims to support greater

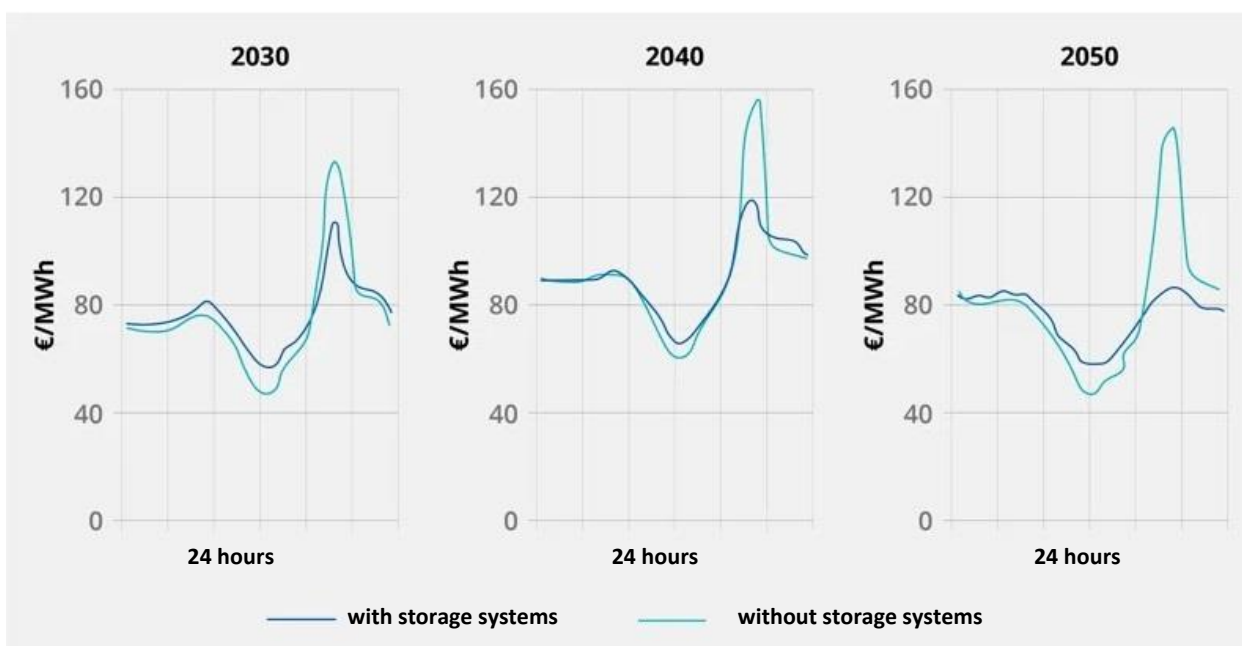


Fig. 1 – Predicted fluctuations in the price of electricity during the day with and without stationary storage systems  
Source: Frontier Economics

deployment of energy storage systems. However, its current version has no clear legislative timetable. Straightforward policy decisions must be made to encourage long-term investment while reducing costs, enhancing energy security and promoting the energy transition in Germany.

An illustrative example of how powerful could be the development of energy storage systems under the condition of attention from the state is China, where energy storage systems are increasingly becoming a key technology for the development of the country’s new energy system, an important direction for the advancement of high-tech sectors of the economy, as well as an important starting point for promoting “green” and low-carbon transformation of energy production and consumption.

According to the National Energy Administration of the People’s Republic of China by the end of 2023 total installed capacity of energy storage projects completed and put into operation throughout the country reached 31.39GW/66.87GWh with an average energy storage time of 2.1 hours. Installed capacity of projects put into operation in 2023 reached 22.6GW/48.7GWh, which is 260% more than at the end of 2022.

The commissioning of these energy storage projects directly contributed to economic investment of more than 100 billion yuan (USD13.9 billion) promoted the expansion of the industrial chain of related industries and became a “new driving force” of the country’s economic development [2].

The huge scale of production and participation in the entire value chain from processing materials to finished products, as well as taking advantage of early adopters in terms of technology and know-how development, enable battery manufacturers from China to offer their products at the lowest prices in the world.

The development of technology and the growth of production capacity around the world will lead to a further decrease in prices within the segment. In this context, attention should be paid to the updated forecast of costs for long-term lithium-ion battery energy storage systems (BESS) until 2050 published by the US National Renewable Energy Laboratory (NREL) in June 2023 [3].

In its study, «Cost Projections for Utility-Scale Battery Storage: 2023 Update», NREL provides a projection of how the cost of capital expenditures for lithium-ion battery energy storage systems will change from 2022 to 2050. The report is based on collected data and forecasts from 16 other publications and uses the example of a four-hour lithium-ion BESS.

The most important conclusion of the study is that costs for energy storage systems from lithium-ion batteries will start to fall in 2023 under the “low” and “medium” cost scenarios, or increase over the next few years under the “high” scenario.

Compared to 2022, NREL estimates that BESS costs will drop by 47%, 32%, and 16% by 2030 under the low, medium, and high cost scenarios, respectively. By 2050, costs could fall by 67%, 51%, and 21%, respectively, under the three scenarios. A significant factor in the decline in the cost of BESS will be the decrease in the cost of the battery cells and units themselves, which can be half the cost of lithium-ion BESS [3].

#### Current state of development of energy storage systems in Ukraine

The Law of Ukraine “On Amendments to Certain Laws of Ukraine on the Development of Energy Storages” which entered into force on 16<sup>th</sup> of June 2022, defined the concept of energy storage activities, introduced licensing requirements for such activities and outlined the types of services connected with it [4].

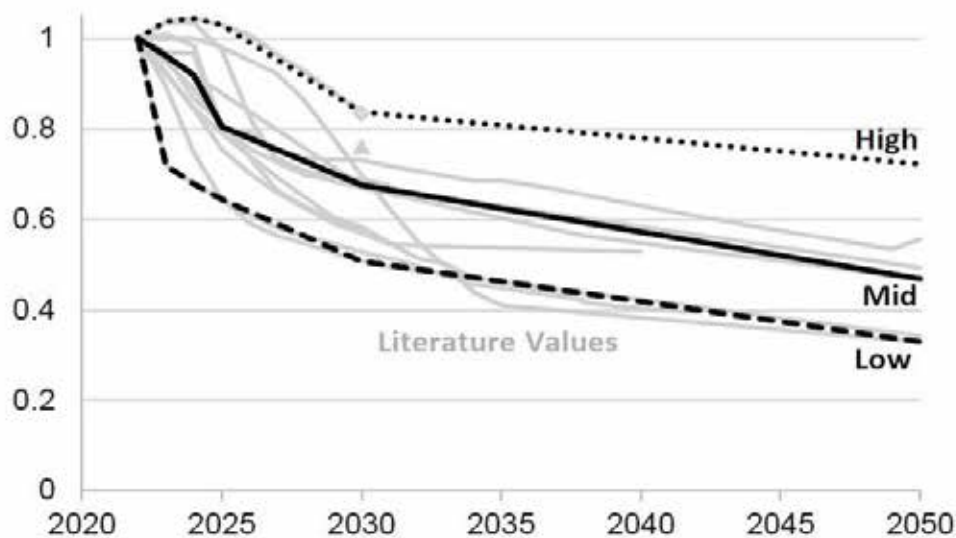


Fig. 2 – Battery cost projections for 4-hour lithium-ion systems, with values normalized relative to 2022.

The “high”, “medium” and “low” scenarios are shown as black lines.

Data from publications used during the research are shown as gray lines.

Source: NREL

The law defines that energy storage is an activity related to the collecting of electricity with the purpose of postponing its final use to a later time than when it was produced.

The law envisages the appearance of a new participant in the electric energy market – the operator of an energy storage facility, and regulates its legal status. The operator of an energy storage facility can be a natural or legal entity (except hydro-accumulating power plants) that uses the energy storage facility for the further sale of electricity, provision of auxiliary services or balancing services.

It is important that according to the law the operator of the energy storage facility pays the fee for the services of transmission of electric energy, distribution of electric energy, fee for the services of dispatch management, only for the amount of the absolute value of the difference between the monthly collection and the monthly release of electric energy by the energy storage facility, which ensures no double billing for these services.

Unfortunately, there is no electricity storage strategy in Ukraine. The project of the Recovery Plan of Ukraine proposed by the National Council for the Recovery of Ukraine from the Consequences of War envisages the construction of pilot projects of energy storage units with a capacity of 50-200 MW in 2023-2025 to ensure balancing of the system and fulfillment of climate obligations. During 2026-2032, it is planned to increase the capacity of energy storage systems to 750 MW – 1 GW [5]. However, there is no plan of measures to implement these goals, as well as sources of their financing. That is, the state expects that it will be carried out by private investors.

But despite loud statements from both government officials and business representatives about the great potential of the energy storage market, as well as the availability of few projects for the construction of large energy storage systems announced by DTEK, MHP and OKKO groups, the implementation of none of them has yet started. The main obstacle in this is the lack of companies' own funds for the realization of such projects, and difficulties in attracting financing from foreign creditors. Undoubtedly, there is a war going on in Ukraine which increases credit risks but investors may be confused by the project payback terms. Let's try to calculate these terms.

Due to the fact that no project for the construction of a large energy storage system in Ukraine has yet been realized there are no data on its cost, while estimated value of the planned projects is a commercial secret. But there is a possibility to make calculations based on the cost of foreign projects.

As the basis for these calculations was chosen the project of South Australian energy infrastructure company Epic Energy, which ordered an energy storage complex from the manufacturer e-STORAGE, which is a subsidiary of the Canadian Solar company. E-STORAGE will deliver a 110 MW / 220 MWh DC system based on lithium-iron-phosphate (LFP) battery cells and start construction of the project in the second quarter of 2024. Epic Energy reported in a separate release that the amount of investment in the specified project will be about USD 130 million [6].

Storage systems can be used for operations on intraday electricity markets, but their maximum efficiency is

achieved when working precisely on the NEC "Ukrenergo" balancing market, where the electricity purchase price is the lowest (from UAH 0.01/MWh), and the sale price is the highest (up to UAH 9000.00 /MWh). However, it should be noted that the volume of electricity trades on the balancing market sometimes, in particular on weekends, would not allow to fully use the installed capacity of the system chosen as an example, and the difference in the price of purchase and sale is not significant, so such periods were not included in calculation.

Below is a table of results of possible electricity purchase and sale operations on the balancing market of the system with an installed capacity of 110 MW / 220 MWh at the auctions of the balancing market of NEC "Ukrenergo" in the directions of unloading and loading, for the period from November 1 to November 30, 2023 [7].

The financial result is given taking into account the efficiency factor of 90%, specified in the characteristics of LFP batteries on the manufacturer's website [8].

If we assume that one dollar is converted at the rate of UAH 38.00, the cost of a similar LFP system in Ukraine could be UAH 4.94 billion. Thus, it will take about 124 such periods, i.e. more than 10 years just to return the initial investment. And this is not taking into account payment for electricity transmission and distribution services, payment for dispatching management services, operating costs, loan servicing, taxes, etc. One of the factors that can improve the situation may be the regulator's permission to enter into agreements on the balancing market at negative prices, in which case the power generation will have a choice, either to limit its own capacity, or to pay extra for the produced electricity to the consumer. But this will be possible only when a sufficient amount of storage systems is already put into operation.

It should be understood that the state of affairs in Ukraine is not unique. Given the current prices on the world market of energy storage systems, it is not worth counting on a quick return on investment, but this does not stop European companies, because for them funding for such a long term is not problematic. As for Ukraine, taking into consideration the military risks, it can be quite difficult.

In the current situation, the role of the state comes to the forefront, it has to either create attractive conditions for private investors or build the necessary facilities on its own – and this may be the right decision, because it should be considered as an investment in the development of infrastructure, similar to the construction of highways.

The Ukrainian energy system is unbalanced, the commissioning of two nuclear power units, announced by the Ministry of Energy, will add basic load to the energy system, but not only will not solve the problem of its balancing but rather increase it. Balancing the energy system by increasing or decreasing the load of coal-fired TPP units impacts negatively on their operational capabilities, while the construction of highly maneuverable gas capacities requires time and large amounts of funding.

The state could motivate private investors by approving at the legislative level tax credits for energy storage systems, but unfortunately as long as hostilities continue on the territory of Ukraine, and there is a threat of missile

Table 1

Date	Balancing energy weighted average price for downward, UAH/MWh	Balancing energy weighted average price for upward, UAH/MWh	Financial result, UAH
01.11.2023	11,56	8 281,20	1 637 388,72
02.11.2023	11,89	8 042,42	1 590 044,94
03.11.2023	0,01	8 843,75	1 751 060,52
04.11.2023	499,00	6 249,94	1 138 686,12
05.11.2023	0,01	6 749,90	1 336 478,22
06.11.2023	0,01	7 112,00	1 408 173,03
07.11.2023	0,01	7 135,74	1 412 874,54
08.11.2023	12,37	8 868,45	1 753 502,85
09.11.2023	9,25	8 923,91	1 765 102,68
10.11.2023	2,65	8 542,99	1 690 987,32
11.11.2023	12,35	6 886,36	1 361 053,98
13.11.2023	0,01	8 935,53	1 769 231,97
15.11.2023	2,61	7 249,98	1 434 980,25
16.11.2023	2 585,00	8 931,21	1 256 548,59
17.11.2023	2 689,50	7 899,32	1 031 543,37
18.11.2023	925,01	8 060,00	1 412 729,01
19.11.2023	1 400,00	7 171,09	1 142 675,82
20.11.2023	322,50	7 900,62	1 500 467,76
21.11.2023	1 750,00	7 921,25	1 221 907,50
22.11.2023	0,01	6 924,50	1 371 048,03
23.11.2023	0,01	6 922,49	1 370 650,05
24.11.2023	687,50	8 337,88	1 514 774,25
25.11.2023	675,01	8 276,05	1 505 006,91
26.11.2023	480,00	8 934,94	1 674 077,13
27.11.2023	0,01	7 750,00	1 534 497,03
28.11.2023	2 766,50	8 928,82	1 220 139,36
29.11.2023	2 550,00	8 910,02	1 259 283,96
30.11.2023	2 270,00	7 000,00	936 540,00
		In general	40 001 453,91

Source: Energy Map

attacks in any region, even in the case of adopting such a legislative decision a massive influx of investments it's unlikely to be expected.

Another way of funding could be grants, both from the EU and from financial funds, such as Denmark IFU or Netherlands FMO. But it requires the government's hard work to develop a strategy for the implementation of energy storage systems, as well as the development of new projects and the support and promotion of existing projects, including private ones.

The recovery of industry and the repatriation of Ukrainian refugees after the victory will cause an overload on the power system which simply cannot be able to cope with new challenges. That will lead to massive blackouts and huge losses. In any case, there are no simple and most importantly cheap ways to solve the problem of the imbalance of the energy system of Ukraine. It is necessary to act and find sources of financing now because procrastination in solving this problem will cost much more in the future.

## Conclusions

- intensification of efforts aimed at decarbonization of the Ukrainian energy sector requires among other things, putting into service of energy storage systems which have to increase the flexibility of the Integrated Power System of Ukraine;
- the latest studies prove the need to boost the installed capacity of energy storage systems, which will provide balancing of the unstable power output of solar and wind power plants and become a tool for guaranteeing continuous and reliable electricity supply for all categories of consumers;
- implementation of projects for the construction of energy storage systems in Ukraine is hindered by long pay-back periods and a lack of cheap financing;
- the state must play a key role in the development and implementation of the strategy for the advancement of energy storage systems in Ukraine.

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## INCREASING THE COMPETITIVENESS OF ENTERPRISES WITH THE HELP OF MODERN INTERNET TECHNOLOGIES

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Internet technologies, sales,  
profitability, artificial intelligence.

The article is devoted to the main ways to increase the competitiveness of enterprise through the introduction of modern Internet technologies. The authors substantiate that in the context of rapidly growing competition in the market, enterprises need to constantly improve their competitiveness in order to increase sales and improve profitability. It has been proved that Internet technologies are a powerful tool for improving the performance of an enterprise, as they give it the opportunity to attract new customers, increase the loyalty of current consumers, speed up the processes of ordering and delivery of goods, as well as optimize other processes in the company's activities. The authors analyze the general state of the internal and external environment of the organization and, on the basis of this, put forward specific proposals on the feasibility of introducing Internet technologies in its further activities.

## ПІДВИЩЕННЯ КОНКУРЕНТОСПРОМОЖНОСТІ ПІДПРИЄМТВА ЗА ДОПОМОГОЮ СУЧАСНИХ ІНТЕРНЕТ-ТЕХНОЛОГІЙ

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інновації, інтернет-технології,  
продажі, рентабельність,  
штучний інтелект.

Стаття присвячена основним способам підвищення конкурентоспроможності підприємства шляхом впровадження сучасних інтернет-технологій. Авторами обґрунтовано, що в умовах швидко зростаючої конкуренції підприємствам необхідно постійно удосконалювати свою конкурентоспроможність з метою збільшення обсягів продажів та підвищення рентабельності. Було доведено, що інтернет-технології є потужним інструментом для підвищення результативності діяльності підприємства, оскільки вони дають йому можливість залучати нових клієнтів, підвищувати лояльність поточних споживачів, прискорювати процеси замовлення та доставки товарів, а також оптимізувати інші процеси в діяльності компанії. Авторами аналізується загальний стан внутрішнього та зовнішнього середовища організації та на основі цього висувуються конкретні пропозиції щодо доцільності впровадження інтернет-технологій у подальшу її діяльність.

### Statement of the problem

The process of increasing competitiveness is essential for an enterprise and determines its success in the market. Its effectiveness depends on how accurately the company determines the needs of its customers, what products and services they need, and how successfully it can promote its products on the market, especially in wartime. Therefore, a properly developed strategy for increasing competitiveness can help the company increase sales and earnings, expand its customer base and increase economic efficiency.

### Analysis of recent studies and publications

The work is devoted to the study of theoretical problems of competitiveness of enterprises in market conditions I. Ansoff, M. Porter, A. Cournot, Zh. -Zh. Lamben, F. Kotler, D. Campbell, B. Houston and others. Practical questions of the study of the influence of sales and marketing activities on the competitiveness of the enterprise are considered in the publications of G. L. Bagiyev, I. Z. Dolzhan-skyi, G. P. Gogol [1], L. V. Balabanova [2], Yu. E. Petruni, T. E. Andreeva [3], N. V. Terent'eva [4]. The role of Internet



technologies in increased competitiveness was studied by such scientists as O. P. Karpil, Yu. A. Vynogradskaya [5], I. L. Lytovchenko [6], O. M. Palivoda [6].

**Objectives of the article**

The aim of the article is to develop practical aspects to improve the competitive activity of enterprise with the help of modern Internet technologies on the example of Nova Poshta LLC.

**Statement of the main material**

Effective economic activity is a prerequisite for the successful functioning of any enterprise, since it determines the volume of sales of products and the provision of services. A successful business strategy allows you to attract new customers, increase market share, strengthen market position and increase the profitability of the enterprise. In addition, economic competitive activities include important processes such as marketing, sales, logistics, customer service, and sales management. The implementation of these processes at a high level allows the company to meet the needs of customers, establish long-term relationships with them and maintain a competitive advantage in the market [2, p. 148].

It is fair to say that Internet technologies allow you to attract new customers, increase sales, increase customer loyalty, reduce sales costs, increase competitiveness, as well as open access to various information sources and provide the opportunity to interact with your business partners [7, p. 2]. Table 1 describes the common Internet technologies in modern entrepreneurial activity.

We believe that using all the advantages of Internet technologies allows enterprises to provide their customers with additional useful information about their products and services, as well as to answer their questions and requirements.

To develop practical recommendations for the use of Internet technologies to increase the competitiveness of the enterprise, we chose Nova Poshta LLC. Nova Poshta LLC is a Ukrainian private enterprise specializing in the delivery of documents, cargo and parcels to both individuals and legal entities in Ukraine and abroad.

Let's analyze the main indicators of the financial and economic activities of the enterprise Nova Poshta LLC, using the Balance Sheet of the enterprise (form 1).

Analysis of the table data shows that:

- assets for 2022 increased by 4.1% (by UAH 148,421) compared to 2020, which indicates an increase in the property potential of the enterprise;
- working capital increased by 2.9% (by UAH 69,109) due to an increase in inventories by 1.2% (by UAH 9,988) and accounts receivable by 0.9% (by UAH 2.78);
- Thanks to profitable activities, the company was able to increase its own capital. Thus, equity increased by 2.4% (by UAH 43,875) due to an increase in the company's retained earnings and a decrease in some items of liabilities;
- Long-term liabilities decreased by 1.9% (by UAH 19,770), while current liabilities, on the contrary, increased by 16.3% (by UAH 124,316).

The results of the analysis of financial results showed the following:

- net income from the sale of products (goods, works, services) of the company increased by 18.9% (by UAH 1,213,000);
- gross profit increased significantly by as much as 36.9% (by UAH 1,959,841);
- the cost of goods sold (goods, works, services) increased, namely by 17.3% (by UAH 239,289);
- profit from operating activities decreased significantly by 467.9%, which was the result of an increase (by 14.3%) in administrative expenses.

Table 1 – Widespread Internet technologies in business activities

Technology	Characteristics
Website development	Creating a website allows a business to create an online business card where it can post detailed information about its products and services, prices, contact details and other useful information for customers. In addition, a website can become a platform for selling goods and services that operates around the clock and is not limited by geographical boundaries. [5, p. 214-215].
Advertising on the Internet	Thus, online advertising is an effective marketing tool for businesses. Its main advantage is that it allows promoting goods and services to a wide audience at minimal cost compared to traditional advertising methods, such as television, radio or the press [9, p. 505]. Thanks to online advertising campaigns, businesses can set up targeted advertising for specific audience groups, taking into account their interests and online behaviour. [6, p. 143-144].
Social media	Thus, social media has become an important marketing tool for businesses, as it allows them to interact with the audience and build relationships with potential and existing customers. Thanks to social media, businesses can promote their products and services, interact with their audience and receive feedback from customers [8, p. 95-96].
Email marketing	Through email marketing, businesses can send personalised emails with special offers, news and promotions, which helps to attract customers' attention to their products and services. In addition, email marketing allows businesses to increase customer loyalty and increase sales, as it helps to maintain communication with the audience and reminds them of the brand [7, p. 2].
Mobile applications	Today, almost everyone has a smartphone, so creating a mobile app for an enterprise can be a great option for attracting new customers and increasing the loyalty of old ones. Mobile apps allow businesses to interact with their customers via mobile devices, which helps to increase loyalty and sales.
Analytics and data tracking	Internet technologies allow businesses to analyse data about their sales, customers and the market, which enables them to make better decisions and increase the efficiency of their sales activities.

Table 2 – Analysis of the property status (balance sheet) of Nova Poshta LLC

Indicators	2020		2021		2022		Deviations 2022/2020	
	thousand UAH.	Specific gravity %.	thousand UAH.	Specific gravity %.	thousand UAH.	Specific gravity %.	+,-	%
<b>ASSETS</b>								
1. Non-current assets	1,312,000	36,2	1,384,121	19,5	1,391,312	20	79,312	6,0
including property, plant and equipment	623,122	17,2	633,321	6,5	648,421	7	25,299	4,1
2. Current assets	2,312,123	25	2,340,331	25,5	2,381,232	26	69,109	2,9
incl. inventories	821,333	22,7	825,123	6,5	831,321	7	9,988	1,2
Trade and other receivables	312,321	8,6	314,343	3,5	315,101	3,7	2,78	0,9
<b>LIABILITIES</b>								
1. Equity	2,058,632	51,3	2,079,453	50,5	2,102,507	50,4	43,875	2,4
2. Long-term liabilities and collateral	1,001,234	27,6	978,564	26,3	981,464	26,0	-19,770	-1,9
3. Current liabilities and provisions	764,257	21,1	866,435	23,3	888,573	23,6	124,316	16,3
<b>BALANCE:</b>	<b>3,624,123</b>	<b>100%</b>	<b>3,724,452</b>	<b>100%</b>	<b>3,772,544</b>	<b>100%</b>	<b>148,421</b>	<b>4,1</b>

Table 3 – Analysis of the financial results of Nova Poshta LLC

Indicators	Years			Deviation 2022 to 2020	
	2020	2021	2022	+,-	%
	Net income from sales of products (goods, works, services)	5,207,000	6,300,140	6,420,000	1,213,000
Cost of sales (goods, works, services)	1,141,071	1,241,056	1,380,360	239,289	17,3
Gross profit	3,340,281	5,180,221	5,300,122	1,959,841	36,9
Other operating income	209,486	172,486	131,264	-78,222	-59,6
Administrative expenses	54,068	57,031	63,110	9,042	14,3
Selling expenses	57,982	57,452	57,229	-753	-1,3
Other operating expenses	271,179	243,179	221,478	-49,701	-22,4
Financial result from operating activities: profit	335,907	248,907	59,153	-276,754	-82,4
Financial expenses	-	-	1 142	-	-
Other expenses	183	356	952	769	80,8
Financial result before tax: profit	335,724	214,724	57,059	-278,665	-83,0
Income tax expense (income)	62,824	32,865	13,184	-49,640	-79,0
Net financial result: profit	5,207,000	6,300,140	6,420,000	1,213,000	18,9

Table 4 – Dynamics of indicators for assessing the financial condition of Nova Poshta LLC

Indicators	Years			Deviation 2022 to 2020, %
	2020	2021	2022	
Total liquidity ratio	2,5	2,6	3,0	0,5
Quick ratio	2,1	1,9	2,4	0,3
Absolute liquidity ratio	1,8	1,9	2,1	0,3
Coefficient of autonomy	0,9	1,1	1,3	0,4
Financial stability ratio	1,5	1,5	1,6	0,1
Financial leverage ratio	0,5	0,5	0,4	-0,1
Profitability of economic activity, %	17,2	25,0	53,8	36,6
Return on assets, %	21,4	23,9	25,1	3,7
Return on equity, %	94,4	94,6	96,1	1,7

Let's calculate the main coefficients for assessing the financial condition of Nova Poshta LLC, and the results of the analysis will be compiled in Table. 4.

Indicators of financial stability indicate the high provision of Nova Poshta LLC with its own financial resources. Profitability tends to increase, which indicates an increase

in the efficiency of the enterprise. It has a high level of liquidity, which means it is solvent. In addition, they show growth in dynamics.

In our opinion, when studying the market environment of an enterprise, it is important to assess the impact of various factors on its activities. In particular, PEST analysis, which is a marketing tool for analyzing the impact of political, economic, social and technological factors on the company's activities.

Table 5 shows a list of factors of Nova Poshta LLC using the PEST analysis method.

Thus, the main factors of the external environment that have the greatest impact on the activities of Nova Poshta LLC are: stability of the political situation in Ukraine; development of the economy and increase in consumer demand in the market; changes in consumer needs and demand; development of technology.

It is also expedient to study the competitiveness of the enterprise with the help of SWOT analysis – a tool for strategic planning based on the study of the interaction of factors of the internal (strengths and weaknesses of the enterprise) and external (potential threats and existing

opportunities) environment. The results of the SWOT analysis of Nova Poshta LLC are shown in Table 6.

Thus, Nova Poshta LLC should pay attention to the implementation of a strategy to eliminate the existing weaknesses by using the existing capabilities of the enterprise.

We believe that the main directions of improving the competitiveness of Nova Poshta LLC with the help of Internet technologies are:

1. Development of e-commerce: expanding the range of goods and services on the company's website, improving the quality of the virtual environment for customers.

2. Mobile App Development: Expanding the features of a mobile app that allows customers to track their shipments, order delivery, and use the company's services.

3. Improving customer service: developing new interactive forms of customer interaction, such as chatbots, improving the quality of answers to customer questions, quickly solving customer problems.

4. Implementation of a loyalty system: creating a loyalty program for customers that allows you to attract new and retain regular customers, as well as encourage them to use the company's services more actively.

Table 5 – List of factors of Nova Poshta LLC according to the PEST-analysis method

Political factors (P)	Economic factors (E)
1. The stability of the political situation in Ukraine has a positive impact on the business climate, which is conducive to the company's development. 2. Legislative changes related to taxation and regulation of logistics services may have an impact on the company's operations.	1. Economic development and increased consumer demand in the market may have a positive impact on the company's development. 2. Dependence on the currency exchange rate and inflation may adversely affect the company's financial performance. 3. Competition and salary increases may increase the cost of staff retention.
Social factors (S)	Technological factors (T)
1. Changes in consumer needs and demand may affect the choice of services and methods of obtaining them, which may affect the company's operations. 2. Changes in demographics and cultural environment may affect consumer behaviour and choice of services.	1. Advances in technology can help improve and optimise a company's delivery and logistics processes. 2. The risk of technology obsolescence and competition in the market may influence the need for continuous improvement of technologies and increase of investments in this area.

Table 6 – SWOT analysis of Nova Poshta LLC

Strengths	Weaknesses
1. A wide network of branches and warehouses throughout Ukraine, which ensures high availability of services to customers. 2. High level of technological equipment and process automation, which ensures efficient and fast operation of the company. 3. Extensive experience in logistics and cargo transportation, which allows us to provide high quality services.	1. High costs of developing a network of branches and warehouses. 2. Dependence on economic and political factors in Ukraine, which may adversely affect the company's operations. 3. Insufficient understanding of consumer needs and customer preferences. 4. High competition in the labour market and rising wages.
Potential opportunities	Threats and challenges
1. European integration processes in Ukraine. 2. Expansion of the network of branches and warehouses throughout Ukraine. 3. Expanding the range of services. 4. Use of the latest technologies to improve the quality and efficiency of services. 5. Development of transport and logistics in cities and regions with a high level of economic development and consumer demand. 6. Entering the international market and expanding cooperation with international logistics companies. 7. Active advertising campaign and promotion of the company's brand in the market.	1. A full-scale Russian invasion. 2. Economic and political instability. 3. Competition in the logistics market from national and international companies. 4. Political and economic instability in Ukraine. 5. Risks associated with changes in legislation in the field of logistics and cargo transportation. 6. Decrease in demand for delivery services due to a decrease in consumer demand in the market. 7. Changes in the popularity of e-commerce and an increase in the number of purchases in physical stores.

5. Use of social networks: actively work with your social media accounts, launch promotions and contests, attract new customers through advertising on social networks.

6. Data analysis and optimization: the use of information about customers and their behavior on the site to improve sales processes and increase the effectiveness of advertising campaigns [9, p. 54].

7. Using artificial intelligence and machine learning to analyze customer behavior and predict their needs. Artificial intelligence can help a company analyze large amounts of data collected about shoppers, their purchases, habits, and behavior. Based on this data, you can develop forecasts about the demand for goods and services, as well as determine which products and services are most popular among customers.

8. The use of blockchain technology to ensure the security and reliability of transactions and reduce the cost of intermediary services.

9. The use of blogging technology, which allows companies to create interesting and departmental content that attracts attention and arouses the interest of potential customers [10, p. 161].

10. Implementation of online chat and video conferencing technology to ensure fast and efficient communication with customers.

The introduction of artificial intelligence to improve the company's competitiveness can have a significant positive effect on the economic activities of Nova Poshta LLC.

The main benefits of using artificial intelligence in sales include:

1. Process automation: AI allows for the automation of many routine tasks, such as order processing and mail distribution, and can also help to reduce the time it takes to complete these tasks and reduce human error, which can lead to increased employee productivity and a reduction in the number of employees required to complete these tasks.

2. Increased efficiency: The application of artificial intelligence allows you to analyze large amounts of data and develop forecasts about the demand for goods and services, which allows you to plan the supply and distribution of goods more efficiently.

3. Improved customer service: AI can help a company respond to customer questions and suggestions quickly and accurately, as well as offer customized offers and recommendations based on information about their previous shopping experiences.

4. Cost Reduction: The implementation of AI can help reduce the cost of forecasting, logistics optimization, and resource planning.

5. Increased productivity: The application of AI can help to reduce data-related errors, which reduces the time it takes to resolve issues and increases employee productivity.

To assess the economic efficiency of the implementation of artificial intelligence at Nova Poshta LLC, we will analyze the following:

1. Automation of order processing and mail distribution can reduce labor costs associated with these processes.

Thus, the average salary of a specialist at Nova Poshta LLC is UAH 15,000 – 30,000 per month [11]. If, for example, the automation of orders will reduce the number of specialists by 20%, it can lead to savings from 3,000 to 6,000 UAH per month for each specialist.

2. Applying AI to improve employee performance can help reduce errors and increase productivity.

Thus, according to the State Statistics Service of Ukraine, the average salary of an information technology worker in Ukraine is UAH 30,000 – 50,000 per month. If it is possible to reduce the number of errors and increase the productivity of employees with the help of artificial intelligence, it can lead to savings from 6,000 to 10,000 UAH per month for each employee of the enterprise [12].

Overall, the cost of implementing AI will depend on the specific projects and solutions that will be implemented. However, the use of artificial intelligence can lead to significant savings in labor costs, reduced unsold inventory, and optimized logistics.

### Conclusions

Thus, internet technology can be a very useful tool for businesses in their sales activities. Modern technologies allow you to attract new and increase the loyalty of regular customers, automate sales processes, conduct online training and receive important information about your customers. Additionally, internet technology is becoming more accessible and widespread, so businesses that use it may have an edge over their competitors.

We believe that the introduction of AI can bring significant benefits to Nova Poshta LLC, in particular, reduce the cost of operations and increase the efficiency of business processes. At the same time, it is worth noting that the cost of implementing artificial intelligence can be significant, but it can be justified in terms of increasing the company's competitiveness. Therefore, before implementation, it is necessary to carefully analyze the cost and expected results in order to make the best decision.

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## INNOVATION-DRIVEN DEVELOPMENT OF THE ECONOMIC RECONSTRUCTION OF UKRAINE IN THE POST-WAR PERIOD

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### Key words:

innovation policy, clusters, post-war economic reconstruction, innovative projects, export, startups, National Research Fund, unmanned aerial vehicles, high-tech sectors.

The article considers key aspects of innovation policy within the framework of post-war economic reconstruction, specifically from the perspective of world experience and analysis of best practices of countries that survived the wars. It was indicated that innovation is a determining factor in competitiveness and reconstruction of the economy after military conflicts. It is emphasized that countries that actively invest in science, technology and startups achieve significant economic growth. Interpreting the experience of Israel and other countries, the article demonstrates that a successful innovation policy requires a clear strategy and coordination between government structures, academic institutions and the private sector. For Ukraine, suffering from the consequences of the war, this means the necessity to establish specialized organizations to coordinate innovative initiatives and support scientific developments.

Special attention is given to the role of state financing of innovative projects through the National Research Fund, which in Ukraine is essential to the development of scientific potential and the designing innovative products. In the article, the emphasis is placed on the importance of integrating scientific achievements into market mechanisms to ensure sustainable economic development.

Finally, Ukraine's prospects are discussed with reference to increasing exports, development of high-tech sectors and startups, which can become catalysts for the growth of the national economy under the conditions of post-war reconstruction. Taking into account the above-mentioned experience of the countries, the article recommends that for Ukraine it will be important to actively invest in the development of high-tech industries and support innovative projects as a strategic course for overcoming economic challenges after the conflict.

Therefore, the article highlights the key aspects of innovation policy in the post-war period and is indicative of the importance of a multifaceted approach to its implementation in order to achieve sustainable economic development of Ukraine.

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## ІННОВАЦІЙНИЙ РОЗВИТОК ВІДНОВЛЕННЯ ЕКОНОМІКИ УКРАЇНИ В ПОВОЄННИЙ ПЕРІОД

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### Ключові слова:

інноваційна політика, кластери, повоєнне відновлення економіки, інноваційні проекти, експорт, стартапи, Національний фонд досліджень, безпілотні літальні апарати, високотехнологічні сектори.

Стаття розглядає важливі аспекти інноваційної політики в контексті повоєнного відновлення економіки, зокрема через призму світового досвіду та аналізу кращих практик країн, що пережили війни. Визначено, що інновації є ключовим фактором конкурентоспроможності і відновлення економіки після воєнних конфліктів. Зазначено, що країни, які активно інвестують у науку, технології та стартапи, досягають значного економічного зростання. Аналізуючи досвід Ізраїлю та інших країн, стаття показує, що успішна інноваційна політика вимагає наявності чіткої стратегії та координації між урядовими структурами, академічними установами та приватним сектором. Для України, що потерпає від наслідків війни, це означає необхідність створення спеціалізованих організацій для координації інноваційних ініціатив та підтримки наукових розробок.

Особлива увага приділяється ролі державного фінансування інноваційних проєктів через Національний фонд досліджень, який в Україні відіграє стратегічну роль у розвитку наукового потенціалу та створенні інноваційних продуктів. В статті підкреслюється важливість інтеграції наукових досягнень у ринкові механізми для забезпечення сталого економічного розвитку.

Нарешті, обговорюються перспективи України в контексті збільшення експорту, розвитку високотехнологічних секторів та стартапів, що можуть стати каталізаторами зростання національної економіки в умовах відновлення після воєнних дій. Враховуючи вищезгаданий досвід країн, стаття рекомендує Україні активно інвестувати у розвиток високотехнологічних галузей та підтримку інноваційних проєктів як стратегічний курс для подолання економічних викликів після конфлікту.

Отже, стаття висвітлює ключові аспекти інноваційної політики у післявоєнний період та вказує на важливість комплексного підходу до її реалізації для досягнення сталого економічного розвитку України.

### Statement of the problem

Ukraine has to deal with numerous challenges due to the consequences of the war and the necessity to restore the economy in the post-war period. According to world practice, the period of reconstruction after armed conflicts and wars requires the proper policies to ensure the development of all spheres, including the economy. The main issue is the integration of innovation policy as a driving force for economic reconstruction and growth.

### Analysis of recent researches and publications

With a view to developing an effective innovative policy and strategy for the reconstruction of Ukraine's economy after the war, it is important to consider the latest research and publications in this field. Yatskevich I. V.

Bila I. S., Posna V. S., Shevchenko O. O. investigated the innovation policy of the state taking into account the Global Innovation Index. Investigation shows that innovation is the main engine of economic growth and competitiveness of countries. The introduction of new technologies, the development of scientific research and the provision of a background for innovative business significantly increase economic indicators. Rusnak I., Melikhov O., Oleg Ya., Vladislav Sh., Gilova G. give consideration to the development of the defense industrial complex, namely the UAV market, as an innovative economic and military breakthrough. The investigation highlights the importance of the development of unmanned aerial vehicle technology for military and civilian needs. Ukraine has great potential in this area, which can contribute not only to technological development, but also to attracting investments.

Analysis of the latest research and publications confirms that innovation policy is a determining factor in the reconstruction and development of Ukraine's economy after the war. The use of international practice, promotion of exports, development of innovation clusters and introduction of new technologies can ensure sustainable economic growth and competitiveness of the country in the world market.

### Objectives of the article

The purpose of this study is to determine the main instruments of Ukraine's innovation policy in the post-war period and to develop an investment strategy for the

reconstruction of the economy with an emphasis on improving Ukraine's innovation policy.

### The main material of the research

Ukraine faces many challenges due to the consequences of the war and the reconstruction of the economy in the post-war period. As the world practice of armed conflicts and wars shows, after their end, a period of reconstruction, and the development of all spheres, including the development of the economy, depends on the proper policy.

First and foremost, it is important to define what the term "innovation policy" means. The innovation policy of the state is an integral implementation of the strategic priorities of innovative reconstruction and development of the country's economy in sectors and regions, balanced with the intellectual potential and production resources of the regions based on knowledge and innovation [1].

To begin the reconstruction of the economy after the war, it is important to generate comprehensive reconstruction programs, find sources of investment and determine socio-economic developmental factors. Under current conditions, innovation is a critical driver of economic reconstruction. International practice confirms the positive impact of innovations on the country's competitiveness, and their absence can lead to the loss of competitive positions.

The most innovatively developed are Asian countries such as Singapore, Japan and South Korea, in North America – the USA and Canada, in the Middle East – Israel, and among European countries – Germany, Sweden, Switzerland, Denmark and Finland [2].

Thus, the World Intellectual Property Organization (WIPO) in the published annually report of Global Innovation Index 2023 reflects the development of global innovation trends in a period of complete uncertainty of the world economy [3].

The rating is based on more than 80 indicators and determines the level of innovation development in different countries of the world. Specifically, in our region the top rating countries are: Switzerland, Sweden and Great Britain. In the global innovation index, Switzerland, Sweden and the USA rank the first, while Ukraine ranks 55th out of 132 possible countries, and 34th among European

countries, having fallen by 6 positions since 2021, from ranking 49th to 55th [1].

In the post-war period, the innovation strategy should be aimed at achieving long-term socio-economic goals, among other things at the restoration of high-quality fixed capital. This is achieved by developing a forecast of scientific and technological development and using a complex methodology when generating state programs, investment and innovation projects. It matters that these arrangements are properly integrated into market mechanisms and promote the creation of a favorable innovation environment. State promotion of investment processes in various sectors should consider the necessities of the market and ensure the security of the country.

After analyzing the practice of other countries that experienced armed hostilities, it is now becoming apparent that the successful implementation of innovation policy in the post-war period required the establishment of specialized organizations that coordinated and managed the introduction of new technologies. This approach is also recommended for Ukraine, specifically in regarding the reorientation of the activities of the National Research Fund.

The fund is a critical instrument of state policy, aimed at financing measures promoting the development of science as the determining factor of economic growth. The main goals of the Fund are:

- provision of incentives for fundamental and applied scientific research, development of the national research space and its integration into the world research space;
- development of research infrastructure in Ukraine and its integration into the world one;
- promoting the establishment of scientific and technical cooperation between scientific institutions, institutions of higher education and representatives of the practicable sector of the economy and the service sector;
- people-to-people exchange of information and scientists, involvement of students and college youth in scientific and technological activities;
- production (branch) based scientific institutions by arranging tenders at the request of central executive bodies or other customers, subject to the fact that such central executive bodies or customers provide appropriate funds;
- popularization of scientific and technological activities [4].

Nevertheless, it is necessary to focus attention on finding and implementing research results, ensuring the availability of funding and protecting intellectual property [1].

The reconstruction of Ukraine should be aimed at investing in sustainable companies and infrastructure development. The growth of export volumes, the extension of value-added chains in agribusiness, the production of environmentally friendly steel and the support of IT startups will contribute to the country's economic growth [5].

Studies confirm that policies promoting to trade and increased exports can contribute to the growth of a country's GDP. Exports contribute to the productivity of companies, while the structure of exports affects the overall development of a country. Therefore, the strategy of increasing exports may be appropriate for the future economic development of Ukraine. The transition to the production of

goods with a higher added value may be a smart move, considering that the majority of Ukrainian exports are currently raw materials and semi-finished products.

To deal with the issue how export promotion has contributed to economic growth, let's look at examples of countries that have successfully implemented this strategy and made significant progress. The best practices of these countries confirm that prioritizing export sectors, in particular those with higher added value, may become a determining factor for growth. Other important catalysts are investment in innovative high-tech industries, support for research and development, and reskilling of the workforce.

The first group of countries under consideration includes the Republic of Korea, Hong Kong, Taiwan and Singapore, which are known as the "Four Asian Tigers". The main driving power of their economic growth in the second half of the 20th century was export orientation and a strict policy in the field of innovation development. These countries took different approaches, with Singapore and Hong Kong implementing neoliberal trade regimes, while Taiwan and South Korea adopted hybrid regimes suited to their export businesses, including incentives for commodity exports.

It is important to emphasize that the main focus was on exporting products with high added value. For all four "Asian tigers", the largest export sectors in 2020 were: electrical equipment, equipment and spare parts; devices for recording and reproducing television images and sound, as well as parts and accessories for such products; nuclear reactors, boilers, machines and mechanical devices.

Israel has been holding a course to transform its economy since the mid-1970s, prioritizing innovative, high-tech sectors. Furthermore, the country has concentrated on the development of the defense industry, which includes the production of complex military systems for the domestic market and export. Today, Israel is among 10 largest exporters of military equipment. This practice can be a useful case study for Ukraine, which also has a significant domestic demand for military equipment and the potential to become a leading arms producer [6].

Over recent years, Israel has turned into an innovative economy with a high rate of development. The country entered the top 10 of the Bloomberg Innovation Index 2021 due to government programs aimed at supporting the science and technology sector. Over the past 10 years, Israel has spent more than 4% of GDP on government research and development, and that amount is growing. High-tech industries are prosperous in Israel, contributing to economic growth. Technology-enabled manufacturing grew by more than 10% in 2021, maintaining its share of GDP at 15.3%. Moreover, in 2021, high-tech exports accounted for 54% of Israel's overall exports. This is an example for Ukraine, where high-tech industries currently account for about 5% of GDP [7].

In view of the territorial proximity to the potential danger and excluding the possibility of a quick conflict management and a change in the imperial policy of the neighboring country, Ukraine should draw attention to the model of economic development using the example of Israel.

Israel actively promotes innovation, which is represented by the establishment of Yissum in 1964, which is



the technology transfer center of the Hebrew University of Jerusalem. During its existence, Yissum registered 10,700 patents for 3,000 inventions, licensed more than 1,000 technologies and launched 170 startups. This contributed to attracting more than 2 billion dollars of investments. Israel is known for its support of entrepreneurship, innovative approaches and inventions financed through loans, grants and government funding [8].

In in the space of 10 years starting in 1954, Israel’s GDP grew by about 10% annually, and per capita consumption increased by 221%. The country practically achieved zero unemployment and was able to attract significant investments, establishing a framework of its industry [9].

Consequently, according to the GII, Israel ranks 14<sup>th</sup> in the overall rating and ranks the first in the North African region [3].

Let’s consider Ukraine’s rating over the past 5 years and analyze trends and prospects for development. The data are shown in Fig. 1.

Based on the results obtained, we can arrive at the conclusion that before the full-scale invasion, Ukraine improved its indicators, but with the beginning of open armed aggression, the indicators deteriorated and the country lost several positions in the rating, which indicates a deterioration of the innovation and investment climate.

In 2023, Ukraine ranked 49<sup>th</sup> in the annual rating of startup ecosystems Global Startup Ecosystem Index 2023 by the Global Startup and Innovation Research Center StartupBlink. The country has deteriorated its ranking by 15 positions compared to 2022, when it ranked 34<sup>th</sup>. StartupBlink, associated such an aggressive reduction along with the full-scale war in our country, which could not but affect the Ukrainian system of startups [14].

In the process of development and implementation of innovative policy in the post-war period, all ministries of the country should be involved. They should develop a general strategic concept of innovative development, as well as form targeted national security and development programs. State policy should contribute to the creation of a positive environment for innovative development through:

- Support for reforms of higher educational institutions, focusing them on innovation;
- Creation of incubators and support of enterprising individuals in the creation of startups together with companies and research institutes, orienting them to the needs of national and international markets;
- Reduction of taxes and social benefits to reduce the burden on companies that take innovative risks;
- Barrier lowering to enter markets with a high potential for innovation;
- Ensuring access to venture capital, especially for startups;
- Improvement of mechanisms for the protection of intellectual property rights.
- Adopting the experience of other countries and implementing innovative policies in the military-industrial complex.

It is worthwhile noting that in the post-war period, the development of entrepreneurial activity in different regions of Ukraine will be unequal due to the consequences of military actions (for example, in Bucha, Iziium, Irpen, Mariupol, Mykolaiv, Zaporizhzhia). This will contribute to the creation of innovation clusters, which are a complete system of enterprises and organizations engaged in the production and consumption of innovative products. Clusters cover the entire innovation chain – from the development

Ukraine's rating in the Global Innovation Index

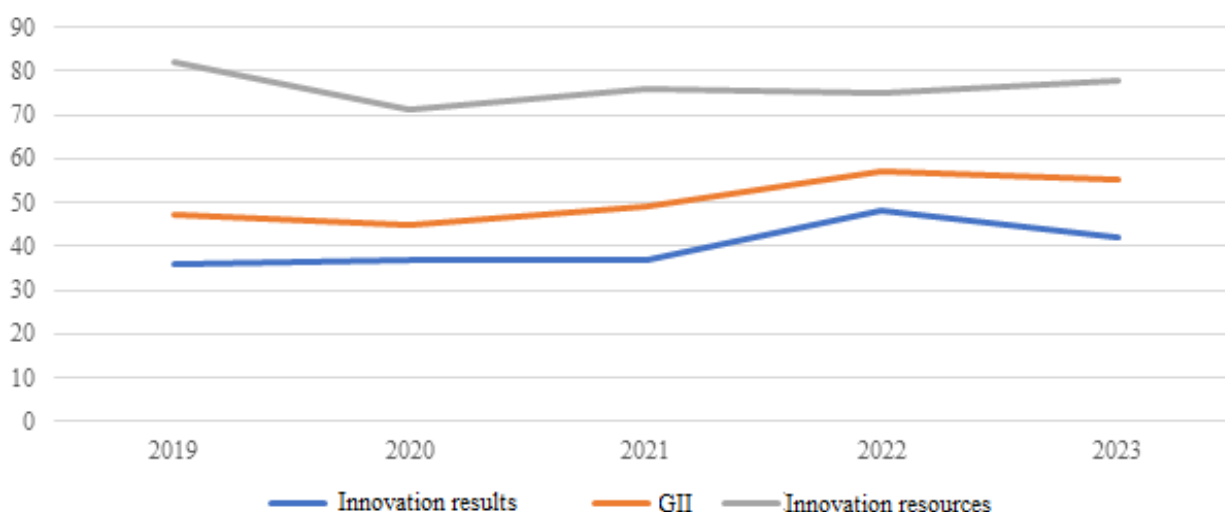


Fig. 1 –Ukraine’s Rating for 2019 to 2023

The source is generated based on [3], [10], [11], [12], [13].

of fundamental scientific ideas to the production and distribution of finished products, as well as a system of close ties between firms, their suppliers, customers and educational institutions.

Innovation clusters form a system of extension of new knowledge and technologies, accelerate the transformation of inventions into innovations, and innovations into competitive advantages. They also contribute to the development of quality and sustainable relationships between all participants.

Another trend of development of the innovation policy of the state may be the development of unmanned aerial vehicles. Consequently, as of 2021, according to the information bulletin *White Book 2021. Defense Policy of Ukraine*, 42 remotely piloted aircraft systems of various modifications were purchased [15], and from July 1, 2022 to June 15, 2023, just one *Drone Army* concluded 64 contracts for 10.6 billion UAH for the purchase of more than 17,000 unmanned combat aerial vehicles and reconnaissance and surveillance drones [16].

In June 2023, in connection with the change in the nature of hostilities in the south and east of Ukraine and state support for the production of UAVs, the situation in the Ukrainian market for the production of military drones began to change. Manufacturers began to pay more attention to the development and production of combat unmanned combat aerial vehicles.

Prospects for the development of the market of unmanned aerial vehicles in Ukraine. The Minister of Digital Transformation of Ukraine has evaluated the progress in the development of unmanned technologies as far as our own production is concerned. According to him, in comparison of the last year, the production of UAVs in Ukraine in some categories has tenfold increased, and in some cases even hundredfold. The industry is actively developing: if 7 companies were brought into production in the fall of 2022, then as of July 2023 there were 40 of them. Moreover, dozens more companies with which the state will conclude contracts are planned to be established in the near future.

Around military needs, the development of the UAV market in 2024 is predicted to be aimed at increasing the production of kamikaze-type combat drones and reusable FPV combat drones. The segment of using transport UAVs and mission-oriented UAVs, for example, for the search and detection of mine-explosive barriers, remains open.

For the production of more technological UAVs, it is possible to use the infrastructure of foreign factories. In the future, due to state support, the economic model of demand and supply will encourage developers to produce a larger number of existing drones, and the competitive market will promote the development of new types of UAVs with improved characteristics [17].

The war has entailed significant losses among the population and large-scale destruction, which significantly affected the economy of Ukraine. According to the Rapid Damage and Needs Assessment for Ukraine as of 2022, direct material damage is estimated at \$135 billion, which is more than 60% of the country's pre-war GDP. These damages include residential buildings, transportation infrastructure, energy systems and businesses. The estimated

cost of reconstruction and rehabilitation is approximately 411 billion US dollars [18].

Considering these circumstances, the report identifies effective mechanisms for sustainable and effective reconstruction and transformation of Ukraine. With an emphasis on innovative investment strategies to support local small and medium-sized enterprises, entice international companies and create specialized investment mechanisms. These strategies are aimed at promoting economic sustainability and development, creating a road map for the reconstruction and transformation of Ukraine with an emphasis on sustainable development and international cooperation.

The future of Ukraine is connected with integration with other democratic countries, especially with those closest to it. The report notes that improving cooperation and integration with the European Union is beneficial for Ukraine and Europe, for global trade, and for the entire democratic world [19].

### Conclusion

Considering the world practice and national realities, Ukraine can improve its innovation policy by implementing the following critical aspects:

1. Creation of innovative infrastructure platforms: it is necessary to promote the formation and development of innovative clusters, where conditions for interaction and joint development of new technologies will be created on the basis of scientific institutions, higher educational institutions and private companies.

2. Financial support for innovative projects: development of specialized funding programs for startups and high-tech enterprises, including state grants, investment funds and tax incentives for innovative companies.

3. Incitement of technology transfer: creation of conditions for active transfer of scientific developments from the field of science to the field of practical application in industry and services.

4. Development of education and science: strengthening the connection between the educational process and the needs of the labor market, promoting an innovative approach in education and research, as well as engaging young talented people to scientific and technical activities.

5. Protection of intellectual property: development of an effective system of protection of intellectual property rights, which would facilitate the introduction of innovations and support of innovative enterprises.

6. International cooperation: development of international partnerships and cooperation with countries with developed innovative economies for the exchange of experience and technologies.

7. Regulatory changes and legal framework: improving legislation aimed at supporting innovation and creating a favorable legal environment for the development of high-tech industries.

These aspects shall be integrated into a single strategy of innovative development, which would take into account the specifics and needs of the Ukrainian economy in the conditions of post-war reconstruction. Such a multifaceted approach will create a stable basis for economic growth and increase the country's competitiveness.

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# ECONOMIC AND MATHEMATICAL MODELING AND INFORMATION TECHNOLOGIES IN ECONOMICS

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## MATHEMATICAL MODEL OF THE PRODUCT SUPPLY PROCESS WITH UNCERTAIN DELIVERY PRICES

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logistics, key agent mechanism,  
mathematical model.

The article addresses the issue of product delivery under the condition that delivery costs are estimated based on the reports of economic agents. The cost of delivering goods along a specific route may be uncertain and dependent on the individual preferences of carriers. For instance, a carrier might prefer a route that passes by a store they want to visit, a dining facility, or one that is perceived as safer from the carrier's perspective. Naturally, only the carrier can determine this internal cost of transporting goods. The question arises: how can a system of delivery routes be chosen that serves as a compromise between the carriers' preferences? Formally, the task is to minimize the collective transportation costs as much as possible. Here, the costs are calculated based on the prices reported by individual economic agents, the carriers. However, the carriers' reports may not necessarily be truthful. To secure a more favorable route, a carrier might provide false information about transportation costs. How can agents be incentivized to provide truthful information? One approach to solving this problem is the key agent mechanism, which is discussed in this paper. As a result of the study, a mathematical model of the product supply process with uncertain delivery prices has been developed, which can be used in the development of decision support systems in transportation logistics.

## МАТЕМАТИЧНА МОДЕЛЬ ПРОЦЕСУ ПОСТАЧАННЯ ПРОДУКЦІЇ З НЕВИЗНАЧЕНИМИ ЦІНАМИ ДОСТАВКИ

**Козін І.В., Максишко Н.К., Доніна К.О.***Запорізький національний університет**Україна, 69600, м. Запоріжжя, вул. Жуковського, 66***Ключові слова:**логістичні системи, транспортна  
логістика, транспортна задача,  
механізм ключових агентів.

Стаття присвячена проблемі доставки продукції при умові, що вартість доставки оцінюється на базі повідомлень економічних агентів. Вартість доставки продукції за конкретним маршрутом може бути невизначеною і базуватися на індивідуальних уподобаннях перевізників. Наприклад, перевізник може прагнути вибрати маршрут, який проходить повз магазин, який він хотів відвідати або повз їдальню, або просто безпечніший з точки зору конкретного перевізника. Звісно, цю внутрішню ціну перевезення товару з погляду окремого перевізника може визначити лише сам перевізник. Виникає питання: як вибрати таку систему маршрутів доставки в транспортній задачі, яка була б своєрідним компромісом між побажаннями перевізників. Формально завдання полягає в тому, щоб якомога зменшити колективні витрати на перевезення товару. Тут витрати розраховуються виходячи з цін, які повідомляють окремі економічні агенти – перевізники. Проте повідомлення перевізників не обов'язково будуть правдивими. Для того, щоб забезпечити собі більш вигідний маршрут, перевізник може передати хибне повідомлення про ціну перевезення. Як змусити агентів повідомляти правдиву інформацію? Одним із способів вирішення такого завдання є механізм ключових агентів, який і розглядатиметься в даній роботі.

### Problem Statement

Let's consider the problem in the following formulation. There are  $n$  storage points where a homogeneous product is stored and  $m$  consumption points where this product is needed. Each storage point has a dedicated carrier responsible for transporting the product from that specific point. The product can be delivered from any storage point to any consumption point via a corresponding route. Each of the  $nm$  routes connecting the storage and consumption points has its own transportation cost for the respective carriers. The task is to find such a delivery plan that minimizes the total transportation costs, calculated based on the carriers' reported prices. However, the carriers' reports about the costs might be inaccurate.

Certain conditions must be considered mandatory:

1. The selection of the optimal system of routes is based on the agents' reports about transportation costs, reducing the problem to solving a transportation problem. This rule is known to all agents.
2. The behavior of the agents—the carriers—is non-cooperative, meaning the carriers cannot coordinate their reports, and no agent has information about the reports of other agents.
3. Agents may be subject to penalties, and the penalty amount is determined based on all agents' reports. The rule for determining penalties is known to all agents.
4. Each agent aims to minimize their individual costs, including penalties.

### Review of Recent Research and Publications

The transportation problem discussed in this article belongs to the broader class of transportation logistics problems. Significant contributions to the development of transportation logistics management and the system for evaluating the efficiency of logistics activities have been made by Ukrainian scholars such as B.A. Anikin, V.G. Banko, A.V. Lozovyi, L.B. Myrotina, O.A. Novikov, M.A. Perebyinis, B.V. Shabov, and others [1-5].

The active development of logistics theory began in the first half of the 20th century. The modern perspective on transportation logistics started to take shape in the United States in the second half of the 20th century [2,4]. By the mid-1950s, the term "logistics" had become part of economic terminology. One of the main and integral components of the logistics system is transportation. Transportation is a crucial element of various economic processes (such as production, trade, etc.). Therefore, problems related to transportation management play a significant role and occupy a prominent place in logistics theory [6-13].

A number of factors define transportation logistics as an independent branch of economics:

1. The presence of transportation in all tasks related to managing product flows.
2. The inclusion of transportation logistics within the system: "supply – production – distribution – consumption."
3. The numerous transportation challenges associated with selecting distribution channels for raw materials, semi-finished products, and finished goods within the logistics system.

4. The large number of economic agents (transportation and forwarding companies) that play a significant role in organizing optimal delivery of goods, both in domestic transportation and international shipping.

5. The high share of transportation costs, which can reach 50% or more of the total logistics costs associated with moving goods from the primary source of raw materials to the end consumer of finished products.

6. The substantial share of the transportation component in the external trade price of goods, especially for countries with long transportation distances.

Transportation logistics enables the solution of three main tasks within this system [5], specifically tasks related to:

1. Forming service market zones, forecasting material flow, processing material flow within the serviced system (supplier's warehouse, consumer, wholesale trading company), and other activities related to the operational management and regulation of material flow.

2. Developing a system for organizing the transportation process (transportation plan, activity distribution plan, cargo flow formation plan, transportation schedule, etc.).

3. Managing inventories and servicing them with transportation means and information systems.

4. Mathematical methods in modern transportation logistics began to develop at the start of the 20th century [13-15]. Today, it is impossible to imagine solving transportation management problems without using mathematical models, methods, and information systems. The transportation models are examined in the works of scholars such as O.Yu. Zaichenko, Yu.P. Zaichenko, O.M. Isakova, O.M. Shevchenko, S.I. Nakonechny, and S.S. Savin.

5. One of the challenges in the practical application of scientific achievements in this field is the behavior of economic agents. The issue lies in the fact that agents do not necessarily convey accurate information in their reports. Each participant in the economic process seeks to improve their own utility. Rational behavior of an economic agent may involve providing false information for collective decision-making if it results in the enhancement of their own utility function. Consequently, a particular type of uncertainty arises in such problems, not due to the inaccuracy of initial data, but due to the deliberate misinformation provided by agents, participants in economic processes. This situation resembles a cooperative game with many participants [16,17]. One method to reduce this uncertainty is the key agent mechanism [18].

### Objectives

The goal of this article is to develop a mathematical model for a transportation problem where transportation costs are determined based on the reports of carriers, which may contain inaccurate information. The task is to use the key agent mechanism to establish penalties for carriers that would discourage them from providing false information about transportation costs. In other words, in the absence of collusion among carriers, the total costs (including the penalty) for any individual carrier would be minimized only when truthful information is provided. This mechanism can be applied in organizing transportation tenders,

forecasting production costs, and other situations involving competition among carriers.

**Presentation of the Main Research Material**

Let us consider the classical formulation of the transportation problem involving  $n$  storage points and  $m$  consumption points for a product. We will assume that all possible delivery routes are permissible. Additionally, we will consider the scenario where information about transportation costs on these routes is provided by carrier agents.

We will assume the transportation problem is closed, meaning that the total supply at the storage points equals the total demand at the consumption points (otherwise, the transportation problem is open, which can easily be converted to a closed type). The criterion for evaluating the quality of the solution will be the total transportation costs.

Let the goods be stored in volumes  $a_i$   $i = 1, 2, \dots, n$  at the storage points. At consumption points  $j$ , the volume of consumption is, respectively,  $b_j$   $i = 1, 2, \dots, m$ . The closedness condition of the transport problem has the form  $\sum_{i=1}^n a_i = \sum_{j=1}^m b_j$ .

An acceptable solution to the problem is determined by the matrix  $x = (x_{ij})_{i=1,2,\dots,n; j=1,2,\dots,m}$ , where each element  $x_{ij}$  of the matrix is equal to the volume of transportation of goods from point  $i$  to point  $j$ . Taking into account the closure condition, we obtain the following standard constraints of the transport problem:

$$\begin{aligned} \sum_{j=1}^m x_{ij} &= a_i \quad i = 1, 2, \dots, n, \\ \sum_{i=1}^n x_{ij} &= b_j \quad j = 1, 2, \dots, m, \\ x_{ij} &\geq 0 \quad \forall i, j. \end{aligned} \tag{1}$$

The criterion of the problem, taking into account the above assumptions, has the form:

$$F(x) = \sum_{i=1}^n \sum_{j=1}^m c_{ij} x_{ij} \rightarrow \min. \tag{2}$$

Prices  $c_{ij}$   $j = 1, 2, \dots, m$  are “correct” prices related to the  $i$ -th carrier agent, which reflect the price of transporting a unit of goods to the  $j$ -th consumer. Moreover, each agent has his own cost criterion:

$$F_i(x) = \sum_{j=1}^m c_{ij} x_{ij} \rightarrow \min, \quad i = 1, 2, \dots, n. \tag{3}$$

In order to obtain more profitable transportation routes, the  $i$ -th agent may transmit incorrect price messages. We will mark such messages  $f_{ij}$   $j = 1, 2, \dots, m$ . The non-cooperative behavior of agents means that when forming their messages, each agent assumes that the other agents will convey the true information.

Now we will attribute a fine to each of the agents, which will be calculated on the basis of the mechanism of key agents.

Let agent  $i_0$  report information about its prices  $f_{i_0j}$   $j = 1, 2, \dots, m$ , which may differ from real prices

$c_{i_0j}$   $j = 1, 2, \dots, m$ . Assume that all other agents report the correct information.

Then the criterion in the optimization problem takes the following form:

$$F'(x) = \sum_{i \neq i_0} \sum_{j=1}^m c_{ij} x_{ij} + \sum_{j=1}^m f_{i_0j} x_{ij} \rightarrow \min. \tag{4}$$

Let’s define the concept of a key agent in the considered problem.

We will call an agent  $i$  key, the removal of which (and, accordingly, the removal of the  $i$ -th item of goods storage) leads to the fact that the optimal solution of the transport problem (no longer closed) for other agents will change in such a way that their total costs will decrease compared to by those they had during the optimal solution of the primary problem.

We define the cost function of a coalition of agents without an agent with the number  $i_0$ :

$$F_{i_0}^-(x) = \sum_{i \neq i_0} \sum_{j=1}^m c_{ij} x_{ij}. \tag{5}$$

Consider the auxiliary transport problem with constraints (1) and objective function (5).

Let  $x^* = (x_{ij}^*)$   $i = 1, 2, \dots, n; j = 1, 2, \dots, m$  – the optimal solution of problem (1), (2),  $x^{**} = (x_{ij}^{**})$   $i = 1, 2, \dots, n; j = 1, 2, \dots, m$  – the optimal solution of problem (1), (4), obtained when the agent with number  $i_0$  incorrectly reports information, and  $x^{***} = (x_{ij}^{***})$   $i = 1, 2, \dots, n; j = 1, 2, \dots, m$  – the optimal solution of problem (1), (5) Let us determine the amount of the fine for agent with number  $i_0$  as follows:

$$S_{i_0} = F_{i_0}^-(x^{**}) - F_{i_0}^-(x^{***}) \tag{6}$$

We note that from definition (6) the inequality  $S_{i_0} \geq 0$  holds. The agent is key if and only if.  $S_{i_0} > 0$  We also note that the amount of the fine is determined only taking into account agents’ reports (in particular, false ones).

Consider the total costs of the agent with number  $i_0$ .

$$\begin{aligned} F_{i_0}(x^{**}) + S_{i_0} &= F_{i_0}(x^{**}) + F_{i_0}^-(x^{**}) - F_{i_0}^-(x^{***}) = \\ &= \sum_{j=1}^m c_{i_0j} x_{i_0j}^{**} + \sum_{i \neq i_0} \sum_{j=1}^m c_{ij} x_{ij}^{**} - F_{i_0}^-(x^{***}) = \\ &= \sum_{i=1}^n \sum_{j=1}^m c_{ij} x_{ij}^{**} - \sum_{i \neq i_0} \sum_{j=1}^m c_{ij} x_{ij}^{***} = F(x^{**}) - F_{i_0}^-(x^{***}) \geq \\ &\geq F(x^*) - F_{i_0}^-(x^{***}) \geq F(x^*) - F_{i_0}^-(x^*) \end{aligned}$$

From this inequality and definition (2), (5) of the functions  $F(x)$  and  $F_{i_0}^-(x)$ , the following inequality follows:

$$\begin{aligned} F_{i_0}(x^{**}) + S_{i_0} &\geq F_{i_0}^-(x) = \sum_{i=1}^n \sum_{j=1}^m c_{ij} x_{ij}^* - \\ &- \sum_{i \neq i_0} \sum_{j=1}^m c_{ij} x_{ij}^* = \sum_{j=1}^m c_{i_0j} x_{i_0j}^* = F_{i_0}(x^*) \end{aligned}$$

Therefore, the expenses of the agent with number  $i_0$ , provided that he is informed of incorrect information, is not less than his expenses when he is informed of correct

information. Thus, with non-cooperative behavior, it makes no sense for each of the agents to report incorrect information (it does not reduce his costs).

### Conclusions

This paper presents a mathematical model for freight delivery under conditions where transportation costs are determined by the carrier agents themselves. Under the assumption of non-cooperative behavior among agents, the study determines the penalty size at which it is not

advantageous for any agent to provide false information about their prices. The optimal solution to the problem and the penalties are based on the agents' reports. The key agent mechanism forms the basis for determining these penalties.

The mathematical model can be generalized to more complex cases of distributed delivery under uncertain pricing conditions. The developed model of the product supply process with uncertain delivery prices can be utilized in the development of decision support systems in transportation logistics.

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DOI <https://doi.org/10.26661/2414-0287-2024-3-63-05>**SEMANTIC MODEL OF THE CONCEPT «BEHAVIOR OF ECONOMIC AGENTS  
IN THE FIELD OF TRANSPORT LOGISTICS»****Soroka V.V., Maksyshko N.K., Bashtannyk O.I.***Zaporizhzhia National University**Ukraine, 69600, Zaporizhzhia, University str., 66**vikulyasoroka958@gmail.com, maxishko@ukr.net, obasht2@gmail.com**ORCID: 0009-0002-8450-3942, 0000-0002-0473-7195, 0000-0002-5112-0008***Key words:**

economic agents, behavior of economic agents, transport logistics, semantic model.

The article is devoted to the study of the concept of “Behavior of economic agents in the field of transport logistics”, which is important for modern economic theory. The relevance of this problem is due to the fact that in the context of the rapid development of the information society and the emergence of new scientific terms, there is a need for a deep understanding of the knowledge that characterizes the subject area of research and defines its information model. In a complex dynamic economic environment, economic behavior is a factor of economic efficiency. When studying it, the specifics of the subject area are extremely important. This is especially true for such an area of economic activity as transport logistics. The growth of transportation volumes, rapid technological changes and the constant need to optimize logistics processes create the need to analyze, model and predict the behavior of various agents in this area.

This article uses semantic modeling as one of the approaches to representing knowledge in the field of transport logistics. This representation is an important stage in modeling the behavior of economic agents. The study confirmed the complexity and multidimensionality of transport logistics management processes. As a result of the study, a semantic model (network) has been built that reflects the key aspects of the concept of “behavior of economic agents in the field of transport logistics”. The semantic model allows to present knowledge about the behavior of agents in a structured way, to take into account the complex relationships and contexts that influence decision-making in the field of transport logistics. Therefore, this network as an information model of the subject area can be the basis for the development and improvement of decision support systems in the field of transport logistics. The construction of a semantic network also makes it possible to identify key areas for further research and the corresponding analysis and modeling methodologies for optimizing and predicting the behavior of various agents in the field of transport logistics.

**СЕМАНТИЧНА МОДЕЛЬ ПОНЯТТЯ «ПОВЕДІНКА ЕКОНОМІЧНИХ АГЕНТІВ  
У СФЕРІ ТРАНСПОРТНОЇ ЛОГІСТИКИ»****Сорока В.В., Максишко Н.К., Баштанник О.І.***Запорізький національний університет**Україна, 69600, м. Запоріжжя, вул. Жуковського, 66***Ключові слова:**

економічні агенти, поведінка економічних агентів, транспортна логістика, семантична модель.

Стаття присвячена дослідженню важливого для сучасної економічної теорії поняття «поведінка економічних агентів у сфері транспортної логістики». Актуальність цієї проблеми зумовлена тим, що в умовах швидкого розвитку інформаційного суспільства та появою нових наукових термінів виникає необхідність глибокого осмислення знань, що характеризують предметну область дослідження та визначають її інформаційну модель. У складному динамічному економічному середовищі економічна поведінка є фактором ефективності економіки. При її дослідженні надзвичайно важливою є специфіка предметної області. Особливим чином це стосується такої сфери економічної діяльності як транспортна логістика. Зростання обсягів транспортних перевезень, швидкі технологічні зміни та постійна потреба в оптимізації логістичних процесів створюють необхідність аналізу, моделювання та прогнозування поведінки різних агентів у цій сфері.



У цій статті використано семантичне моделювання як один із підходів до представлення знань у сфері транспортної логістики. Таке представлення є важливим етапом моделювання поведінки економічних агентів. Проведене дослідження підтвердило складність та багатоаспектність процесів управління транспортною логістикою. У результаті дослідження побудована семантична модель (мережа), що відображає ключові аспекти поняття «поведінка економічних агентів у сфері транспортної логістики». Семантична модель дає змогу структуровано представити знання про поведінку агентів, врахувати складні взаємозв'язки та контексти, які впливають на прийняття рішень у сфері транспортної логістики. Тому ця мережа як інформаційна модель предметної області може бути покладена в основу розробки та удосконалення систем підтримки прийняття рішень у галузі транспортної логістики. Побудова семантичної мережі також дає змогу виявити ключові напрями подальших досліджень й відповідні їм методології аналізу та моделювання для оптимізації та прогнозування поведінки різних агентів у сфері транспортної логістики.

### Statement of the problem

Efficient transport logistics management requires a deep understanding of the behavior of economic agents, such as producers, suppliers, carriers and consumers, because the growth of transportation volumes, rapid technological changes and the constant need to optimize logistics processes create the need to predict the behavior of various agents in this area. An effective tool for analyzing this behavior and developing approaches that help improve the efficiency of management decisions made in the field of transport logistics is the use of economic and mathematical models, which in turn are based on the basis of, among other things, behavioral economics.

The development of a system of models of behavior of economic agents in the field of transport logistics allows to improve the planning and management of logistics processes, reduce costs, increase the level of service and ensure competitive advantages in the market. In addition, taking into account the behavioral aspects of economic agents is important in the context of the development of modern technologies, such as autonomous cars, drones, and other innovative solutions in the field of transportation. Analyzing and modeling the behavior of economic agents makes it possible to predict possible scenarios for the introduction of these technologies and their impact on the transport system as a whole.

However, in the context of the rapid development of the information society due to the emergence of new scientific terms and features, the development and application of appropriate models and methods is impossible without a deep understanding of the knowledge that characterizes the subject area of research, constitutes its nomological basis and defines the information model.

### Analysis of latest research and publications

Recent studies and publications show that today much attention is paid to the development and improvement of processes in the field of transport logistics. This is due to the fact that transport logistics is one of the most important infrastructure sectors of material production, which meets production and non-production needs in all types of transportation. Paper [1] analyzes the essence of the concept of

“transport logistics”, its development, and the impact of globalization and internationalization on modern logistics. The goal of transport logistics, as formulated in this paper, is to ensure that commodity products are in a specific place at a specific time by moving them between sites and participants in the supply chain.

The Report [2], which is based on a global survey of the world's most active freight forwarders and express carriers, provides an assessment and comparative analysis of logistics efficiency from 150 countries. This paper presents the Logistics Performance Index (LPI) and other indicators for the first time, which made it possible to assess the state of development of trade logistics at the global level and provide recommendations for reforms and investments in trade and transport facilitation.

Ukraine has long been not only a part of the civilized world and integrated into global trade, but also a rather important exporter of goods and services to Europe and other countries. In 2018 The Cabinet of Ministers of Ukraine approved the National Transport Strategy of Ukraine for the period up to 2030 [3]. The place and problems of transport logistics in Ukraine have been studied, in particular, in [4-5], and the issues of improving approaches and management methods in this area are urgent. Therefore, in recent years, the rapid development and the need to solve many urgent problems have attracted the attention of domestic and foreign scientists and practitioners to logistics. Their works reveal various theoretical and applied aspects of this field of activity, and take into account new challenges. Thus, paper [6] provides an overview of the existing academic literature on the relationship between sustainable development and the service supply chain (SSC), while [7] addresses the problem of studying the impact of major disasters on supply chains (SC) and developing countermeasure strategies in such cases. Paper [8] is devoted to the use of new technologies to achieve the goals of the circular economy in the logistics sectors during the COVID 19 pandemic. Paper [9] considers the impact of artificial intelligence on the planning processes of logistics systems, taking into account the latest information and digital technologies and methods, analyzes the features of applying intelligent algorithms and machine

learning methods to optimize key aspects of logistics, such as transport routing, inventory management, and demand forecasting.

The analysis of publications shows that the effectiveness of research significantly depends on the chosen tools, which should take into account the dynamism, stochastic nature of the logistics system, and the effects of many influences of the external and internal environment on the final indicators of its functioning. This is especially true for the behavior of economic agents in the field of transport logistics. This behavior is determined by a complex system of interrelationships, including economic, technological, social and regulatory factors. The study of these interrelationships requires the use of comprehensive approaches and models that can reflect the multidimensionality and dynamism of processes.

The theoretical basis for studying of the behavior of economic agents in the field of transport logistics is behavioral economics [10], and one of the effective tools for researching and analyzing the features of this behavior is the construction of semantic models (networks) [11-14].

A semantic network is one of the ways to represent knowledge. According to [12], a semantic network is an information model of a subject area that has the form of an oriented graph, the vertices of which correspond to the objects of the subject area, and the arcs (edges) define the relationship between them. Objects can be concepts, events, properties, processes.

To describe a mathematical model, a graph  $G$  is represented by a set of vertices  $V$  and a set of relations between them (arcs)  $E$ :  $G=(V,E)$ . To use the apparatus of mathematical logic, it is assumed that each vertex corresponds to an element of the subject set, and an arc corresponds to a predicate. There are two classifications of semantic networks: a) by the number of concepts the network contains (arity); b) by the number of types of relations. As a rule, the number of types of relations in a semantic network is determined by its developer.

### Goals formulation

The semantic model allows not only to present knowledge about the behavior of agents in a structured manner, but also to take into account the complex interrelationships and contexts that influence decision-making in the field of transport logistics.

The purpose of this article is to build a model in the form of a semantic network of the concept "behavior of economic agents in the field of transport logistics".

### Presentation of the main research material

In order to build a semantic network of the concept of "behavior of economic agents in the field of transport logistics" as a model of the subject area of research, we will clarify its substantive aspects; study its components and links with other important concepts.

In general, the concept of "behavior of economic agents" reflects the actions and decisions they make in the course of their economic activity. In other words, economic agents are households, businesses, governments and

other organizations that interact in the market to produce, distribute and consume goods and services [5].

In order to have a certain understanding of economic mechanisms of interaction between agents and effective management of economic processes, it is necessary to understand exactly how economic agents think when making various types of economic decisions. The behavior of economic agents is a series of behaviors, actions and relationships that each subject of economic relations manifests in the process of interaction with the environment.

The behavior of economic agents in the field of transport logistics includes various aspects and decisions they make to ensure efficient and cost-effective movement of goods and services, such as approving decisions on the choice of transport routes, optimising transport costs, managing inventories, selecting of suppliers and partners in logistics chains, as well as interacting with the market and competitors.

Economic agents in this area are (Fig. 1):

- households – individuals or groups of people who live together and running a common household. In the field of transport logistics, households usually act as final consumers of goods and services. Their behavior affects the demand for delivery of goods, especially in the context of the growth of e-commerce;

- enterprises – organisations that produce goods or provide services for profit. They are key agents in the field of transport logistics, as they are responsible for the production, distribution and sale of goods. Enterprises actively use logistics services to efficiently move their goods;

- the state is a political and administrative organization that manages society and regulates activities in the field of transport logistics through legislation, standards and infrastructure investments. It creates conditions for the efficient operation of logistics systems and ensures the safety of transport;

- financial institutions – organizations that manage financial resources. And also provide financial services necessary for the functioning of logistics processes, including procurement financing, infrastructure investments and cargo insurance;

- foreign agents – economic entities that are located outside the national economy, but influence it through international trade, investments and other forms of economic interaction;

- non-profit organizations – organizations that work not for profit, but to achieve social, cultural, educational or other socially useful goals. In the field of transport logistics, they can be involved in humanitarian or environmental projects aimed at improving logistics processes and supporting sustainable development.

In the context of the behavior of economic agents in the field of transport logistics, each of these agents performs specific roles and functions that influence logistics processes and decisions.

In transport logistics and in the modern economy as a whole, one of the most important concepts is the concept of logistics operation. According to [15,16], logistics operations are a set of actions aimed at transforming material and/or information flows. Logistics operations with material flow include loading, transportation, unloading,

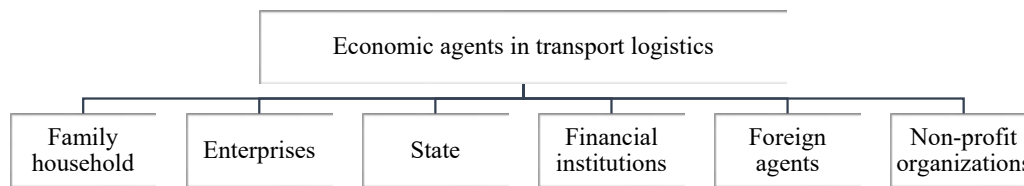


Figure 1 – Economic agents in the field of transport logistics

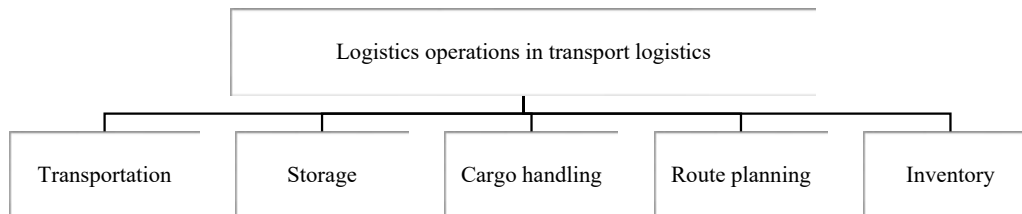


Figure 2 – Logistics operations in the field of transport logistics

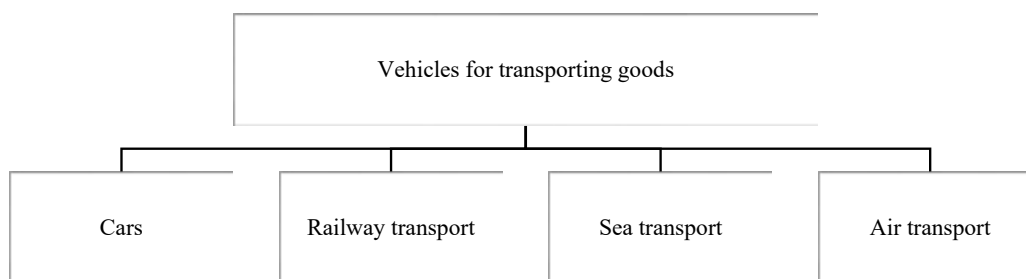


Figure 3 – Vehicles for transporting goods in the field of transport logistics

unpacking, assembly, storage, packaging, etc. Information flow logistics operations include collection, processing and transmission of information. These operations play a key role in ensuring an efficient supply chain that allows companies to meet consumer needs in a timely and efficient manner. Logistic operations (logistics) contribute to the reduction of costs of storing and transporting goods, optimize the distribution of resources and ensure flexibility in production and supply [17].

Logistics operations are carried out by economic agents who can perform, optimize, order and invest in such logistics operations (Fig. 2):

transportation – the movement of goods from the place of production to the place of consumption or storage. It is a key element of logistics that requires optimization of costs, time and resources;

- storage – involves keeping goods in warehouses until they are moved or sold, and is an important aspect to ensure continuity of supply;

- cargo handling – includes all actions related to the preparation of goods for transportation, including packaging, labeling and loading and unloading operations;

- route planning – choosing the most effective ways to transport goods, taking into account costs, time, safety and other factors;

- inventory – information and accounting support of any transport logistics operations.

Each of these processes in the field of transport logistics is critically important and interrelated. Economic agents play different roles, ensuring the efficiency and reliability of logistics operations, which in turn affects the overall productivity of the economy.

Various types of transport are used for logistics operations. Each type of transport has its own characteristics, advantages and disadvantages, which affects the decisions of agents. The most popular among all are cars, railway, sea, and air transport (Fig. 3).

Road transport is one of the most flexible and common ways of transporting goods, especially over short and medium distances. It provides high mobility and availability.

Railway transport is an efficient means of transporting large volumes of goods over long distances. It is characterized by high carrying capacity and economy.

Maritime transport is key to international trade, providing transportation of large volumes of goods between continents. It is characterized by low transportation costs per ton of cargo over long distances.

Air transport is the fastest way to transport goods, but it is also the most expensive. It is used to deliver urgent, valuable or perishable goods.

Each type of transport has its own unique characteristics that determine the behavior of economic agents in the field of transport logistics. The choice of transport depends

on specific needs, such as delivery speed, volume of cargo, cost of transportation and distance, which affects the decisions and strategies of households, enterprises, the state, financial institutions, foreign agents and non-profit organizations [18].

Each of the listed vehicles consumes resources (Fig. 4) that are important for the efficient operation of logistics processes, namely:

- fuel – is the main resource for all types of transport, determining the cost and efficiency of logistics operations;
- labor force – includes personnel engaged in logistics operations, including drivers, warehouse operators, route planners and other specialists;
- capital – includes financial resources needed for investments in vehicles, infrastructure, technologies and other assets;
- information systems – are key to managing logistics processes, ensuring effective planning, monitoring and control of transportation.

In the field of transport logistics, logistics infrastructure plays an important role in ensuring the efficient performance of logistics operations. Logistics infrastructure includes various objects and systems that create the basis for the movement of goods and the provision of logistics services.

The logistics infrastructure is a set of technical, organizational and economic elements, by means of which all types of economic flows (material, financial, information, labor, energy, return) carry out a cyclical movement with the greatest efficiency from the supplier of resources to the final consumer [19, p. 157].

The main elements of the logistics infrastructure include (Fig. 5):

- warehouses are objects where goods are stored before their further transportation or sale. They play a key role in maintaining stocks, maintaining product quality and ensuring continuity of supply;

- transport terminals are hubs where goods is transhipped between different modes of transport (road, rail, sea, air);
- roads are the main transport arteries that ensure the movement of road and rail transport. They are critical for ensuring efficient transportation of goods over short, medium and long distances;
- ports are transport hubs on the coasts where sea vessels are loaded and unloaded for international trade and the transportation of bulky cargo;
- airports are transport hubs where cargo planes are loaded and unloaded, ensuring fast transportation of goods over long distances.

All these elements of logistics infrastructure are critical, because they influence the behavior of economic agents in the field of transport logistics. The speed, cost and reliability of logistics operations depends on their efficiency, which in turn determines the overall productivity and competitiveness of the economy.

In the field of transport logistics, the behavior of economic agents is largely determined by rules and regulations (Fig. 6), which include laws and regulations, customs regulations, environmental standards and transport safety. Each of these aspects affects different stages of logistics processes and requires appropriate adaptations on the part of agents.

Laws and regulations regulate the legal aspects of logistics activities, defining standards, requirements and procedures that all participants in the logistics process.

Customs regulations determine the rules for the import and export of goods, including tariffs, quotas, licenses and clearance procedures.

Environmental standards establish requirements for reducing the negative impact of logistics operations on the environment.

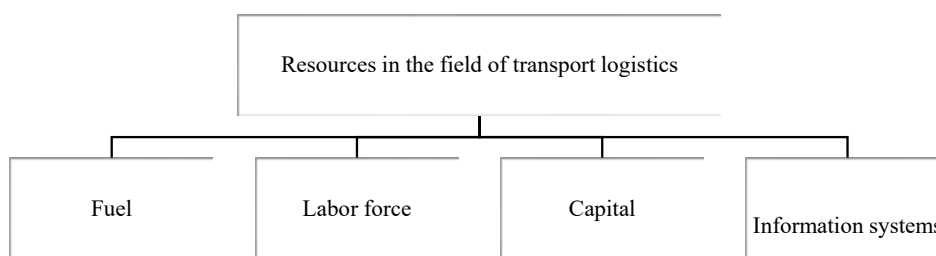


Figure 4 – Resources for the transportation of goods in the field of transport logistics

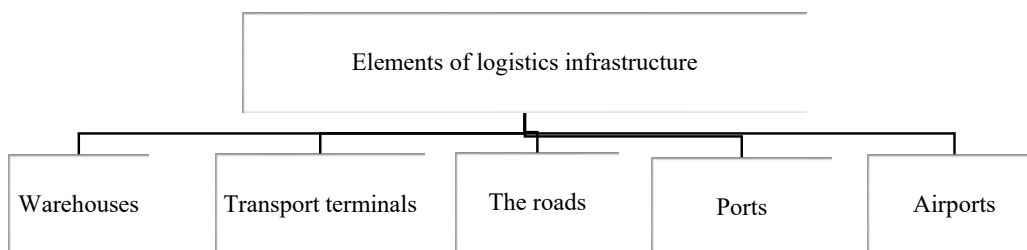


Figure 5 – Elements of logistics infrastructure in the field of transport logistics

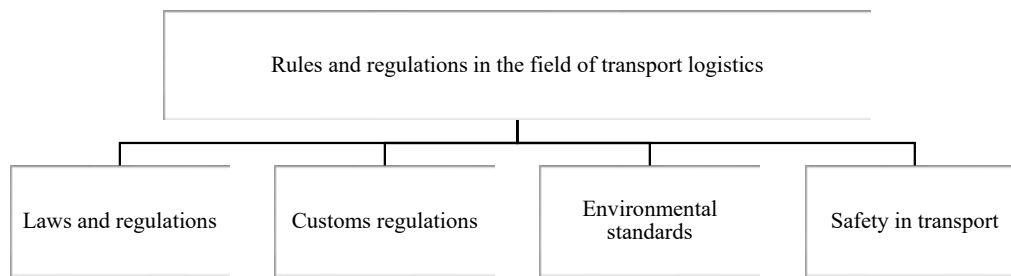


Figure 6 – Rules and regulations in the field of transport logistics

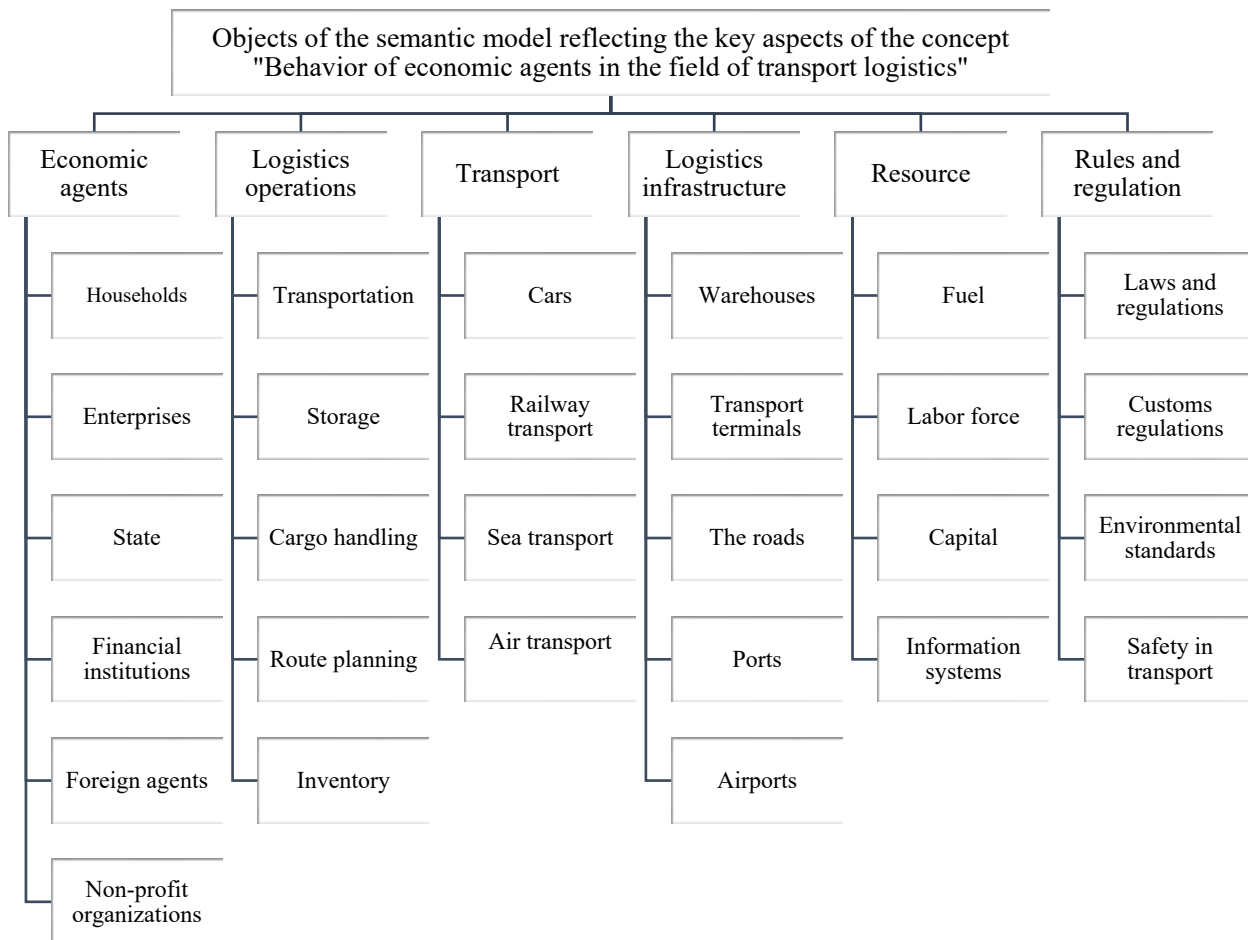


Figure 7 – Objects of the semantic model reflecting the key aspects of the concept “behavior of economic agents in the field of transport logistics”

Source: built by the author personally

Transportation security includes measures aimed at preventing accidents, thefts, and other risks during the transportation of goods.

Compliance with the listed requirements is necessary to ensure the efficiency, safety and stability of logistics operations, which in turn affects the economic development and welfare of society.

Therefore, in Fig. 7 we will present a conceptual semantic model that reflects the key aspects of the concept of “behavior of economic agents in the field of transport logistics” and has the form of a general scheme, where the key

concepts are economic agents, logistics operations, transport, logistics operations, resources and rules and regulation.

Each of the objects of the model has its own properties or characteristics (Fig. 8). Economic agents have attributes such as name, type, size, and location; logistics operations have their own cost, execution time and cargo volume; transport – type, carrying capacity, speed and operating costs; logistics infrastructure – capacity, location, technical characteristics; resources – type, quantity and cost; and rules and regulations have a type of regulation, requirements, and responsibilities.

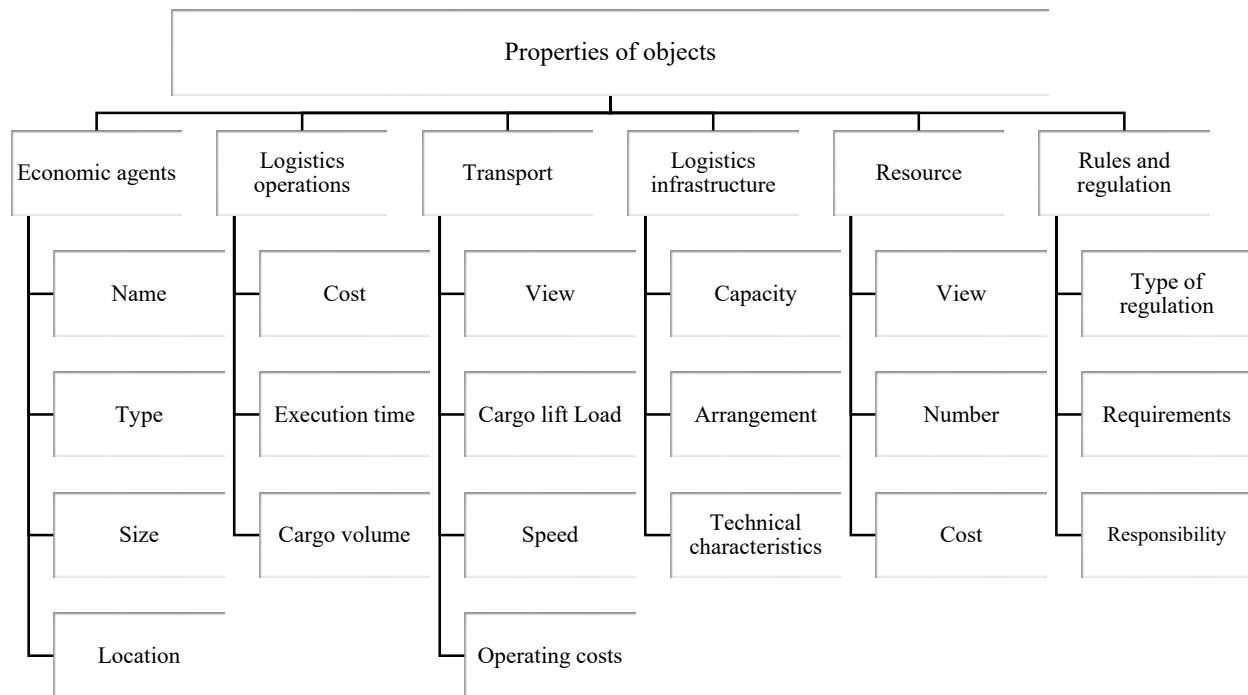


Figure 8 – Properties of objects-semantic model reflecting key aspects of the concept “behavior of economic agents in the field of transport logistics”

Source: built by the author personally

On the basis of the obtained relations, we will form a general semantic network of the concept of “behavior of economic agents in the field of transport logistics” (Fig. 9), which reflects a complex system of relationships between economic agents, logistics operations, transport, logistics operations, resources and rules and regulations. Understanding these relationships allows you to manage logistics processes more efficiently, optimize costs and increase the overall efficiency of transport logistics.

7 general relationships can be distinguished between model objects, namely:

- economic agents perform logistics operations;
- economic agents order logistics operations;
- logistics operations use transport;
- logistics operations are carried out in the logistics infrastructure;
- transport consumes resources;
- logistics infrastructure uses resources;
- economic agents follow rules and regulations.

These relationships describe how different elements and agents in the field of transport logistics interact with each other, forming a complete system where each element has its own role and affects the overall efficiency of logistics processes. Compliance with rules and regulations, efficient use of resources and infrastructure, as well as the correct organization and execution of logistics operations ensure the stability and productivity of the logistics system.

**Conclusions**

The behaviour of economic entities is a complex and multifaceted socio-economic phenomenon that has a

significant impact and sometimes directly determines the results of economic activity. The importance of studying this particular phenomenon is confirmed, in particular, by the fact that the 2017 Nobel Prize in Economics was awarded to American Richard Thaler “for his contribution to the study of economic behavior”.

The current complex and dynamic economic environment, economic behaviour is a factor of economic efficiency. When studying it, the specifics of the subject area are extremely important, in which a set of actions and deeds reflecting the internal attitude of agents to the conditions and results of economic activity is considered.

In this article, semantic modeling is used as one of the approaches to the representation of knowledge in the subject area of transport logistics. Such a representation is an important stage in modeling the behavior of economic agents in this area. The research confirmed the complexity and multidimensionality of transport logistics management processes.

As a result of the research, a semantic model (network) has been built that reflects the key aspects of the concept of “behavior of economic agents in the field of transport logistics”. This network is an information model of the subject area, which can be the basis for the development and improvement of decision support systems in the field of transport logistics.

The construction of the semantic network makes it possible to identify key areas for further research and the corresponding analysis and modeling methodologies to optimize and predict the behavior of various agents in the field of transport logistics.

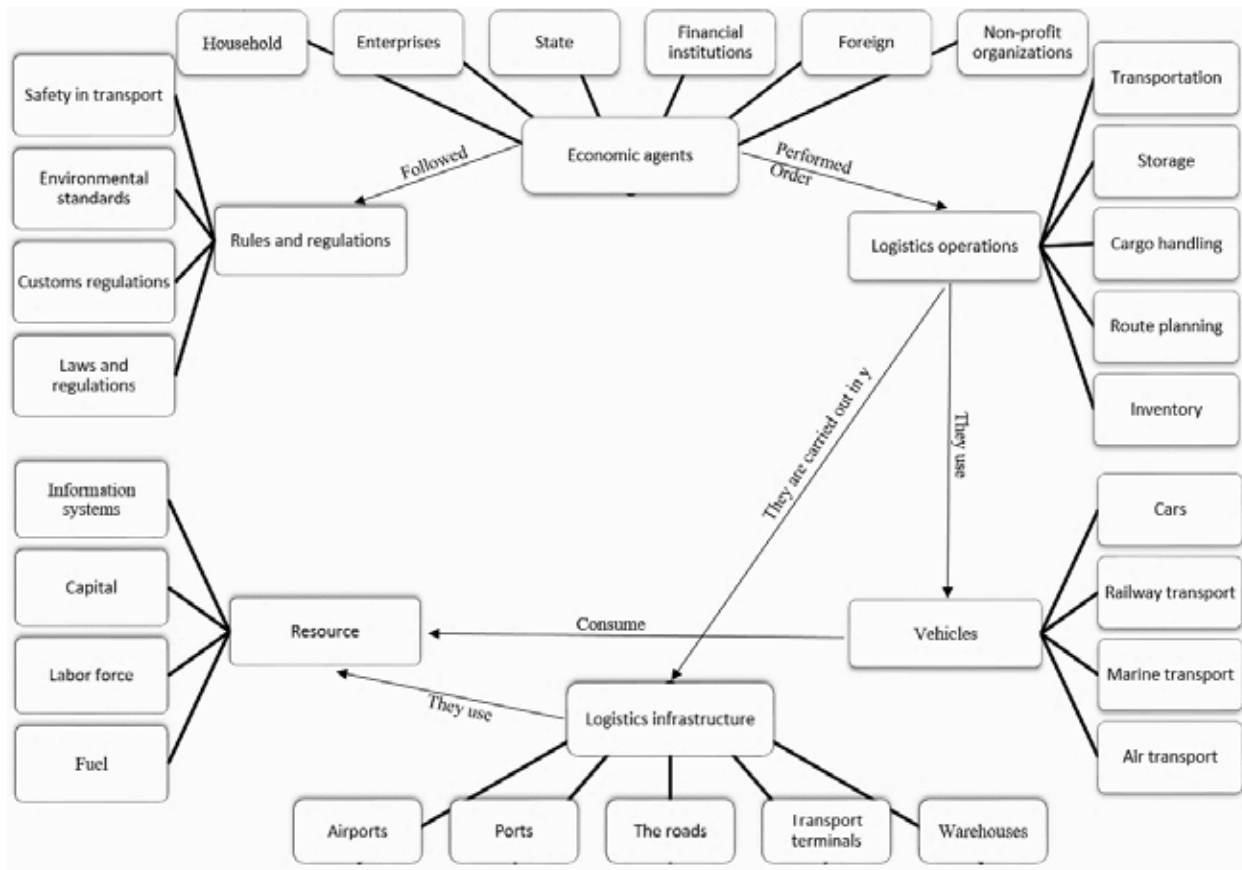


Figure 9 – Semantic model reflecting the key aspects of the concept “behavior-economic agents in the field of transport logistics”

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# NATIONAL ECONOMY'S MARKET MECHANISMS OF ACCOUNTING, ANALYSIS AND AUDIT

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## UKRAINE ON THE WAY TO THE EU: NON-FINANCIAL BUSINESS REPORTING FROM NFRD TO CSRD

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### **Key words:**

sustainable development,  
European Union directives, non-  
financial reporting, NFRD, CSRD,  
adaptation, harmonization.

Reporting on sustainable development, based on the Sustainable Development Goals, becomes a revolutionary tool in transforming the modern world. It allows for assessing the impact of human activities on the environment and socio-economic processes, as well as developing strategies and measures to ensure a balance between present needs and the opportunities of future generations. At the core of this approach lies the understanding of the necessity to ensure economic growth, social justice, and environmental protection simultaneously to ensure the sustainable development of society. This requires active participation from governments, businesses, and citizens in implementing sustainable development policies, as well as responsibility for their outcomes. Sustainable development reporting is a key instrument that helps track progress towards achieving the Sustainable Development Goals, identify issues, and develop effective strategies for their resolution. This process demands openness, transparency, and collaboration from all stakeholders at various levels, from local to global.

Experts from the Organisation for Economic Co-operation and Development (OECD) believe that mandatory reporting on sustainable development should be required for all companies to improve decision-making processes in financial markets. However, despite the widespread adoption of sustainable development reporting worldwide, significant disparities exist in the formats, scope of information, and approaches to forming indicators of corporate social responsibility. This makes sustainability reporting challenging for comparison and analysis.

Key issues remain the quality, comparability, and independent verification of sustainability reporting by third parties. Therefore, standardization of sustainability reporting and mandatory disclosure of information according to sustainable development dimensions are critically important.

Unlike Ukraine, there are already established approaches to regulating, standardizing, and mandating disclosure of sustainable development reporting worldwide. Increasing concerns about the impact of business on the environment, society, and the economy, the necessity for clear, comparable, and reliable sustainable development information for informed decision-making by investors, clients, and other stakeholders, coupled with the fragmentation and ambiguity in sustainability reporting that complicates comparison and analysis, all lead to the necessity of standardizing clear and transparent information on sustainable development [1].

It is important to have laws that establish environmental and social boundaries for investment and entrepreneurial activities. This is the only way to make significant progress towards a sustainable future – an economy built on healthy relationships with each other and the environment, rather than one that strains or depletes these relationships [2].

## УКРАЇНА НА ШЛЯХУ ДО ЄС: НЕФІНАНSOVA ЗВІТНІСТЬ БІЗНЕСУ ВІД NFRD ДО CSRD

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### Ключові слова:

сталий розвиток, директиви Європейського Союзу, нефінансова звітність, NFRD, CSRD, адаптація, гармонізація.

Звітність зі сталого розвитку, ґрунтуючись на Цілі сталого розвитку, стає революційним інструментом у перетворенні сучасного світу. Вона дозволяє оцінювати вплив людської діяльності на навколишнє середовище та соціально-економічні процеси, а також розробляти стратегії та заходи для забезпечення балансу між потребами сьогодення та можливостями майбутніх поколінь. В основі цього підходу лежить усвідомлення необхідності забезпечення економічного зростання, соціальної справедливості та охорони довкілля одночасно, щоб забезпечити стійкий розвиток суспільства. Це вимагає від урядів, бізнесу та громадян активної участі у впровадженні політики сталого розвитку, а також відповідальності за її результати. Звітність зі сталого розвитку є ключовим інструментом, який допомагає відстежувати прогрес у досягненні Цілей сталого розвитку, виявляти проблемні питання та розробляти ефективні стратегії для їх вирішення. Цей процес вимагає відкритості, прозорості та співпраці всіх зацікавлених сторін на різних рівнях – від місцевого до глобального.

Експерти Організації економічного співробітництва та розвитку (ОЕСР) вважають, що для покращення процесу прийняття рішень на фінансових ринках звітність зі сталого розвитку має бути обов'язковою для всіх компаній. Але не зважаючи на значне поширення звітності зі сталого розвитку у світі, існують значні розбіжності у форматах, обсязі інформації та підходах до формування індикаторів корпоративної соціальної відповідальності. Це робить звітність складною для порівняння та аналізу.

Ключовими питаннями залишаються якість, зіставність та незалежне підтвердження звітності зі сталого розвитку третіми сторонами. Саме тому стандартизація звітності зі сталого розвитку та обов'язкове розкриття інформації за вимірами сталого розвитку є критично важливими.

На відміну від України, у світі вже існують напрацьовані підходи до регулювання, стандартизації та обов'язкового розкриття звітності зі сталого розвитку. Зростає стурбованість впливом бізнесу на довкілля, суспільство та економіку, необхідність чіткої, порівнянної та надійної інформації про сталий розвиток для прийняття обґрунтованих рішень інвесторами, клієнтами та іншими зацікавленими сторонами, присутня фрагментарність та неоднозначність у звітності про сталий розвиток, що ускладнює порівняння та аналіз – все це призводить до необхідності стандартизації чіткої та прозорої інформації про сталий розвиток [1].

Важливо мати закони, які встановлюють екологічні та соціальні межі інвестиційної та підприємницької діяльності. Це єдиний спосіб досягти суттєвого прогресу в напрямку сталого майбутнього – тобто економіки, побудованої на здорових відносинах одна з одною та навколишнім середовищем, а не економіки, яка напружує або виснажує ці відносини [2].

### Problem statement

As a country aspiring to join the European Union (EU), Ukraine must adapt its legislation and standards in accordance with European norms. One of the key aspects of this adaptation is the reform of the business non-financial reporting system.

According to the EU Directive on Non-Financial Reporting (NFRD), companies with significant impact must report on their social, environmental, and corporate responsibility. However, this directive has been revised, and as a result, the EU has adopted a new

standard – the Corporate Sustainability Reporting Directive (CSRD) [5].

One of the problems for Ukraine is the necessity of implementing CSRD and making corresponding changes to national legislation regarding non-financial reporting. This requires significant efforts to harmonize reporting standards and ensure compliance with European norms.

Another issue may be the insufficient preparation of businesses for the new requirements regarding non-financial reporting and the lack of necessary resources to implement these changes.

Thus, an important task for Ukraine is the effective implementation of CSRD and ensuring compliance with European non-financial reporting standards to support its path towards EU membership.

### Analysis of recent research and publications

A significant portion of the researched academic works consists of studies by foreign scholars directly addressing issues, development prospects, and the necessity of standardizing sustainable development reporting [4]: Hahn and Kühnen, Eccles and Serafeim, Ioannou and Serafeim, Gray and Milne, Hahn and Lülfs, and others. In Ukrainian academic circles, the issue of standardizing sustainable development reporting is insufficiently covered, which is due to the emergence of this research direction in Ukraine and the limited dissemination of sustainable development reporting among most Ukrainian companies, except for large and transnational ones. Additionally, it is possible to mention scholars who have researched sustainable development issues at the global, national, regional, and local levels: G. Azzoni, L. Braat, G.H. Brundtland, L. van Wassenhove, R. Welford, L. Hryniw, B. Danylyshyna, J. Elkington, L. Kvyatkovska, P. Kleinberger, L. Melnyk, V. Trehobchuk, R. Freeman, K. Fussler, R. Haynes, M. Hvesyk, T. Holmes. Contemporary research directions relate to optimizing stakeholder relationships to ensure sustainability throughout all stages of the enterprise value chain.

Key aspects that can be the subject of research include:

- comparative analysis of Ukrainian national legislation with CSRD standards and identification of necessary changes and adaptations,
- assessment of how changes in non-financial reporting will impact the business environment in Ukraine, particularly on large companies with significant influence,
- analysis of the readiness of Ukrainian companies to implement new non-financial reporting standards and identification of potential obstacles,
- evaluation of how the adaptation of Ukrainian businesses to CSRD standards can affect consumer trust, investors, and other stakeholders.

Considering the importance of this issue for the future economic development of Ukraine, it is crucial to encourage such research and the implementation of recommendations they may provide.

### Objectives Formulation:

This study examined the NFRD directive, the CSRD regulation, the potential impact on businesses transitioning to CSRD, possible challenges for businesses transitioning from NFRD to CSRD, and potential benefits for Ukraine.

The article aims to analyze and describe the current situation on Ukraine's path to the EU. The research goals for the adaptation of Ukrainian legislation and the business environment to CSRD standards and non-financial reporting are as follows: evaluate the degree of compliance of Ukrainian national legislation with European CSRD standards and identify deficiencies or gaps, analyze the impact, assess the readiness level of Ukrainian companies to implement new non-financial reporting standards, and identify constraints or obstacles to their implementation,

identify potential risks associated with inadequate adaptation to CSRD standards and develop strategies for their prevention, develop tools and practices aimed at increasing trust among consumers, investors, and other stakeholders in the non-financial reporting of Ukrainian companies, ultimately, develop recommendations and strategies to enhance the competitiveness of Ukrainian companies in light of new requirements for non-financial reporting.

Researching these aspects will help understand how Ukraine can effectively adapt its legislation and business practices to European CSRD standards, thereby contributing to its path to European integration and increasing trust levels both domestically and internationally.

### Outline of the main material of the research

The Non-Financial Reporting Directive (NFRD) [5] serves as a crucial instrument for ensuring transparency and openness in the activities of enterprises within the European Union. Adopted by the EU in 2014, its primary goal is to implement standardized requirements for reporting on non-financial aspects of business, such as social responsibility, environmental activities, governance, gender equality, and other socio-economic indicators.

This directive mandates that enterprises meeting certain criteria include information on these aspects in their annual reports. The main objectives of the NFRD are to enhance transparency and openness in the activities of enterprises, promote sustainable development, and increase the level of trust among stakeholders. Key criteria for enterprises that need to be considered include (Fig. 1).

The NFRD directive helps businesses systematically consider their impact on the environment and society when making strategic decisions. It also fosters increased awareness of social responsibility within the business community and encourages companies to make positive changes in their operations to achieve social and environmental goals.

Ukraine is also actively incorporating the principles of the NFRD directive into its legislative framework to harmonize with European standards and enhance transparency and accountability of enterprises. This creates favorable conditions for the integration of Ukrainian companies into the international market and attracting investments, thereby contributing to the development of the economy and increasing the country's competitiveness.

In November 2022, the Non-Financial Reporting Directive (NFRD) was replaced by the Corporate Sustainability Reporting Directive (CSRD) due to its limitations [6], as the EU recognized the need for stricter reporting requirements and the expansion of the scope of companies covered by the legislation.

The CSRD regulation [7] is a new legislative act of the European Union aimed at improving the standards of non-financial reporting of enterprises.

Key aspects of the CSRD regulation are aimed at improving the standards of non – financial reporting of enterprises and include (Fig. 3).

The CSRD regulation represents a significant step forward in enhancing non-financial reporting standards and contributes to strengthening sustainable development and corporate responsibility within the European Union.

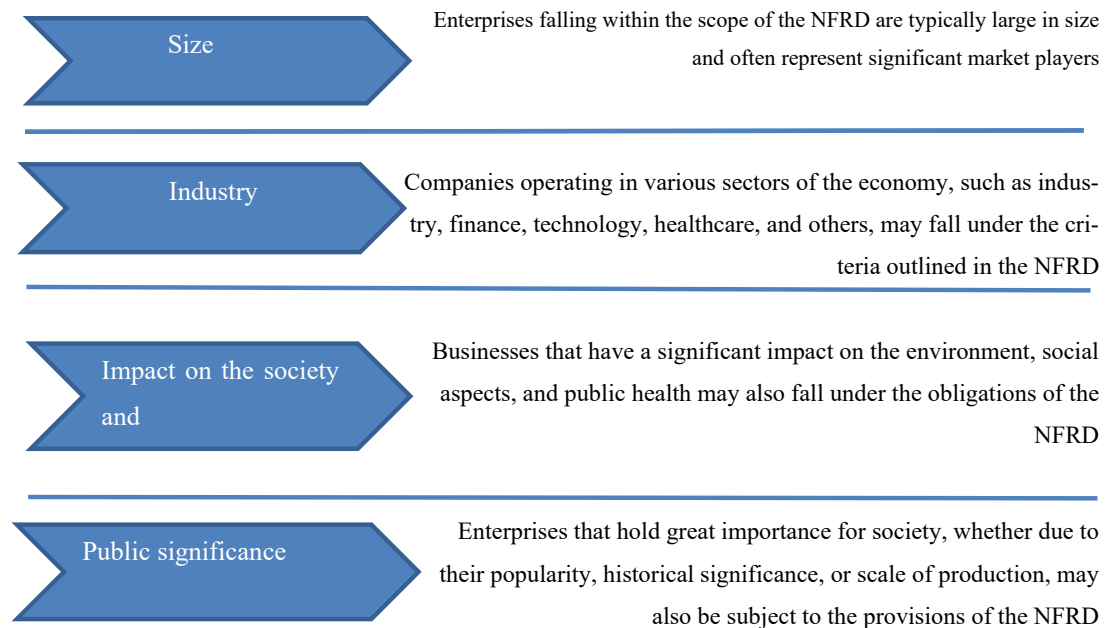


Figure 1



Figure 2 – Chronology of the CSRD Regulation and Possible Changes

Source: compiled based on [6]

For Ukraine, joining the CSRD Regulation or developing its own standards aligned with CSRD principles can have several key advantages and consequences [8] (Fig. 4).

Transitioning to Corporate Sustainability Reporting Directive (CSRD) may result in various changes in companies' business practices.

Potential impacts on business due to transitioning to CSRD include (Fig. 5).

The transition from the Non-Financial Reporting Directive (NFRD) to the Corporate Sustainability Reporting Directive (CSRD) [9] may pose several problems and challenges for businesses. Enterprises may face a multitude of requirements and obligations during the transition, as CSRD entails stricter reporting requirements, including an expanded scope of responsibility and more detailed reporting on non-financial indicators, which may lead to increased administrative costs

and the need for additional resources to comply with the new requirements. With the expansion of non-financial reporting scope and the implementation of new standards, there may be inconsistency in the interpretation of CSRD requirements, leading to inconsistency in reporting among different enterprises and complicating result comparisons. Compliance with the new CSRD requirements may require more qualified staff or skills in non-financial reporting, necessitating investments in training and staff development. Some companies may become less competitive due to increased compliance costs with the new standards, particularly smaller enterprises or those already facing financial difficulties. Finally, transitioning to CSRD may require the review and modernization of current business processes and data collection systems. This can be a complex process, especially for companies with large data volumes or outdated systems.

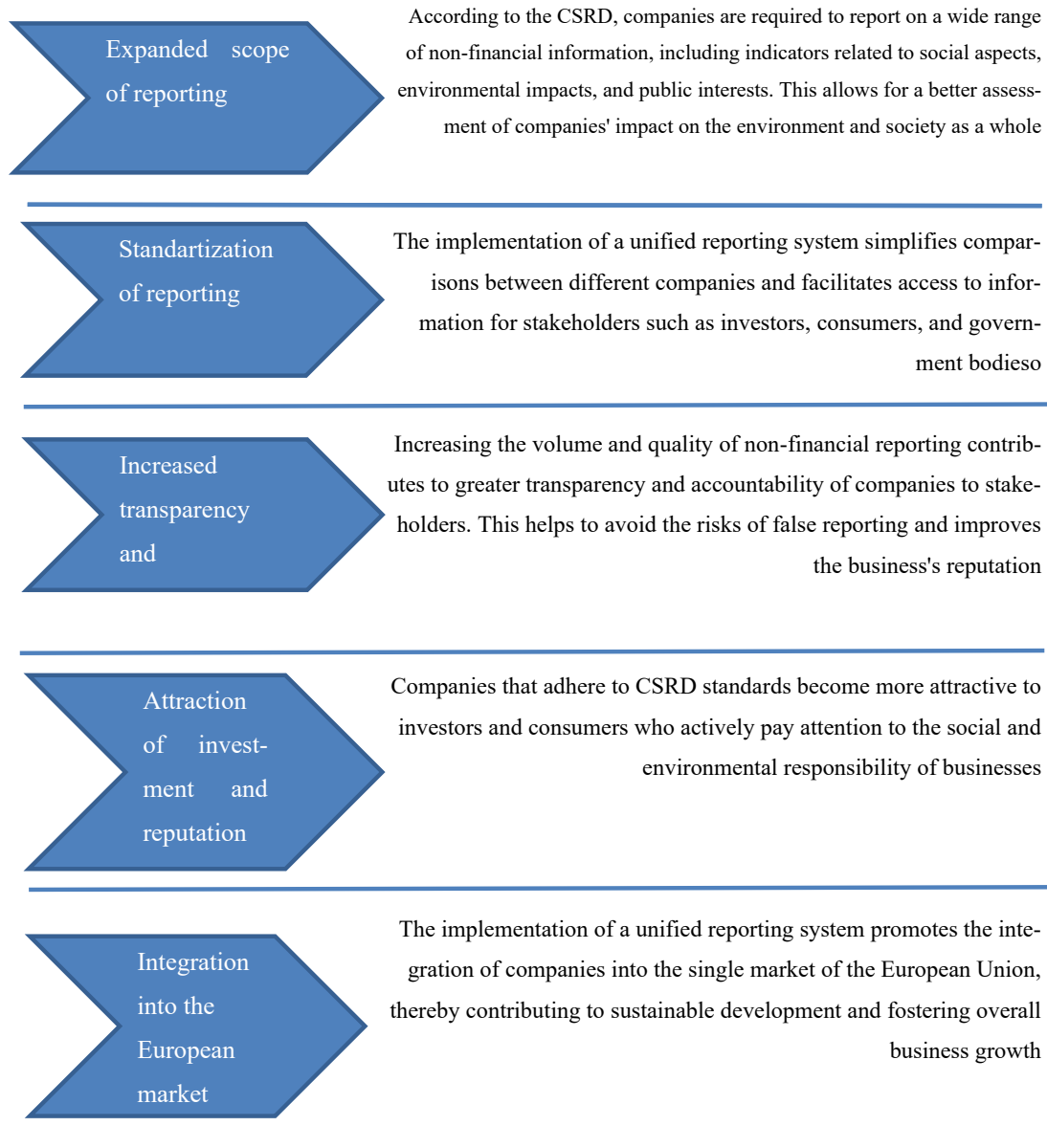


Figure 3

However, if companies fail to meet the new non-financial reporting requirements, it may result in loss of investor and other stakeholders' trust, negatively impacting the company's reputation and financial position.

**Conclusions from the conducted research**

The implementation of standards has significant potential to stimulate sustainable development and enhance corporate responsibility [10, 11, 12]. This trend is particularly important in the modern world, where companies are challenged to balance their commercial interests with societal needs and environmental preservation.

Firstly, standardized non-financial reporting incentivizes companies to develop and adopt strategies aimed at sustainable development. Special attention is given to the impact of activities on social, environmental, and economic aspects, as well as the development of specific measures to reduce negative impacts and support sustainable

development. For example, companies may implement programs to reduce emissions, optimize resource utilization, and support social programs for local communities.

Secondly, the implementation of CSRD encourages companies to take greater responsibility for their actions. Companies recognize their role in society and the natural environment and take more proactive steps to reduce negative impacts and promote sustainable development. This may include implementing environmental initiatives, social programs, and measures to support transparency and ethical conduct.

Thirdly, companies actively implementing CSRD standards have a better reputation among consumers, investors, and the public. This can lead to increased trust in the brand and enhanced competitiveness in the market. Companies may gain an advantage in the competitive environment due to their commitments to sustainable development and social responsibility.

Table 1 – The main differences between the NFRD and the CSRD [5, 6]

The main differences	Non-Financial Reporting Directive (NFRD)	Corporate Sustainability Reporting Directive (CSRD)
Scope of application	Extends the scope of reporting requirements from approx 12,000 subjects	Extends the scope of reporting requirements from approx 50,000 subjects
Chronology	Currently valid but will be replaced by CSRD	It will be applied from January 1, 2023
Goals	Increasing the transparency and comparability of companies' reporting on sustainable development	Improving the quality and consistency of companies' reporting on sustainable development
Reporting requirements	Mandatory reporting on environmental protection, social responsibility, employee relations, board diversity and human rights	Introduces more comprehensive reporting obligations, including the concept of dual materiality, long-term ESG goals, due diligence of operations and supply chains, disclosure of intangible information, alignment with sustainable finance rules and mandatory external validation.
Harmonized reporting standards	Allowed companies to choose from different reporting systems, resulting in a lack of unified standards.	Aligns with the European Sustainability Reporting Standards (ESRS), providing a common set of guidelines and reporting requirements under this framework.
External support	External support was optional	External confirmation is mandatory.
Digital reporting	There are no special requirements for standardized digital reporting.	Requires companies to format and publish their sustainability reports in a standardized digital format, promoting accessibility and comparability.
Sanction for non-compliance	Companies that do not comply can face fines or legal action from stakeholders	Companies that do not comply can face fines or legal action from stakeholders

Source: compiled based on [5, 6]

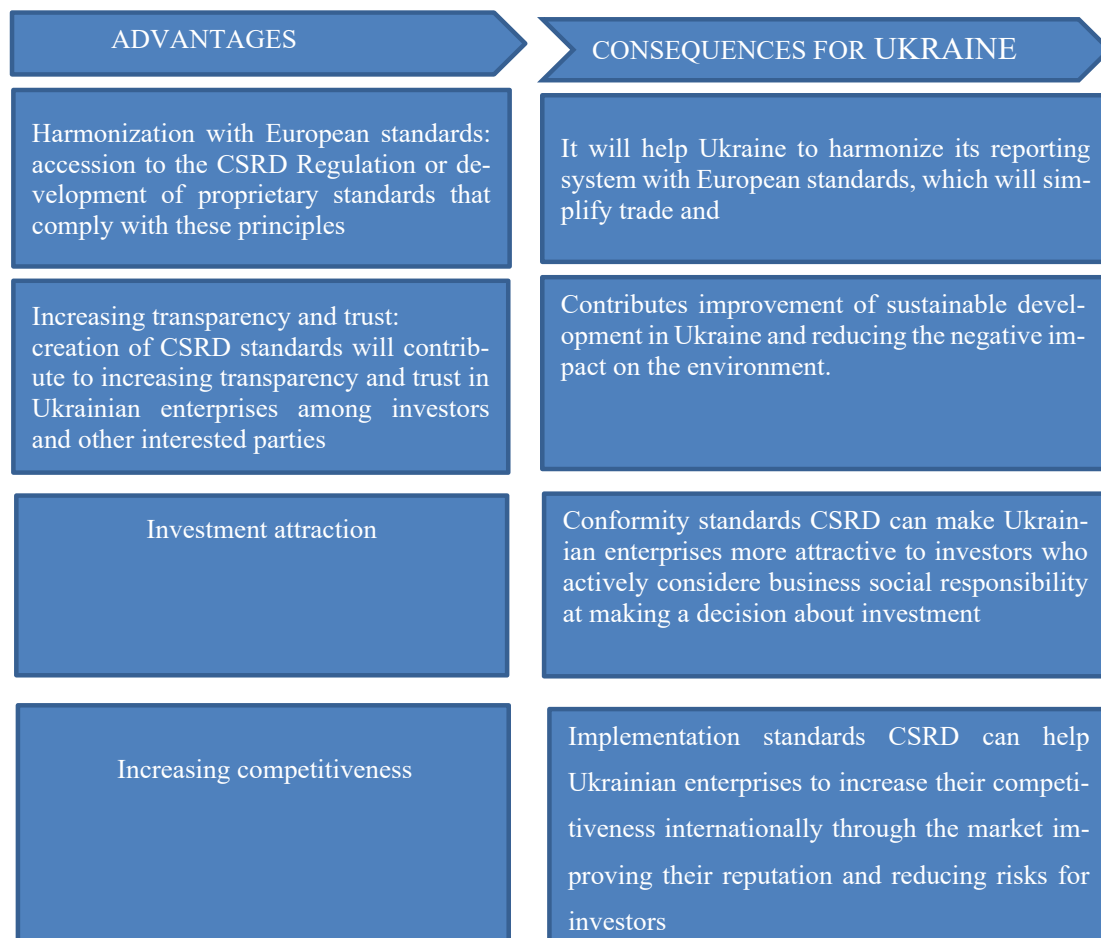


Figure 4

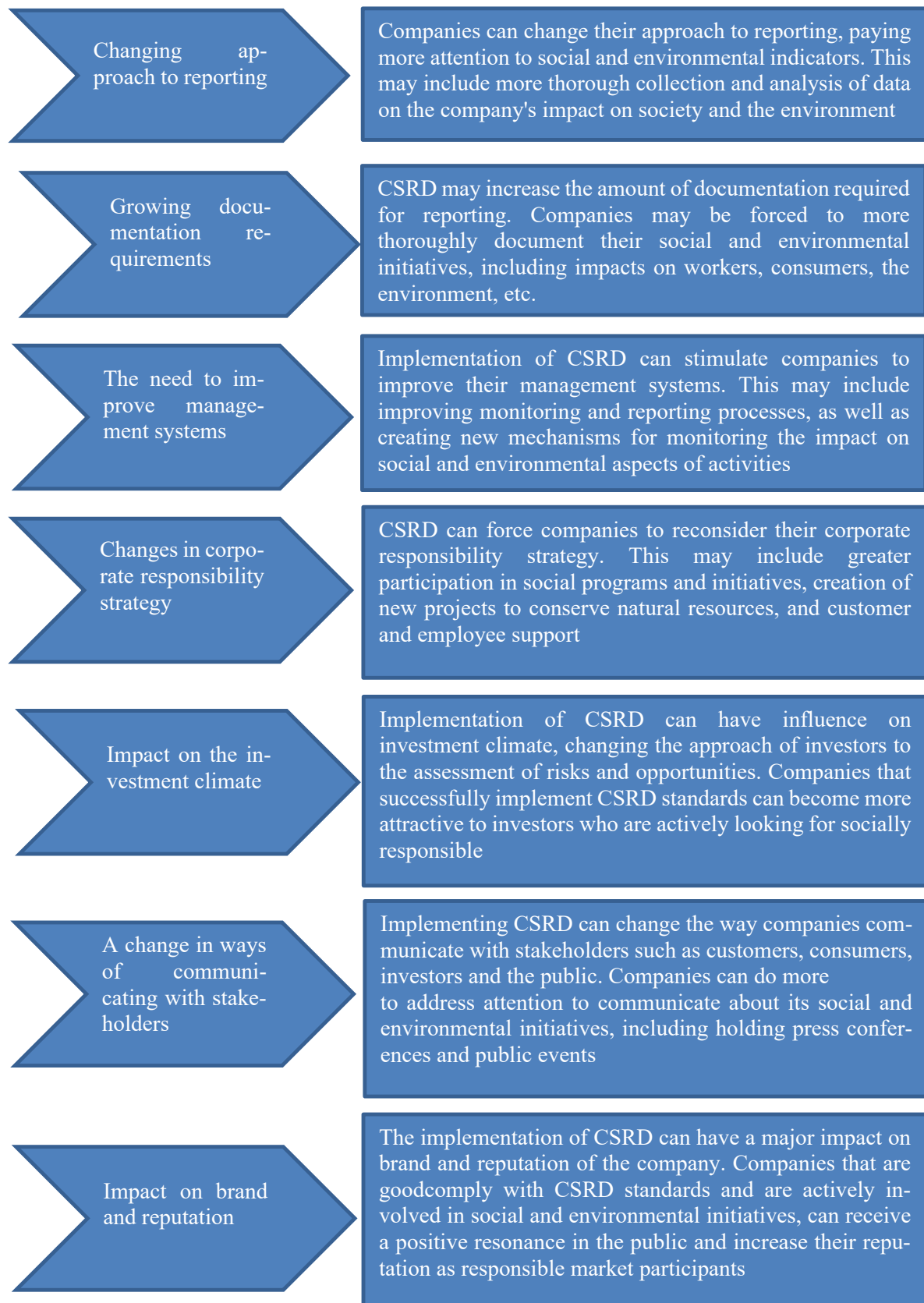


Figure 5

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# THEORETICAL AND APPLIED ASPECTS OF ECONOMIC PROCESSES IN UKRAINE AND IN THE WORLD ECONOMY

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## EXPORTS FROM UKRAINE DURING THE WAR AND THE CHALLENGES FACED BY THE STATE

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**Key words:**

import, export, market factors, hostilities, competitiveness, export dependence, partner countries, grain conflict, grain initiative.

The article is devoted to the changes in the structure of Ukrainian exports during the hostilities. Changes in Ukraine's imports and exports are analyzed, and the goods that account for the largest share of the country's imports and exports are analyzed. The changes in the structure and geography of Ukraine's partner countries are identified. The impact of market factors on the economy of Ukraine and on the economies of some partner countries is studied. The processes that directly affect the volume of exports of Ukrainian products abroad and their components are considered, as well as the main export goods shipped abroad during hostilities. The processes in the foreign trade policy management system of some of Ukraine's partner countries, which are caused by extreme circumstances, are considered. The author analyzes the motives that guide the subjects (in our case, the partner states). It is determined what measures should be taken by Ukrainian enterprises to maintain the competitiveness of their products in European markets, taking into account possible changes in EU policy on facilitating imports from Ukraine during hostilities. The author also analyzes the impact of the countries importing Ukrainian products on the possible escalation or de-escalation of hostilities to protect their economic interests related to Ukrainian products.

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## ЕКСПОРТ З УКРАЇНИ ПІД ЧАС БОЙОВИХ ДІЙ ТА ПРОБЛЕМИ, З ЯКИМИ СТИКАЄТЬСЯ ДЕРЖАВА

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**Ключові слова:**

імпорт, експорт, ринкові чинники, бойові дії, конкурентноспроможність, експортна залежність, країни-партнери, зерновий конфлікт, зернова ініціатива.

Статтю присвячено розгляду змін у структурі українського експорту продукції під час бойових дій. Проаналізовано зміни в імпорті та експорті України, та проаналізовано товари, на які припадає найбільша частка імпорту та експорт держави. Визначено, які зміни були проведені у структурі та географії країн-партнерів України. Вивчено вплив ринкових чинників на економіку України та на економіку деяких держав-партнерів. Розглянуто процеси, які прямо впливають на обсяги експорту української продукції за кордон та їхні складові, також розглянуто основні експортні товари, які відвантажуються за кордон під час бойових дій. Розглянуто процеси в системі управління зовнішньоторговельної політики деяких країн-партнерів України, які зумовлені екстремальними обставинами. Здійснений аналіз мотивів, якими керуються суб'єкти (в нашому випадку держави-партнери). Встановлено, яких заходів необхідно вжити на українських підприємствах, щоб підтримати конкурентноспроможність продукції на європейських ринках збування, з огляду на можливі зміни в політиці ЄС стосовно сприяння імпорту продукції з України під час бойових дій. Також проаналізовано вплив країн-імпортерів української продукції на можливу моменту ескалації чи деескалації бойових дій для захисту своїх економічних інтересів, пов'язаних з українською продукцією.

### Statement of the problem

In 2023, Ukraine's export-dependent economy continued to struggle with the consequences of the reduction in the supply of Ukrainian goods abroad due to the hostilities.

In 2023, Ukraine exported almost \$36 billion worth of goods, of which the budget received more than UAH 550 million as a result of export duties. Exporters received 15% less revenue compared to the same period in 2022 (\$28.9 billion) and 41% less compared to \$41.8 billion in 2021. In total, exports of goods in 2022 amounted to \$44.2 billion, which is 35% less than in 2021.

However, Ukraine's exports in physical terms increased and amounted to almost 100 million tons of goods. This is 112 thousand tons more than in 2022. B

However, in value terms, the figure fell by 18.7% or \$35.8 billion. In 2023, the Ukrainian economy lost revenue in most export items.

For example, corn, the largest export commodity by volume, while growing by 5% in physical terms, brought in 16.8% less in money than a year earlier. Last year, Ukraine exported 26.2 million tons of this grain crop. Unlike exports, imports in monetary terms increased last year and amounted to \$62.2 billion dollars. Most of all, Ukraine imported fuel worth \$7.8 billion, "miscellaneous" (what is not advertised, most likely equipment for the military) worth \$3.7 billion, medicines worth \$1.7 billion, and UAVs worth \$681 million. Other dominant imports include cars, fertilizers, and plant protection products." [4]

### Analysis of recent articles and publications

Yulia Svyrydenko, First Vice Prime Minister of Ukraine and Minister of Economy, said: "Last year's export revenues reached one of the lowest levels in the last decade. This is an expected and objective result, which was the result of problems in logistics. We are now slowly solving them. We have launched an alternative corridor in the Black Sea, are developing river transportation on the Danube, and are negotiating with the Polish side to unblock the border. Thanks to this, in December, for the first time in the second half of the year, we exported products worth more than \$3 billion. In December, we also exported more than 10 million tons for the first time since March." In addition, Yulia Svyrydenko noted that last year Ukraine had a significant trade deficit in goods worth \$26.4 billion. It was caused by two key factors – problems in logistics and defense needs in 2023. Therefore, in 2024, the government will work to strengthen export logistics with air defense systems and find new ways to export goods and services." [4]

### Formulating the objectives of the article

The purpose of the article is to consider the main problems, opportunities and consequences of reorientation of Ukraine's economy to export its products to the EU during the hostilities, and to provide recommendations for businesses to maintain the competitiveness of their products in the event of a change in EU policy, under internal pressure, regarding the import of Ukrainian products.

### Presentation of the main material

The new composition of the main buyers of Ukrainian goods, in which Russia and Belarus lost their leading positions in 2022 – fifth and fourteenth in 2023, respectively – continues to be formed against the backdrop of geopolitical rebalancing and sanitation policy.

The top three countries to which Ukraine exported the most goods in 2023:

1. Poland: \$3.4 billion (-25.2%).
2. Romania: \$2.6 billion (+20.6%).
3. China: \$1.8 billion (+8.4%).

However, relations with our largest partner, namely Poland, were damaged by the so-called "grain issue". The Law and Justice government of Poland needed only a few weeks of the election campaign to bring friendly relations with Ukraine to a state best illustrated by the events of the 78th session of the UN General Assembly, as well as by loud statements by politicians in Warsaw and Kyiv.

In response to an offense at Ukrainian President Volodymyr Zelenskyy's emotional statement from the rostrum of the UN General Assembly about Poland's unilateral grain embargo (which, incidentally, did not explicitly name the country), Polish Prime Minister Mateusz Morawiecki not only confirms his intention to extend and expand the grain embargo, but also announces the end of arms supplies and military aid. The government representative promises to stop social support for Ukrainians, including the youngest, who have been granted asylum in Poland.

The harbingers of a possible future grain conflict became apparent almost immediately after the outbreak of hostilities and grew as the blockade of Ukrainian Black Sea ports continued. In July 2022, thanks to UN mediation and the Black Sea Grain Initiative agreement, Ukrainian ports partially reopened and "solidarity corridors" appeared on the territory of European states. The European Commission gave the green light to Ukrainian goods by canceling all duties and quotas. [2] According to the European Union, they allowed the export of almost 33 million tons of grain and food to 45 countries, which, with the closure of a huge number of enterprises and a lack of budget revenues, was a salvation for Ukraine's economy. Poland became one of the land transit corridors for Ukrainian grain. However, it turned out that Poland was not able to effectively receive and export Ukrainian agricultural products, as its transit and port infrastructure was not designed for such volumes.

The prices at which Ukrainian grain was sold were not dumping prices, but market prices. However, they differed significantly from the expectations of Polish farmers, who believed Deputy Prime Minister and Agriculture Minister Kowalczyk and his promises to raise prices for their products, for which he paid with his seat. Despite this, Ukrainian activity on the Polish market was called "unfair competition" and an embargo was imposed due to protests and border blockades by farmers.

The decline in export revenues is partially offset by an increase in supplies to Romania. The southwestern neighbor has helped Ukraine open up logistics opportunities through its ports and land transportation corridors. In the full year of 2022, Ukraine exported \$638 million worth of

grain crops to Poland, and almost twice as much to Romania – \$1.3 billion. In 2023, it exported just over \$200 million to Poland and \$950 million to Romania.”[3]

China is in third place among buyers of Ukrainian exports, only \$11 million ahead of Turkey, whose shipments to Ukraine decreased by 4.2% year-on-year to \$1.8 billion, despite the sanctions pressure from the West, these countries show a large presence of business from Russia, so trade relations between us are going through hard times.

Turkey’s and China’s large influence on the structure of Ukrainian exports has ambiguous consequences. On the one hand, it may become the basis for potential threats in the event of an escalation. On the other hand, China’s and Turkey’s close trade ties with certain types of Ukrainian products could play a stabilizing role during hostilities. Countries will protect their own interests, which may suffer from disruptions in logistics routes. In 2021, China ranked first among the countries of destination for Ukrainian exports, exporting various ores, grains, and oilseeds. Poland and Turkey are also among the top three.

The next seven countries in terms of purchases of Ukrainian exports are the so-called “locomotives of the European economy”: Germany, Spain, Italy, the Netherlands, and neighboring Hungary, Slovakia, and the Czech Republic. However, even these countries are currently experiencing large-scale protests involving farmers and transporters, so the prospects are rather dim.

The commodity structure of exports was as follows (the most popular categories of exported goods from Ukraine during the hostilities in 2023):

Food (agricultural products, etc.): \$14.6 billion.

1. Metals and metal products: \$2.7 billion.

2. Machinery, equipment and transport: \$2.1 billion.

Exports of agricultural products are five times higher than exports of metallurgical goods, although for decades they were quite equivalent channels of foreign exchange earnings for Ukraine. However, this can be explained by the significant use of metallurgical products for the country’s defense and the damage to the industrial base caused by missile and kamikaze attacks.

In January-August 2023, Ukrainian exporters received the most revenue from the sale of grain crops (corn, wheat, barley, buckwheat, sorghum, rye), which accounted for a quarter of all exports in the study period in the amount of \$6.1 billion.

The second place in the export ranking is occupied by the product group “fats and oils” (15.4% of total exports), which includes primarily sunflower, soybean, and rapeseed oils. Also, margarine, fats and waxes are exported in much smaller volumes. The total amount sold is \$3.8 billion.

The third largest group of exports is ferrous metals (7.4% of total exports): semi-finished products made of unalloyed steel, cast iron, flat products, and ferroalloys.

It should be noted that the Ukrainian economy has become overly export-dependent since the hostilities began, with grain becoming the main export commodity. Due to the blockade of the Black Sea ports (shipping by sea is the only way to deliver grain to African countries), farmers have to spend a lot of money to deliver their products to other countries by road or rail. The above facts show

that the price of the final product becomes much higher and can become and is already becoming uncompetitive on international markets. This leads to the closure of farms and causes the loss of jobs and, most importantly, reduces tax revenues to the budget. It should be noted that farmers work not only for foreign consumers but also for domestic ones. Closing farms leads to higher prices on the domestic market. This will negatively affect the prices of the final product and lead to instability within the state, as more and more insolvent citizens appear due to falling incomes.

### Conclusions

The analysis covers exports for 2023. Trends in changes in the leading countries with which Ukraine has been implementing trade and economic relations are already evident. The hostilities and blocked Black Sea ports of Ukraine have changed the geography of sales of Ukrainian goods in favor of the European market, which, however, is currently experiencing instability due to the civil unrest, which could lead to significant changes in the policies of the EU countries. Another problem facing the state is its heavy dependence on exports amid a decline in tax revenues from domestic businesses due to the closure of enterprises and the loss of some assets due to the hostilities, which has led to export revenues becoming almost the only way to raise money, not including support from partner countries, which is currently facing some problems. In view of the above, we can say that the main task of the state is to work out and conclude agreements with partner countries to unblock the borders and open access to the markets of countries that have imposed an embargo on the supply of Ukrainian agricultural products, which became the most important export structure during the hostilities.

However, the fighting has also produced unexpected positive results: medium-sized Ukrainian businesses have begun to conquer international markets. Manufacturers of food products, clothing, furniture, building materials, and industrial equipment-hundreds of Ukrainian entrepreneurs-have decided to try their hand at EU markets, but the main advantage now is the price due to the abolition of duties by the European Union, although not on a permanent basis. At the moment, it is incorrect to talk about government support, as there is a budget deficit and all available funds are being used, and should be used, for the country’s defense. Given the above, Ukrainian producers need to identify other competitive advantages to stay in this market. At the moment, this may include improving the quality of products and obtaining European-standard quality certificates, which can now be obtained under a simplified procedure. Exports can also become a lifeline for many companies, as the main problem of recovery and development is the lack of solvent customers in the domestic market.

Currently, according to surveys, about 40% of companies consider exports to be a crucial area of business development. Thanks to the sanctions, many businesses can find new niches for their exports. Companies that are just entering foreign markets have many support tools, from foreign market analytics to grants from partner countries and donor companies.

Another important aspect of export profit growth is the sale of finished goods abroad. For many years, Ukraine has

been selling components for the manufacture of finished products and then importing them back to Ukraine (for example, rolled metal products, which are needed to make a wide range of products, from kitchen knives to cars and manufacturing machines). Some companies are already implementing this strategy, and some furniture manufacturers have started exporting their products, which, by the way, sell quite well abroad due to their good quality and lower prices than those of European competitors.

Given the above, we conclude that exports are currently a very important aspect of the economic stability of the state during hostilities, and its sustainable development is therefore of paramount importance to the state. The state must work constantly to preserve the benefits and support from partner countries for exports in transit or directly to them. Our enterprises need to develop their product range and switch to exporting finished products rather than components for their manufacture, which will help increase export revenues.

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## PROSPECTS FOR INCREASING THE COMPETITIVENESS OF UKRAINIAN PRODUCTS ON THE GLOBAL MARKET (USING THE SUGAR INDUSTRY AS AN EXAMPLE)

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### **Key words:**

competitiveness, sugar industry, trade, development, prospects.

In the article, the authors examine the sugar industry of Ukraine, which is one of the oldest and most competitive domestic industrial industries. It is noted that the industry gained its competitiveness as a result of favorable conditions for growing and processing sugar beets.

The authors noted that sugar is a strategic food product and every year this product occupies a more important place in world trade, which makes it possible to consider the market of granulated sugar from sugar beets as one of the most important sectors of the food market of Ukraine. It is noted that during the war in Ukraine, sugar production suffered many losses, among them: loss of acreage, production infrastructure, logistics networks, and labor resources. It is justified why the war with the Russian Federation forced Ukrainian sugar producers to function in a state of emergency, which caused a rapid reorientation of production and trade.

The article states that since the sugar beet complex has always had strategic importance in the economy of the state, the current state and problems of the sugar industry in recent years cause concern and prompt specialists and experts to look for possible ways to solve them, prospects for recovery and development. Therefore, the study and analysis of the problems and opportunities of the sugar industry in terms of foreign trade is relevant today.

The authors assume that the competitive position of the Ukrainian sugar industry gives every reason to assert that domestic sugar producers have broad prospects for overcoming the problems caused by the war and restoring their production capacities.

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## ПЕРСПЕКТИВИ ПІДВИЩЕННЯ КОНКУРЕНТОСПРОМОЖНОСТІ УКРАЇНСЬКОЇ ПРОДУКЦІЇ НА СВІТОВОМУ РИНКУ (НА ПРИКЛАДІ ЦУКРОВОЇ ГАЛУЗІ)

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### **Ключові слова:**

конкурентоспроможність, цукрова галузь, торгівля, розвиток, перспективи.

У статті авторами досліджується цукрова галузь України, яка є однією із найстаріших та найбільш конкурентоспроможних вітчизняних індустріальних галузей. Зазначається, що галузь здобула свою конкурентоспроможність в результаті сприятливих умов для вирощення та обробки цукрових буряків.

Авторами зауважено, що цукор – стратегічний продовольчий товар і з кожним роком даний продукт посідає вагомше місце в світовій торгівлі що дає змогу розглядати ринок цукру-піску з цукрових буряків як один із найважливіших секторів продовольчого ринку України. Констатується, що під час війни в Україні цукрове виробництво зазнало багатьох втрат, серед них: втрата посівних площ, виробничої інфраструктури, логістичних мереж, трудових ресурсів. Обґрунтовується, чому війна з РФ змусила українських виробників цукру функціонувати в надзвичайному стані, що спричинило стрімку переорієнтацію виробництва та торгівлі.

У статті зазначено, що, оскільки, в економіці держави цукробуряковий комплекс завжди мав стратегічне значення, сучасний стан і проблеми цукрової галузі в останні роки викликають занепокоєння і підштовхують

фахівців та експертів шукати можливі шляхи їх вирішення, перспективи відновлення і розвитку. Тому вивчення і аналіз проблем та можливостей цукрової промисловості у розрізі зовнішньої торгівлі на сьогоднішній день є актуальним.

Автори припускають, що конкурентна позиція цукрової галузі України дає всі підстави стверджувати, що вітчизняні виробники цукру мають широкі перспективи подолання проблем спричинених війною та відновити свої виробничі потужності.

### **Formulation of the problem**

Due to the problems of the Ukrainian sugar industry caused by the war with the Russian Federation, the priority issue is overcoming the crisis situation and restoring the competitive positions of domestic sugar producers on the world market. The industry needs operational solutions that are able to preserve its potential and set the development vector for the future.

### **Analysis of recent research and publications**

The article pays attention to the works devoted to the research of the competitive position of enterprises of various industries, in particular: the works of K.I. Antoniuk [1], [2], [3] and N.V. Kudenko. [5]. Since the current state of the economic environment is rapidly changing, the issue of increasing competitiveness always requires relevant proposals.

### **Formulation of the goals of the article**

The goals of the article are to characterize the general state of sugar production in Ukraine and the world, to study the strengths, weaknesses, opportunities and threats to the functioning and development of the sugar industry of Ukraine during the war with the Russian Federation, to make proposals for increasing the competitiveness of sugar industry products on the world market.

### **Presenting main material**

Ukraine is a leading producer and exporter of sugar. Sugar production is traditional for the country due to available natural resources and climatic conditions. Annually, in pre-war times, the sugar industry brought the state about 1 billion dollars. due to exports [4]. Currently, sugar production in Ukraine is operating in a state of crisis caused by external threats. Among the threats, it is advisable to single out the following: reduction of cultivated areas, logistical problems, financial difficulties, destruction of infrastructure, reduction of labor potential due to hostilities, migration, mobilization, increase in prices for production resources.

Due to the listed problems, the production of sugar in Ukraine has greatly decreased. Some sugar factories are operating at a loss, the volume of sugar exports has decreased significantly. Despite the availability of all natural and climatic resources, Ukraine cannot reach the level of Western European indicators regarding the use of raw materials.

In fig. 1, we will consider the main global producers of sugar according to data from 2020 to 2023. It should be noted that world sugar production exceeds 123 million tons. 69% of producers get sugar from sugar cane, and 31% – from sugar beets.

As we can see from fig. 1, the leader in sugar production in the world is Brazil (19 thousand tons as of 2023), in second place with almost the same volume are the EU countries and India, with production of 18.4 thousand tons. and 17.9 thousand tons. in accordance. Brazil and India use sugar cane as a raw material for production. Trends in the global sugar industry reflect the competitive position of cane sugar.

Dynamics of sugar production volumes from 2012 to 2023 presented in fig. 2 [6].

As we can see from fig. 2, the maximum of sugar production in Ukraine is in 2012, the minimum is in 2021, which is explained by the impact of the corona crisis and the low yield of sugar beet. The average volume of sugar production from 2012 to 2023 – 1727 thousand tons As of 2023, the production volume is lower and amounts to 1,250 thousand tons.

The main indicators of the sugar beet and sugar harvest in Ukraine for 2011-2022 are presented in fig. 3 [6].

The yield of sugar beet decreased significantly compared to previous periods. Since 2017, a decrease in yield by approximately 1,000 thousand tons has been characteristic. annually. As of 2022, the yield of sugar beet is 9,017 thousand tons.

At the current stage of the development of the economy of Ukraine, the question of assessing the competitiveness of the products of the processing branches of the agro-industrial complex is quite important.

Let's consider the main factors that affect the competitive position of products of sugar industry enterprises in Fig. 4.

The analysis of the competitive advantages of the sugar gas industry of Ukraine by the SWOT analysis method is given in Table 1.

Thus, the competitive advantages of the sugar industry of Ukraine should be strengthened in order to bring products up to new standards of the international market. The following can be noted in more detail for each aspect.

#### **1. Power and capabilities**

- patentability of goods, output: confirmed by the presence of sufficient indicators of production and sales of products equivalent to average indicators in the world;

- adequate personnel potential that is able to perform work in accordance with the requirements of current legislation and generally accepted standards;

- access to reliable logistics routes that will provide access to both regional and foreign markets, bypassing the obstacles caused by the war.

The possibility of maintaining these strong positions and strengthening them is the main priority of the future development of the industry.

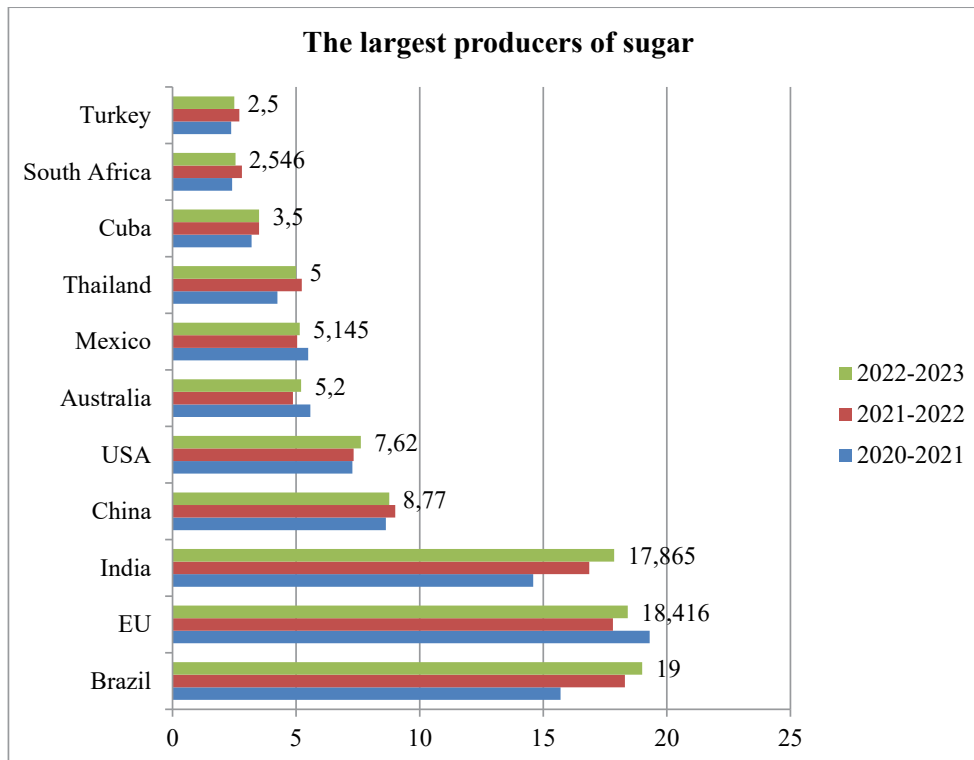


Figure 1 – The largest producers of sugar for 2020-2023 (thousand tons of sugar)

Source: developed by the authors based on [6]

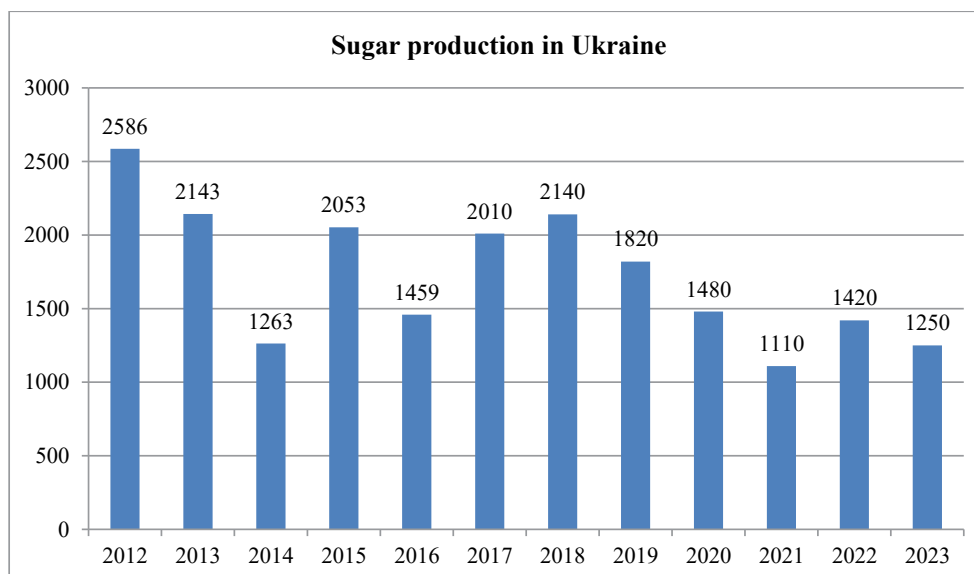


Figure 2 – Dynamics of sugar production volumes from 2012 to 2023, thousand tons.

Source: developed by the authors based on [6]

2. Weakness and opportunities

– the strength of competition on «input» and «output»: the weakness is that the produced sugar does not fully comply with international standards. A possibility is the transition of production to new production technologies with the introduction of international standards in the process of sugar production.

– infrastructure: the company develops its own infrastructure rather slowly due to a lack of funds. However, when the enterprise enters the international market as a competitive producer, it will provide an opportunity to receive significant additional profit from sales, which means funds for the development of its own infrastructure.

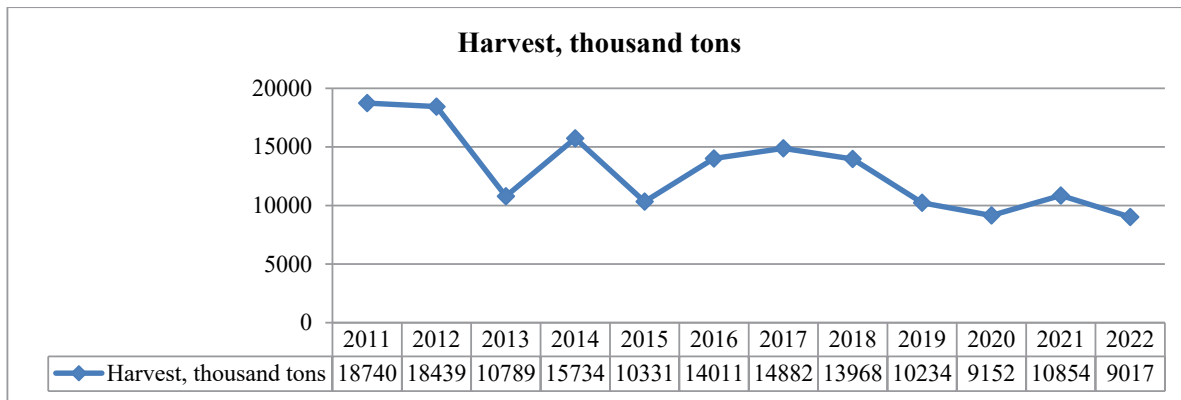


Figure 3 – Sugar beet yield from 2011 to 2022, thousand tons

Source: developed by the authors based on [4]

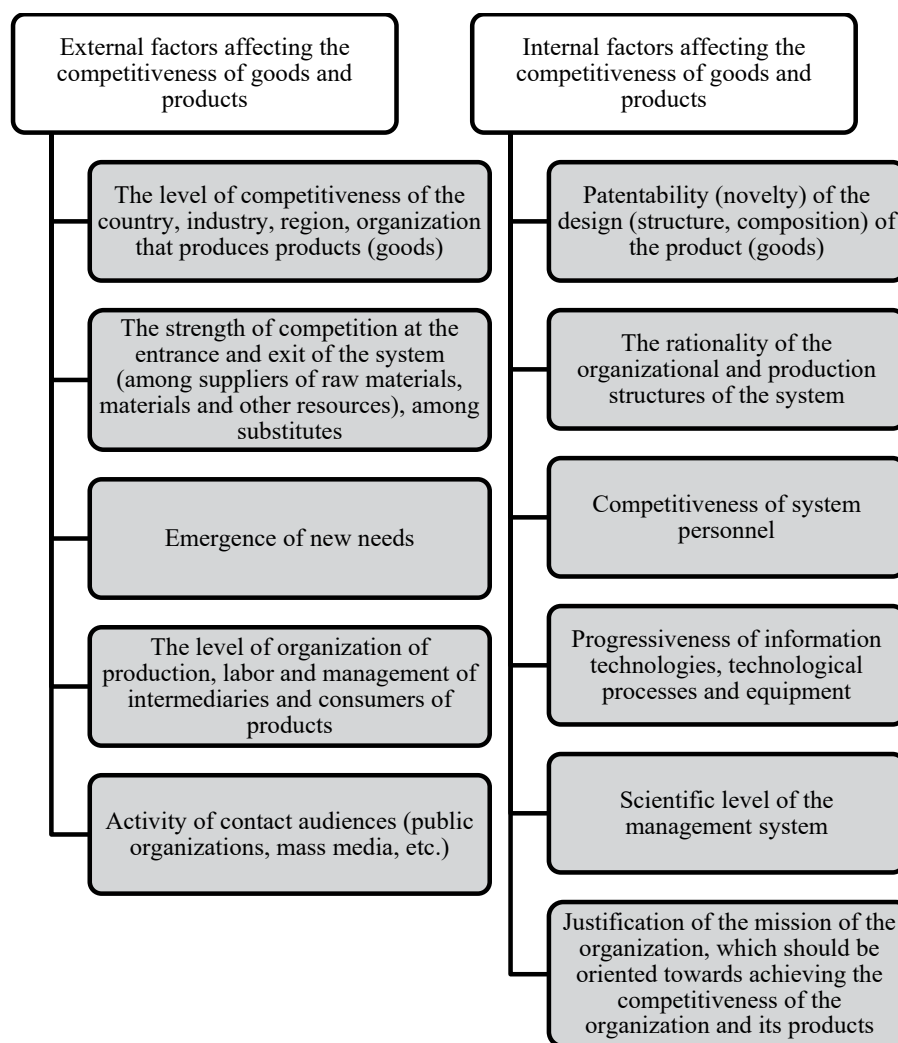


Figure 4 – Factors of competitiveness of sugar industry enterprises

Source: developed by the authors

1. 3. Power and threats

– the cost of production resources used by sugar industry enterprises: modern production requires high-quality sugar beets, appropriate technical

equipment, resource provision (electricity, water supply). All of the above indicates the high cost of resource provision, which is reflected in the price of the final product [3, c. 100].



Table 1 – SWOT analysis of the sugar industry of Ukraine

№	Correlation of the state of the company's potential and directions of transformation	The level of effective use of all types of resources available to the firm
1.	(Strength and capabilities)	– patentability of manufactured goods – staff qualification – location of the company
2.	(Weakness and opportunities)	– infrastructure – the strength of competition among international companies
3.	(Power and threats)	– the cost of production raw materials and production resources – management system (including marketing) – price of goods
4.	(Weakness and Threats)	– Degree of technology innovation – The condition of the main production assets

Source: developed by the authors based on [4]

Table 2 – Signs of strength and weakness in the competitive position of the sugar industry

№	Signs of strength	Signs of weakness
1	The presence of real advantages over competitors	Losses in the sales market due to the main competitors
2		A consistent strategy for improving the company's work is very slow
3		
4	Growth in the number of consumers and established sales channels	A manufacturer of products with a high cost price
5		Income growth is below average
6	High level marketing promotion	Intermediate technological and innovative skills
7		A creative entrepreneurial approach to sub-average threats
8	Expansion of production capacities	

Source: developed by the authors

– Not all enterprises of the sugar industry of Ukraine work on strengthening the positive image of products on the international market, and the creative initiative of presentation and promotion of products is also not noted. Most enterprises do not have a system of socially responsible production.

4. Weakness and threats

– equipment requires updating and introduction of more powerful and energy-efficient equipment (taking into account Ukraine’s energy problems due to military operations);

– progressiveness of technology: enterprises of the sugar industry of Ukraine use technological equipment, which is mostly morally and physically outdated, and acceleration of depreciation is impossible due to price restrictions [4]. At the same time, the threat is that competitors can use technological equipment characterized by high power, resource intensity, energy intensity, which provides high quality characteristics.

Considering the functioning of the sugar industry of Ukraine in terms of competitiveness on the world market, the following important factors can be noted, which are listed in the table. 2.

According to the results of the analysis of the sugar industry of Ukraine in the international space, the advantages and disadvantages of the work for the previous period were studied and the directions of the search for reserves were determined to create favorable conditions for the production of competitive products.

We consider it expedient to propose measures to eliminate the identified shortcomings and further development of the industry:

1. Replace outdated equipment; namely: continuous-action centrifuges and drying-cooling complexes based on modernized imported drum dryers (on the example of

Germany). Among the largest suppliers of this equipment are such foreign companies as: Fives Cail (France), Sangerhausen (Germany), Thyssenkrupp (Germany-India).

2. To increase the capacity of the plant by increasing the daily processing capacity of the plant; to improve the quality of products due to the introduction of new technological equipment for sugar production.

3. The introduction of a quality control and product safety system at the plant in accordance with international standards ISO 9001:2000 and certification of the plant in accordance with the ISO 9001:2004 standard will provide additional advantages in the competition with other manufacturers of granulated sugar and in conquering new foreign sales markets [5, c. 68].

4. Adopt the principle of ecological production, socially responsible production in EU countries (Germany, the Netherlands).

**Conclusions**

In the course of the conducted research, we determined the general state of the sugar industry in the world, namely: the leading countries of sugar production were identified, their production volumes were analyzed, and Ukraine’s place in sugar production was determined.

The factors of the competitiveness of the sugar industry on the world market are given, and the main aspects of the functioning and development of enterprises of the sugar industry of Ukraine are analyzed on the basis of SWOT analysis.

The authors present suggestions for improving the competitive positions of sugar industry enterprises of Ukraine based on the experience of enterprises in Germany, France, and the Netherlands.

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## DIGITALIZATION OF SMALL AND MEDIUM-SIZED BUSINESSES IN UKRAINE AS A SUCCESS FACTOR IN INTERNATIONAL MARKETS

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**Key words:**

international markets, war, global markets, world economy, online marketing, digitalization, entrepreneurship, small and medium enterprises (SMEs), competitiveness, reforms, development strategy.

Innovation and digitization have a major impact on business competitiveness, and it is growing rapidly. But the problem is that a significant proportion of Ukrainian manufacturers do not realize this, relying on proven but outdated methods of doing business. Most SMEs use standard computer tools and software at the level of basic processes (electronic accounting, communication, use of websites and social networks). Nevertheless, only a few of SMEs representatives use digital technologies for planning and forecasting business operations, and cloud computing services, which have become popular in developed economies, are almost not used by Ukrainian businesses. The article analyzes the reasons for this situation, provides the results of a survey of SME managers with relation to the digitization of processes at their production facilities, and proposes systemic solutions in the field of increasing business capabilities related to international online trade.

## ЦИФРОВІЗАЦІЯ МАЛОГО І СЕРЕДНЬОГО БІЗНЕСУ В УКРАЇНІ ЯК ФАКТОР УСПІХУ НА МІЖНАРОДНИХ РИНКАХ

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**Ключові слова:**

міжнародні ринки, війна, глобальні ринки, світова економіка, онлайн маркетинг, цифровізація, підприємництво, малі і середні підприємства (МСП), конкурентоспроможність, реформи, стратегія розвитку.

Інновації та цифровізація мають серйозний вплив на конкурентоспроможність бізнесу, і він стрімко зростає. Але проблема полягає в тому, що значна частка українських виробників це не усвідомлює, сподіваючись на перевірені але застарілі методи ведення бізнесу. Більшість МСП використовують стандартні комп'ютерні інструменти та програмне забезпечення на рівні базових процесів (електронна бухгалтерія, комунікація, використання сайтів та соц-мереж). Однак лише одиниці з представників МСП користуються цифровими технологіями для планування та прогнозування економічної діяльності бізнесу, а послуги хмарних обчислень, які стали популярними в розвинутих економіках, майже не використовуються українським бізнесом. В статті проаналізовані причини такої ситуації, надані результати опитування керівників МСП щодо цифровізації процесів на їх виробництвах, запропоновані системні рішення в галузі розширення можливостей бізнесу у сфері міжнародної онлайн-торгівлі.

**Problem stating**

International logistics, transnational trade barriers, new methods of transaction costs, involvement of artificial intelligence, digitalization of quality control processes – all this requires a digitalization strategy for every SME enterprise that works or is preparing to work with international partners and secure a foothold in global markets. Small businesses of all countries of the world are increasingly

showing the characteristics of globalization, which is manifested in the increase in foreign economic activity, in the deployment of global information technologies, in the harmonization of forms and in business gold standards of entrepreneurial activity [1]. Moreover, new business structures, the so-called “small transnational companies”, have come to global markets, which are quite on firm ground on the world trading platforms, having a small number of full-time personnel [2, p.2]. It is becoming apparent that

the equilibrium growth of the global economy is going to occur due to the digitization of markets and access to them by business players.

### Analysis of latest research and publications

Scientists lay special emphasis on the fact that digital transformation of the business sector is of crucial importance for supporting the dynamic character of the Ukrainian economy in the era of digital technologies (Shevchenko I. O., 2022). “Ukrainian companies are relatively positive concerning digitalization, but mostly feel they are lagging behind their competitors in digital transformation. Although technology companies and other global innovators have not yet targeted at the Ukrainian market, they will do so in the long run” [3]. Foreign scientists focus extensively on the topic of increasing the efficiency of trade on international markets and the use of online technologies: S. Hensler, M. H. Dekimpe, V. Skiera [4] considered the ways and methods of evaluating the effectiveness of the defined channels of goods and services promotion within the framework of using multi-channel strategies; Fang-FangTang and XiaolinXing[5] devoted their studies to the same question; M. Laroche, I. Kiani, N. Economakis and M.O. Richard [6] studied the psychology of consumer behavior and its response to online sales technologies; Chatterjee S. and Kar A.K. investigated the application of marketing technologies in SMM by small and medium-sized companies in particular, and provide the experience of Indian entrepreneurs as a vivid example [7]. Beginners on the way to conquering international markets and implementing the digitalization of their own marketing should become acquainted with the “bible” of the SMM manager – TheFinancialTimes guide to social media strategy [8]. David Mirman Scott fundamentally teaches the theory of digital marketing in his book *The New Rules of Marketing and PR*, which has become a world bestseller and has been translated into 29 languages. Among Ukrainian authors, it is worth noticing the paper of K. V. Shimanska and Bondarchuk V. V. *Analysis of Marketing Possibilities of Using Online Channels for the Promotion of Products of Ukrainian SMEs* [9], in which the distinguishing characteristics and features of the use of various online channels for the promotion of products to foreign markets are formulated. Generally, there are many scientific papers in the field of neuroscience and their use in marketing. Even too much. And since technologies are developing quite quickly, there is a need to create basic concepts of using online technologies in business with adaptation to Ukrainian day-to-day realities.

### Goal formation

The goal of the article is to analyze the main issues of the development and implementation of digital technologies by small and medium-sized businesses of Ukraine under war conditions and outline the priorities on the way to digitalization of domestic business.

### Statement of basic material of the research

Ukraine is one of the countries producing IT-sector products and even ranks 12th in terms of the number

of founders of “unicorn” companies. And although the Ukrainian government supports the digitalization of the country in every possible way and has even included the development of digital technologies in the list of key areas of the “National Economic Strategy until 2030”, analytical studies indicate a low level of digitalization of about business processes.

As with the latest technologies, digitalization is moving forward primarily among representatives of large businesses. But SMEs are more mobile and flexible business structures, so in this sense, small and medium-sized businesses should not remain aloof from the technologies of the digital era. But this does not happen. The reason are that the level of understanding of digitalization by managers and founders of SMEs is low. Even among large companies, only 20% of Ukrainian companies have a digital strategy. Moreover, only a few companies of all sizes have assigned the responsibility for digital transformation to a digital department or a digital transformation coordinator. A small proportion of large companies have not taken any measures from this perspective [1]. If you look in comparison, the lowest indicators of innovative activity among the countries of the European Union have Portugal – 26% and Greece – 29%, but even these indicators are twice as high as in Ukraine. And compared to leading countries such as the Netherlands (62%), Austria (67%), Germany (69%), Denmark (71%) and Ireland (74%), this gap with Ukraine is almost five times lower [10]. The rapid digital transformation is based on digital trends that should be monitored and studied by small and medium-sized businesses. And it is necessary to give consideration to this at all levels – from the service department or an employee to the head of the enterprise. If the manager or top management does not understand the digitalization trends, such an enterprise will not be able to build a development strategy and achieve competitiveness criteria that will bring it to global markets.

In fact, SMEs shall engage digital technologies as an absolute factor for their efficiency and competitiveness. That is, the consumer who receives goods and services on the global market in the era of digitalization does not care who actually produced them – whether it is a transnational corporation or a small or medium-sized enterprise. The main selection criteria are applicable quality, speed of delivery and comfortable service system. The chances for giants and SMEs in global markets are becoming equal in terms of access to the consumer. Today, digital technologies are implemented as part of business processes, and their widespread use can be seen in all spheres of life [12]. This happens because:

- their exponential cost improvement in combination with available cloud services reduces the capital investment required to launch a business;
- their application reduces costs, increases production performance and decision-making efficiency;
- they become cheaper and, accordingly, more accessible owing to free content and services (due to low marginal costs): users pay only part of the value that is created in the digital economy;
- they can be used to create unique products fully adapted to the client’s preferences [12].

An example of the use of digital technologies in agricultural business (Fig. 1):

According to the “Digital Agenda of Ukraine” study, if the digitization of grain production is carried out throughout Ukraine and in all farms, it will increase the volume of production from the current 60 million tons of grain to 85 million tons annually and increase exports from 36 million tons to 63 million tons [13].

Digitization has a great positive impact on all aspects of society and business. This includes access to information and repositories of unique data from around the world, the possibility of improving the level of qualifications of employees of all stages of the production process, this is cost minimization and optimization of management, improvement of the quality of products and services, quick response to any processes and events on the domestic and foreign markets. And this is far from the whole list. However, there are certain warnings. The Razumkov Institute warns that despite a number of good news generated by digitization, it also presents a number of challenges for which both society and business may not be ready: progressive automation and the application of robotics will result in a disruption of the labor market, which will be characterized by unemployment and income inequality [12]. The so-called “digital divide” may cause an imbalance in employment between the generation of “digitalized” young people and middle-aged professionals. Among other threats are violations of information confidentiality, leakage of personal and corporate data, increasing social distance, loss of national traditions and customs.

The development of digital technologies and the rapid promotion and expansion of the representation of artificial intelligence in the field of marketing require the involvement of all possible areas of electronic commerce to promote the products of Ukrainian SMEs to foreign markets. Within this framework, entrepreneurs should consider a set of measures and various resources and schemes that would help build channels for the promotion of goods to the international economic space. These are official electronic trading bases and platforms, reference electronic resources, commercial industry sites, marketplaces and social networks. From the point of view of the ability of domestic businesses to implement online marketing technologies,

it turns out that companies that use a multi-channel strategy in digital commerce would rather choose international marketplaces. This way of selling goods abroad has already shown quick outcomes for many exporters. However, recent changes in the global markets caused by the aggression of the Russian Federation against Ukraine have presented new challenges to business and the necessity to revise some mechanisms in the tactics and strategy of enterprises engaged in or planning to be engaged in export-import activities. Factors that influenced the change of these mechanisms:

- active opposition of local entrepreneurship and trade unions to the import of Ukrainian goods to the territory of EU countries, who have become stable consumers of Ukrainian products in recent years;
- the threat of introducing quotas and restrictions on a number of Ukrainian goods that provoke competition on local markets;
- the complication of the logistics of trade operations related to the blocking of borders, which several countries used as a mechanism to prevent trade in Ukrainian goods;
- the threat of shelling and the destruction of production facilities, which may lead to non-fulfillment of international contracts;
- problems with relocation and personnel problems caused by the outflow of specialists abroad and mobilization;
- imperfect mechanisms of customs taxation, which entails an increase in customs payments and possible downtime and loss of time before moving goods across borders.

At the same time, the availability of all this unfavorable development does little to explain the low activity of many SMEs regarding the implementation of multi-channel digital marketing technology. Even in the domestic market, online trade is mainly carried out by individuals, retail chains and small craft brands. These processes go mainly through two channels: sales in social networks and on their own sites or landing pages. Several Ukrainian marketplaces provide an opportunity to promote goods in the domestic market, but the use of these platforms has become too expensive and getting into the top pages requires significant costs from entrepreneurs without

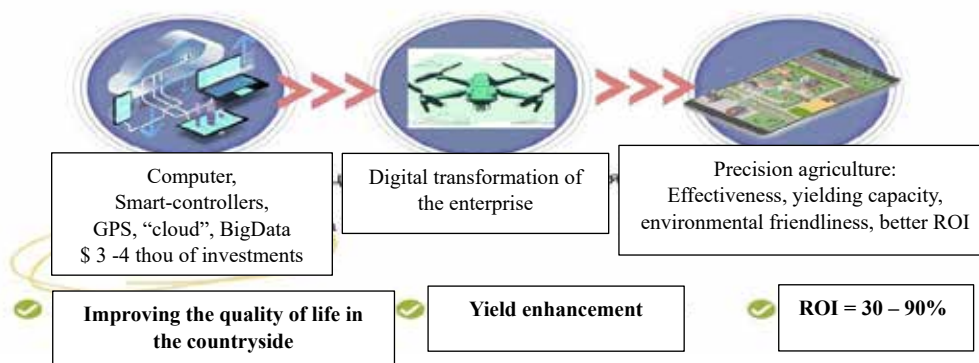


Figure 1 – Digitization of Agricultural Production Using a Cyber Drone

Source: developed by the author based on [13]

guarantees of product sales. Therefore, the use of popular marketplaces claims careful consideration and analysis of its effectiveness. Thus, another important factor should be noted – the development of digital technologies is so rapid that it requires special professional attention, the organization of a special department at the enterprise, which would become the stimulus of sales and promotion of SME products to local and global markets. However, the question becomes in turn of great dependence of the enterprise success on the qualifications and professional qualities of such specialists, who would combine knowledge of marketing technologies, digital literacy at the level of a high-class user, knowledge of foreign languages, legal aspects of international business operations and the ability to understand the production and manufacturing procedure of one's own enterprise. I will give an example.

In 2016, a new technology for using chatbots in messengers to promote the products of small and medium-sized enterprises quickly entered the market. The most convenient platform for the average user was offered by the Smart-Sender aggregator, which was quite aggressively promoted on the market of digital services by several Ukrainian educational companies. At the same time, the effectiveness of this technology was not proven and was even hidden by its propagandists. Entrepreneurs who were tempted to develop and implement these chatbots with sales funnels were forced to invest several thousand dollars (in the hryvnia equivalent) in the training of a specialist, spend on a subscription to use the platform, create an administration system and other unforeseen costs. The upshot was that the technology deceives expectations, because it required significant resources to support it. Moreover, the owner of the platform turned out to be a Russian counterparty, which

ceased to perform system support duties. And above all, since 2020, popular messengers have introduced a system of built-in chatbots that any subject can use for free. This example demonstrates that a digital portfolio of offers for online commerce should be carefully examined and analyzed by a qualified specialist who will take responsibility for the company's e-marketing strategy and minimize risks.

The war of the Russian Federation against Ukraine caused disturbances in the business environment. Many companies lost real business partners, supply and sales logistics were destroyed at once. And to a large extent, this encouraged small and medium-sized businesses to look for new models of promoting their products to markets, including foreign ones, with the help of electronic commerce.

It is worth emphasizing that the Ukrainian segment of SMEs has been using online channels for the development and promotion of their business for a long time, but in the vast majority it is ineffective. The author conducted an anonymous survey of managers and top managers of 21 manufacturing enterprises in Zaporizhzhia (6), Dnipro (5), Vinnytsia (3), Lviv (4), Lutsk (2), Khmelnytskyi (1). According to the results of an anonymous survey, it seems fair to say that online channels for the presentation and promotion of products of own production are poorly used and rather unsuccessful (Table 1). At the same time, one hundred percent of managers/owners understand this and intend to develop this area.

It is interesting to note that among the managers of SMEs in the survey, online communication is used to a greater extent by small manufacturers: one hundred percent work with marketplaces, more than 70% – with social

Table 1 – Results of an anonymous survey of SME managers

1	Enterprise category (small, medium, manufacturing, services)	14 small, manufacturing	7 medium, manufacturing
2	Number of employees	up to 50	up to 250
3	Production turnover, million hryvnias	up to 10 mln	up to 50 mln
4	Do you export products?	1 enterprise	2 enterprise
5	The number of countries to which you deliver the goods	1	2
6	<b>What online marketing channels do you use:</b>		
	marketplaces	14	3
	brand website	0	2
	own site	6	7
	social networks	11	1
	messengers	4	0
	electronic mailing of letters	1	3
	chat bots	0	0
	influencers	0	0
	involve AI	0	0
7	<b>Who is engaged in digital marketing</b>		
	agent of influence	0	2
	marketing expert	12	4
	marketing department	0	3
	business owner/manager	2	
8	Do you plan to expand the area of digital online marketing	14	7

Source: developed by the author based on the generated questionnaire

networks, a small part – with messengers. But the average business prefers its own websites, and a little less than half of the respondents even use mailing services, the effectiveness of which has fallen dramatically low in the last few years. The vast majority of small businesses have a marketing specialist, but 2 out of 14 wrote that they do e-commerce on their own. Only 2 out of 7 surveyed medium-sized manufacturers delegated the function of marketing area to third-party professional companies, using outsourcing to minimize costs. However, the lack of effectiveness of this tactic is indirectly confirmed by the intention to develop online sales. That is, we can conclude that online channels for the sale of goods for SMEs still remain an additional tool of marketing strategies in contrast to traditional sales. Moreover, the online communication of domestic entrepreneurship is rather poor and does not use the most effective sales channels. Among the popular areas in SMEs, the groups highlighted below (Fig. 2) are used.

Not all digital communication channels are used by SMEs in their operational activities. Obviously, this is related to the objective and subjective characteristics of the application, which generally affects the success of companies' promotion to international markets. Let's sort out each group separately.

**Marketplaces.** Merchandise platforms, which concentrate a wide range of products from manufacturers of local markets on their areas, improve their services every year: from the search system to the possibility of online payment by the buyer with calculations for the "goods basket", delivery and commissions for the platform. Moreover, each platform initiates its own marketing strategy with a discount system, bonus and accumulative discounts, gift certificates and multi-layered advertising communications.

That is, a part of the costs for advertising campaigns is taken over by the marketplace. The platform is largely responsible for shaping supply and demand. Popular trade aggregators among Ukrainian consumers are Amazon, eBay, Alibaba, Rakuten, Walmart, and others. All marketplaces are actively implementing artificial intelligence technologies, which makes sales more effective

and targeted by creating a purchase history and customer portrait of the buyer. Research by scientists on the use of marketplaces when entering new foreign sales markets has shown the effectiveness of such tactics primarily for forming a price offer and determining regional demand for certain categories of products. This is, so to speak, the hook that grabs the consumer's interest and provides a basis for marketing analytics, which forms a strategy for advancing to global markets and consolidating one's positions. Popular marketplaces used by Ukrainian exporters are listed below (Fig. 3).

When choosing an electronic trading platform, companies that plan to export their products to international markets shall take account of the differentiation of such resources. In this way, the strategy of finding the target audience of consumers is going to be implemented. Furthermore, the specialized marketplaces provide qualified information about licensing conditions, regulatory barrier, prohibited positions for sale in a particular country, and other specific restrictions. For example, for the import and sale of apples in Poland, there are strict standards that regulate the color, size of the fruit stalk, and the size of the fruit. Many products require international quality certificates and certification in the country of sale. And this applies not only to products of the food industry, but also to goods of general or industrial consumption. Labeling and packaging standards shall be as well taken into account, otherwise the goods will just be prohibited for sale. It is also important to study the rules of calculations offered by this or that marketplace: commissions charged by the online resource, delivery logistics and its pricing calculation, support for online orders and the business pattern of reference client resources, processing of orders and complaints. A careful study of regional marketplaces is necessary in order to bring your commercial interests closer to the local buyer, bypassing the permanent psychological stereotype of the client, who finds shopping in global trade networks difficult and long-term ones, and for a certain category – unreliable and too risky. The principle is as follows: if you plan to sell in Germany, you use German marketplaces,

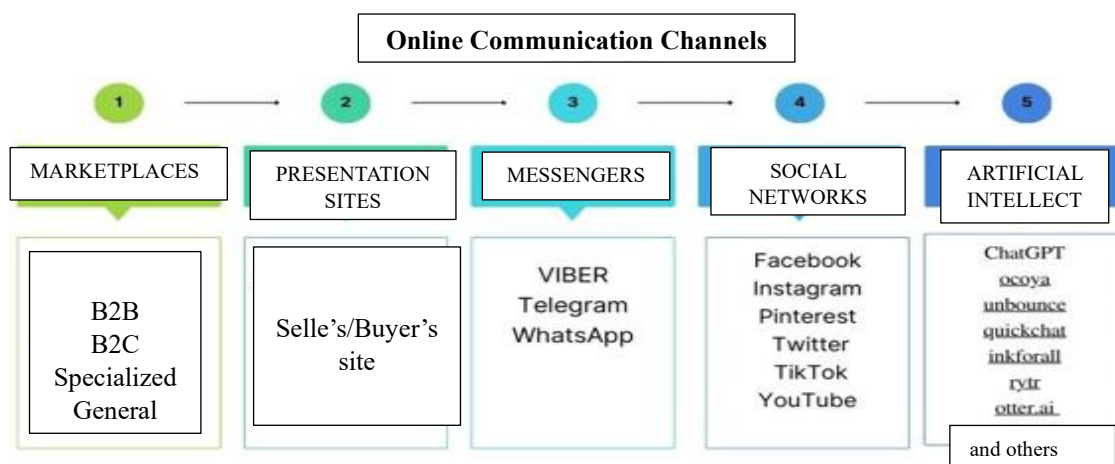


Figure 2 – Online channels used by SMEs

Source: developed by the author based on an anonymous survey of SME representatives



Figure 3 – Marketplaces that are popular in Ukraine

Source: developed by the author on the basis of research materials [14]

in Brazil – Brazilian ones, in the northern EU countries – Dutch ones. It is unquestionably, that the use of regional marketplaces is necessary in your strategies.

**e-commerce.** It should be emphasized that with the introduction of 3-4G wireless communication technology in Ukraine, the mobile e-commerce segment has grown significantly, the number of trade transactions in this segment is growing by 27% every year. This is a key growth driver for businesses in the SME sector. In addition, scientists of the Ukrainian Institute of the Future outline other opportunities for the development of e-commerce for SMEs [15]: extension of payment methods; use of electronic money; online lending; smart logistics and related services; improvement of digital skills of citizens; development of cross-border e-commerce; standardization and interoperability.

It is worth mentioning that the last point – standardization – is quite sensitive for the construction of a strategy for the introduction of Ukrainian products to international markets and requires comprehensive state solutions. Businesses use digital applications and platforms that are developed by many IT companies, and in most cases these companies use their own data standards. This results in incompatibility with standardized international platforms and leads to operational losses and significant security risks. The economic environment requires not only the

standardization of interoperability of API, but as well the harmonization of all data formats, including metadata. The government is already working on this problem, introducing the harmonization of technical regulations with the EU and the transition of all links to international standards, but the Russian Federation’s war against Ukraine has slowed down this process. However, Ukrainian SMEs should invest in the development of their own e-commerce, develop innovative strategies for the introduction of online channels and create conditions for entering international markets for cross-border e-commerce.

### Conclusion

Ukrainian business should focus more attention on the involvement of the latest technologies in its production processes. However, particularly in the days of bitter trials caused by the war of the Russian Federation against Ukraine, digitalization technologies may become the key to overcome the crisis and a way to increase competitiveness in the domestic market, as well as advance to foreign markets. Digitization should become the principal strategy of both the state and business in all areas of production. The reconstruction of Ukraine should take place on the basis of the latest philosophy of industrial and entrepreneurial activity. Not until then will Ukraine have a real chance to join the ranks of the world’s developed economies.

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# FINANCE AND MONEY TURNOVER

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## CONCEPTUAL APPROACHES TO THE STUDY OF THE ESSENCE OF CAPTIVE INSURANCE COMPANIES

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**Key words:**

captive insurance company,  
synergistic effect, advantages of  
captive insurance.

The article discusses the modern problems of introduction of captive insurance organizations. It is noted that the issue of the activities of captive insurance organizations is not reflected in the legislation, that is, there is no legislative framework, although the activities of captive companies differ significantly from the activities of commercial insurers. Another problem that hinders the development of captive insurance is the lack of qualified personnel. There is also a problem with the information and technical support of captive insurance. It is shown that the parent company can consider a captive insurer as a tool for insuring only its own risks (the most common option now), or as a tool for obtaining a synergy effect. The main synergistic effects of captive insurance have been determined.

The main problems that arise during the organization of a captive insurance company are defined: limited insurance field; additional costs for the establishment and operation of a captive insurance company; the need to use the services of the insurance market; deterioration of the financial stability of a captive insurance company; time spent by management structures during the period of organization of a captive company for its creation and formation.

The advantages of creating a captive insurance company for the parent organization are determined: saving the company's funds and shorter terms of compensation for losses than with insurance; making a profit from the activities of a captive insurance organization; risk minimization; diversification of risks; supplement to insurance in professional insurance companies; entering the reinsurance market, etc. It is determined that the introduction of captive insurance can have a positive impact on the economic security of the parent organization and revive the development of the insurance market.

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## КОНЦЕПТУАЛЬНІ ПІДХОДИ ДО ДОСЛІДЖЕННЯ СУТНОСТІ КЕПТИВНИХ СТРАХОВИХ КОМПАНІЙ

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**Ключові слова:**

кептивна страхова компанія,  
синергійний ефект, переваги  
кептивного страхування.

В статті розглянуто сучасні проблеми впровадження кептивних страхових організацій. Зазначається, що питання діяльності кептивних страхових організацій в законодавстві не відображено, тобто відсутня законодавча база, хоча діяльність кептивних компаній суттєво відрізняється від діяльності комерційних страховиків. Іншою проблемою, яка перешкоджає розвитку кептивного страхування є відсутність кваліфікованого персонала. Також існує проблема із інформаційно-технічним забезпеченням кептивного страхування. Показано, що материнська компанія може розглядати кептивного страховика як інструмент для страхування виключно власних ризиків (найпоширеніший зараз варіант), або як інструмент отримання ефекту синергії. Визначено основні синергійні ефекти кептивного страхування.

Визначено основні проблеми, які виникають під час організації кептивної страхової компанії: обмеженість страхового поля; додаткові витрати на створення і функціонування кептивної страхової компанії; необхідність використання послуг страхового ринку; погіршення фінансової стійкості кептивної страхової компанії; витрати часу управлінських структур в період організації кептивної компанії для її створення і становлення.

Визначено переваги створення кептивної страхової компанії для материнської організації: економія грошових коштів підприємства і коротші, ніж при страхуванні, терміни відшкодування виниклих збитків; отримання прибутку від діяльності кептивної страхової організації; мінімізація ризиків; диверсифікація ризиків; доповнення до страхування у професійних страхових компаніях; вихід на ринок перестраховування тощо. Визначено, що впровадження кептивного страхування здатне позитивно вплинути на економічну безпеку материнської організації і поживати розвиток страхового ринку.

### Problem statement

In modern conditions, it is time to clearly define the scope of activity and the rules of the game for captive companies, to bring the legislative requirements for such businesses in line with European practice, and thus to provide a resource for the growth of this segment of the insurance market, and the opportunity for Ukrainian business to effectively protect itself from various risks without incurring unnecessary costs, which will help many industries overcome the crisis and allow them to pursue a policy of sustainable development. Among the possible transformation options are the closure or sale of a business, the transformation of an insurance company into an intermediary, expansion, and transformation into a captive insurance company.

### Analysis of recent researches and publications

A captive company is an insurance company that is associated with a large structure, business group, or holding. Captive insurance companies provide risk mitigation services for the business of the dominant or parent structure and are united with them by common business processes. In the foreign scientific literature, a sufficient number of works are devoted to the issue of captive insurance, in particular [1,2]. It should be noted that captive companies are a common form of insurance business, but the issue of captive insurance is not sufficiently disclosed in the domestic scientific literature. Bidnyk N.B., Dzoba V.B. [3] analyze the peculiarities of the formation of captive insurance companies in Ukraine. Kravets A.V., Danylovykh T.B., Tymchyshyn I.E. [4] consider the issue of creating captive insurance companies as a method of self-insurance of industrial enterprises. However, recently there has been an increased attention to captive insurance from insurers. Thus, Chernyakhovsky V. [5], General Director of AIB, analyzes the advantages of creating captive insurance organizations.

However, the literature does not sufficiently systematize the advantages and disadvantages of captive insurance companies, as well as the problems of their implementation.

### Formulating of objectives

The aim of the article is to analyze the possibilities and problems of the use of captive insurance organizations in

Ukraine, to consider the measures necessary for the active introduction of captive insurance.

### Presentation of the main research material

A number of foreign and domestic researchers attribute captive insurance to one of the forms of insurance organization. Sometimes offshore and bancassurance are distinguished separately. Other experts consider captive insurance to be a special case of stock insurance or a special case of mutual insurance. There is a point of view that captive insurance, especially at the stages of forming an insurance fund, resembles self-insurance.

Opponents of classifying captive insurance as self-insurance put forward an argument based on the fact that in the captive insurance scheme the insurance company acts as a separate financial institution regulated by special legislative acts. From the point of view of each company, as a separate business entity, the use of a captive insurance company does not carry any fundamental differences.

Within the framework of risk insurance of a financial and industrial group (FIG), captive insurance is nothing more than self-insurance. The FIG independently creates funds that are used in the event of insured events and coverage of the loss, as shown in Figure 1.

If we take into account the financial and industrial group as a whole, then the elements of self-insurance are clearly traced: enterprises and organizations that are part of a financially industrial group jointly form an insurance fund, and this, in turn, is more reminiscent of the principles of formation of an insurance fund in self-insurance in its classical sense. One way or another, captive insurance is designed to provide compensation for damage that will be incurred by a financial and industrial group in the event of an insured event.

The dependence of a captive insurance company imposes a number of restrictions on the insurance company, which is a consequence of the lack of strategic independence of the company. The possibility of exercising corporate control by a person or a group of affiliates depends on the specifics of national legislation (the legislation of the country of registration of the captive insurance company) and on the constituent documents of the

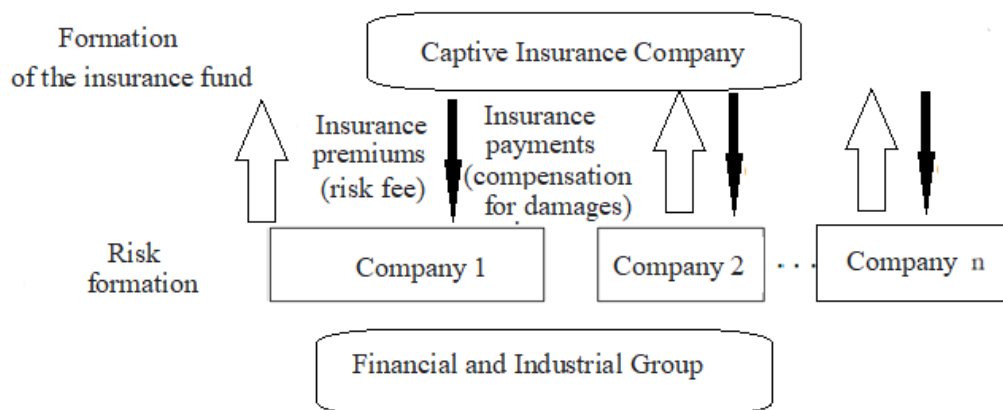


Figure 1 – Scheme of captive risk insurance in a financial and industrial group

insurance company itself. Undoubtedly, the first advantage of your own insurance company is the opportunity to save on insurance services.

First of all, the savings come from the fact that the agency knows about the cost of insurance commission. Direct contact with the insurance company allows you to avoid the presence of intermediaries when buying an insurance service. According to various expert estimates, the commission of an agent or broker in insurance ranges from 10 to 30 percent of the cost of the service. Given the large amounts of money that the financial and industrial group allocates to insurance, the use of a captive insurance company can save significant amounts.

Secondly, the employees of a captive insurance company thoroughly know the specifics of the industry and widely use the experience of the employees of the owner company.

In the analysis of the risks to which the company is exposed, a significant role is played by maintaining the confidentiality of information received by the insurance company about the owner's business. Any owner seeks to protect his business and provides information about it extremely sparingly, which does not allow for a full risk assessment. The perception of a captive insurance company as part of your own business allows you to avoid such a conflict of interest.

Managers of a captive insurance company, taking into account the identified and most significant risks, can offer a financial and industrial group a comprehensive insurance service that would optimally meet the needs of the owner's company. In this case, savings arise in the absence of costs for insurance services, the risks of which are absent or not significant. Periods of payment of insurance premiums can be adjusted in such a way as to avoid cash gaps in companies that are part of a financial and industrial group. This may be necessary in cases where seasonality can be traced in the activities of the enterprise or the company carries out an investment project.

Its own insurance company can use retrospective insurance policies when insuring the group's enterprises, which will allow, if necessary, to adjust the price of insurance services.

Another important aspect is service, i.e. the speed and quality of the service. Large financial and industrial groups

can have a developed network of enterprises located in different cities, regions and even countries. In this case, a captive insurance company, as a rule, has its representative offices in all cities where the main structure is present, it can be either large branches or representative offices, or simply managers of an insurance company located on the premises of an enterprise or a company that is part of a financial and industrial group.

The presence of a captive insurance company allows you to optimize the staffing of the enterprises included in the group. It is advisable to remove specialists who are engaged in insurance of property and other risks at enterprises, as well as those accompanying insurance contracts, and transfer their functions to employees of a captive insurance company, thereby reducing the cost of wages and deductions to social funds.

A captive insurance company can set tariffs for the owner at the level of necessary expenses, avoiding a commercial markup, which forms the profit of the insurance company, which will significantly reduce insurance costs. Undoubtedly, the advantages of a captive insurance company include the stability of the tariff policy. The rates of a captive insurance company can change only at the request of the owner company, in other words, the client of the insurance company, so the rates of a captive insurance company can remain at the same level for as long as you like.

On the other hand, the disadvantage of a captive insurance company is the high cost of the initial capital investment that the financially industrial group makes at the stage of acquiring an insurance company or creating it. Start-up costs can be leveled by locating an insurance company in a country with a more favorable tax climate.

Simply put, if the location of the insurance company is located in an offshore zone, then the costs of implementing a captive insurance scheme fall sharply. It is customary to distinguish such insurance companies into separate groups and call offshore captive insurance companies. Preferential conditions for registration of insurance companies and obtaining a license to carry out insurance activities may lead to the fact that the difference in costs for the registration of an offshore captive insurance company and an insurance company registered in the country of presence of the financial and industrial group becomes significant.

At the moment, a significant part of the largest captive insurance companies is registered in countries with a «favorable tax regime». The popularity of regions with a favorable tax regime among captive insurance companies is influenced by factors that ensure the efficiency of insurance and reinsurance operations:

- low administrative barriers to registration of an insurance company and obtaining an insurance license (a number of countries classified as offshore zones register and issue licenses within a few days after application);
- preferential tax regime;
- low level of supervision over the activities of insurance companies, often control consists only in the provision of annual audit reports, but without disclosure of confidential data to third parties;
- ensuring the protection of information about customers and owners;
- the presence of a stable political regime and well-established legislation contribute to the fact that financial and industrial groups registered in developing countries have the opportunity to reduce the risks of the country.

The attractiveness of doing insurance business in these countries is also ensured by the availability of the necessary infrastructure: comfortable office space, high-quality housing, security, as well as transport and telecommunications components of the infrastructure.

A captive insurance company allows you to create a risk insurance system for companies that are part of the owner's financial and industrial group. On the part of a particular company, part of the insured risks is transferred to the insurance company, but from the point of view of the financial and industrial group, the risks remain within the group. Thus, if the owner company has an insured event, then the losses have to be compensated from its own funds.

One of the ways to reduce your own risks when using a captive insurance company is to use reinsurance services in insurance companies that are external (not related) to the owner company. The risk can be reinsured, both for the entire insurance portfolio and for some part of it (grouped by types, industries, etc.), up to individual insurance contracts. A prerequisite for this is that the reinsurer company must not be associated with the parent financial and industrial group of the captive insurance company, otherwise the redistribution of risk will be conditional.

All companies that are part of a financial and industrial group insure their risks in a captive insurance company, which in turn reinsures them in a reinsurance company. The use of this system makes it possible to partially remove risks from the financial and industrial group, which allows you to count on at least some compensation for damage. At the same time, the use of an external reinsurance company entails an increase in insurance costs.

A captive insurance company in the presented scheme acts as an intermediary, nevertheless, this is a rather attractive scheme for building an insurance system for a financial and industrial group. Its advantage is that the captive insurance company retains control over the insurance of the group's risks, and reinsurance of risks, as a rule, is cheaper than primary insurance, not all risks are reinsured,

but only those that contain an increased threat to the financial condition of the financial and industrial group.

The need for reinsurance of the risks of a captive insurance company becomes higher if the individual risk of the financial and industrial group cannot be covered at the expense of the financial and industrial group at the expense of its own funds or in the case of accumulation of risks by the financial and industrial group. The presented scheme can be expanded to attract several reinsurance companies. Focusing on specific risks allows you to study their features and offer customers the most favorable tariff. In addition, the transferred risk may be too great for one reinsurance company, in such cases the risk may be divided between several companies, and it is also possible to apply a joint reinsurance contract.

The disadvantage of using the reinsurance system is that as a result of reinsurance, the assets of the insurance company, including its reserves, are reduced, which significantly reduces the possibility of placing the assets of the insurance company within the financial and industrial group. Insurance of the system of a financial and industrial group can be carried out in a combined way (Figure 2), i.e. insurance of the risks of companies to the financial and industrial group at the stage of primary distribution of risks is carried out both in a captive insurance company and in external insurance companies.

The situation when the primary distribution of risk occurs between several insurance companies, including a captive insurance company, indicates that risk management in a financial and industrial group is not centralized and each enterprise of the group independently decides which risks to insure. Undoubtedly, some risks are insured in a captive insurance company, this may be an order of the holding's management, or insuring a group of risks in a captive insurance company is economically viable for the enterprises of the group.

The combined system of risk insurance for a financial and industrial group is also used during the creation of a captive insurance company or during its liquidation.

The transition period when creating a captive insurance company is characterized by a gradual increase in the insurance portfolio. An instantaneous transition from one insurance system to another is impossible, this is hindered by: firstly, the organizational aspect – a captive insurance company must be created, appropriate licenses must be obtained, qualified personnel must be recruited, the captive insurance company must be given the appropriate authority to insure risks to a financial-industrial group. In addition, the study of the risks of the financial and industrial group and the determination of the optimal insurance policy takes a long period.

In case of liquidation of a captive insurance company, as a rule, insurance contracts are not terminated and the insurance portfolio is not sold, this period is characterized by the fact that new insurance contracts are not concluded, the insurance company continues to service the concluded contracts until their expiration date.

Combined insurance can be chosen consciously by the management of a financial and industrial group. It is advisable to use such a system in the following cases:

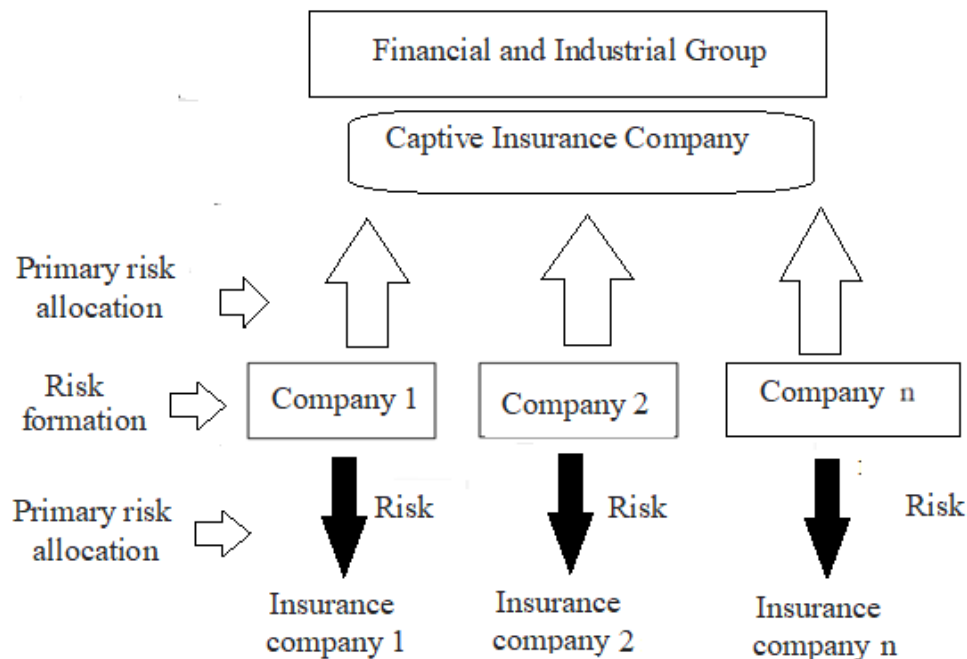


Figure 2 – Scheme of combined insurance of risks of a financial and industrial group

– the captive insurance company does not have a license to insure certain types of risk, the financial and industrial group in this case is forced to conclude insurance contracts with external insurance companies that have such a license;

– if there is a situation on the market in which a certain type of insurance becomes unprofitable;

– if the insurance risk is too high for the captive insurance company, and the conclusion of an insurance contract for this risk may lead to a violation of the financial condition of the insurance company.

The disadvantages of the combined insurance system are:

– decentralization of management of the insurance system to the financial and industrial group;

– leveling the effect of reducing the cost of risk insurance, since the costs of creating a captive insurance company are high, and the savings on insuring a small part of the risks of the financial and industrial group are minimal;

– low investment income of a captive insurance company, as a result of a small insurance portfolio;

– low rate of return on insurance costs for the business of the financial and industrial group.

The use of the third captive insurance scheme is largely aimed at solving two problems. The first task is to reduce the costs of the financial and industrial group for risk insurance; The second task is to return part of the funds, accumulate them and reinvest them in investment projects to the financial and industrial group. The main idea of the third captive insurance scheme is to use a captive reinsurance company. A captive reinsurance company is a reinsurance company owned or dependent on one owner or a group of affiliates acting in its interests, which reinsures mainly the owner’s risks. Such schemes are most often used by

industry unions and associations that reinsure mainly specific risks.

During the initial transfer of risk to an insurance company that is not part of the parent financial and industrial group, the terms of the contract may prescribe a condition on mandatory reinsurance of the assumed risk. As a rule, one of the prerequisites for participation in such organizations is the mandatory reinsurance of certain risks or risks of companies to this financial and industrial group. Visually, the captive reinsurance scheme is as follows (Figure 3).

As you can see, by applying the captive reinsurance system, the parent financial and industrial group returns part of the funds spent on insurance. Having considered the schemes of redistribution of risks of the parent financial and industrial group, it is possible to make the following classification according to the form of insurance of the owner’s risks as captive insurance companies and captive reinsurance companies.

One of the main reasons for the use of captive reinsurance is an attempt to return cash flow to a financial and industrial group.

The money saved for insurance can justify the investment costs associated with the creation of a captive insurance company and its maintenance. Therefore, the owners of a captive insurance company seek to turn the cash flow in the direction in which the holding structure operates; These can be investment projects of a financial and industrial group or current operating activities of the group’s enterprises. Many countries are trying to prevent this or limit this practice as much as possible. The fact is that when investing the funds of a captive insurance company in the activities of the parent financial and industrial group, as such, an insurance reserve is not created. Funds

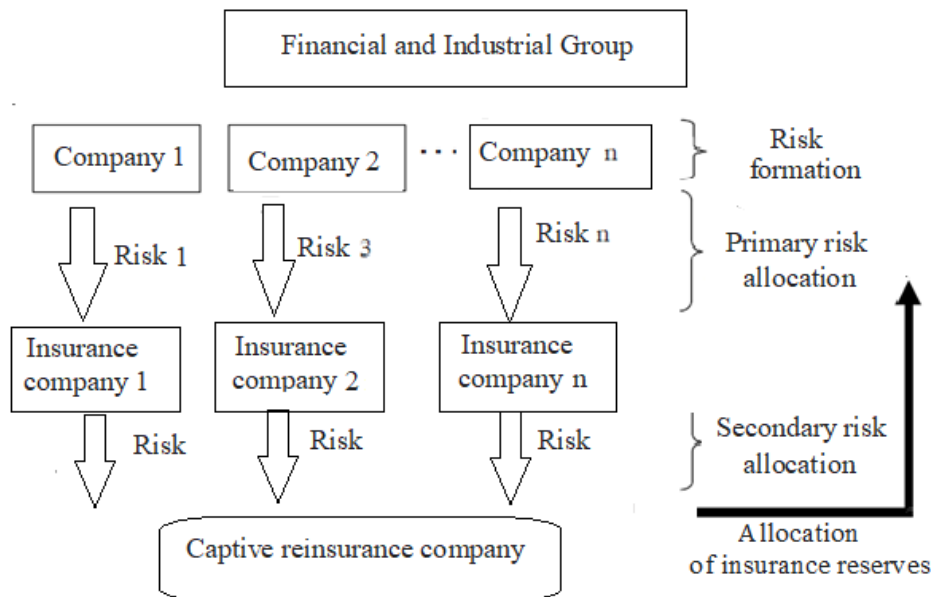


Figure 3 – Captive reinsurance scheme

withdrawn from the turnover of companies of a financial and industrial group for insurance are sent to a captive insurance company, in which part of them is directed to the formation of an insurance fund, which is then again poured into the working capital of companies of a financial and industrial group.

Thus, the insurance fund remains formed only «on paper» and in the event of adverse consequences of the financial and industrial group, it cannot count on it, since it is already involved in the financial and economic activities of the enterprises of the financial and industrial group.

In such a situation, insurance completely loses its functions: the risk is not transferred; Insurance funds are not formed. However, the owners, using captive insurance companies, try to direct the funds accumulated by the insurance company to cover their own financial needs. Since the insurance company is obliged to maintain a fairly high liquidity of the placement of insurance reserves, not all the funds collected by the insurance company can be transferred to the owner. Part of the insurance reserve is placed in highly liquid assets, such as deposits, so that it is possible to quickly withdraw them and make insurance payments, and part in highly liquid securities (government bonds, highly liquid shares of large companies).

In order to increase the company’s insurance reserves, the holding’s management insures third parties. This allows you to increase the amount of monetary resources that a captive insurance company can use in the interests of the owner. Another reason for using a captive insurance company, especially during the transition period, is the possibility of reducing the tax base. The tax legislation of a number of developing countries classifies insurance costs as an element that lowers the tax base. The presence of a captive insurance company can significantly reduce the amount of taxes paid by increasing the insurance portfolio. At the same time, by influencing

the investment policy of a captive insurance company, a financial and industrial group can ensure the reinvestment of funds spent on insurance.

An indisputable advantage of a captive insurance company is the ability to insure against accidents of its own personnel of the financial and industrial group, as well as to carry out additional voluntary medical insurance. This practice is characteristic, as a rule, of large financial and industrial groups that carry out responsible social and personnel policies. The management of large holding companies disposes of this opportunity in different ways, sometimes they provide such insurance as an incentive for any merit to the company, sometimes it is extended only to management positions, or all employees can be involved, but with different limits of insurance payments.

So, let’s briefly define the main pros and cons of a captive insurance company. For the owner of a captive insurance company, the advantages are as follows:

1. Ease of managing an insurance company and the absence of corporate disputes.
2. The presence of a captive insurance company allows the owner company to reduce the cost of insurance due to: no agency fees; delegation of authority to manage insurance contracts to an insurance company; the possibility of setting special, lower tariffs; optimization of insurance rules; termination of ineffective insurance.
3. Optimization of insurance coverage. Thorough study of the group’s risks and making objective decisions on insurance and measures to reduce the likelihood of an insured event.
4. There is a possibility of a significant reduction in the tax base and it is possible to return part of the funds spent on insurance to the FIG as an investment;
5. Rapid self-sufficiency of the insurance company due to the rapid replenishment of the insurance portfolio in conditions of reduced competition;

6. When insuring third parties, the ownership of a large financial and industrial group is a significant competitive advantage.

Cons for the owner:

1. High initial costs for the creation or acquisition of an insurance company, as well as the presence of costs for its maintenance;

2. Captive insurance companies have a low return on equity;

3. A captive insurance company is provided with relatively low insurance protection in comparison with ordinary, commercial insurance companies, since the risks remain within the financial and industrial group.

For the financial system of the state, the positive aspects are: the ability to quickly increase the number of insurance business entities; captive insurance company improves the financial condition of the parent financial and industrial group; The financial strength of a captive insurance company depends on the financial strength of the group – which significantly increases its reliability.

Negative aspects for the financial system of the state are: captive insurance companies aimed at insuring affiliates reduce the volume of the free insurance market, which affects the business of universal, commercial insurers; a captive insurance company often participates in tax evasion schemes, which helps to reduce tax collection; the desire of the owner of a captive insurance company to return to direct the insurance company's funds to his own business hinders the development of the capital market.

As we can see, what is a plus for the owner of a captive insurance company is not always a plus for the financial system of the state, therefore, when developing a strategy for the development of the insurance market, a balanced approach is needed that would take into account the interests of owners, insurers, as well as national (state) interests.

## Conclusions

The concept of captive insurance companies should be introduced in the Ukrainian legislative field, a simplified procedure for controlling such companies and regulatory indicators for them should be developed compared to the requirements for ordinary insurers. After all, the captive business does not work with individual consumers of insurance services, as a result, the issue of consumer protection or the creation of any, including systemic risks for the insurance industry, is removed. How exactly this can be implemented:

1. Definition of the concept of a captive insurance company in the new version of the Law «On Insurance».

2. Determination of the range of counterparties (insureds) with whom the captive insurer has the right to work.

3. Reduction/limitation of prudential supervision requirements, similar to what is currently happening in Europe. In particular, during the current revision of the requirements of the European Directive Solvency II, the European Insurance and Pensions Authority (EIOPA) notes that scenario analysis and stress testing are unnecessarily complex and burdensome for small and captive companies.

4. Regulation of the activities of captive companies should be carried out in accordance with the requirements of the so-called. Solvency I, implemented in the current version of the Law «On Insurance», and not according to the extremely complex mechanism of Solvency II.

5. Simplification of the requirements for corporate governance of a captive insurance company, since all complex mechanisms are required for structures without a controlling owner and in the presence of a large number of third-party individual clients.

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**INVESTMENT ACTIVITY OF IC STROYINVEST: PROBLEMS AND PROSPECTS****Tkachenko S.M., Sopina A.Ye.***Zaporizhzhya National University**Zaporizhzhya National University, 69600, Zaporizhzhia, st. Zhukovsky, 66**space7770@ukr.net, nastyasopina1310@gmail.com**ORCID: 0000-0002-3798-5902, 0000-0002-7317-5982***Key words:**investment, prospects,  
construction company, investment  
attractiveness.

Investments are the main stimulus for economic growth not only of the country as a whole, but also of individual enterprises. They contribute to the dynamic development of business, solving various problems, such as expanding activities through the accumulation of material and financial resources, developing new business segments, acquiring or creating new enterprises (branches), and so on. Over the past decades, it has become evident that the competitiveness of enterprises, Their potential for development and success in positioning goods in domestic and foreign markets significantly depend on investment activity.

Investments are the foundation for the development of any business and industry. They act as a key resource for the reproduction of capital, which generates a stream of income and is realized through materialization in innovation. Thus, innovation and investment activity is considered as a process that contributes to the intensification of the development of the socio-economic system through the effective use of accumulated and invested resources in the innovation process. This approach allows you to stimulate constant change and improvement in society, contributing to sustainable economic growth and increased competitiveness.

In the current conditions of the military conflict between Ukraine and Russia, there is a significant emphasis on the analysis and management of investment activities at enterprises. This is an important aspect that allows you to study the mechanisms and tools of its implementation, as well as to reproduce the experience of strategic management of the investment sphere. Construction companies are a special niche for investment. Even during the period of military conflict and subsequent economic recovery, they retain significant attractiveness for both domestic and foreign investors.

**ІНВЕСТИЦІЙНА ДІЯЛЬНІСТЬ СК «СТРОЙІНВЕСТ»: ПРОБЛЕМИ ТА ПЕРСПЕКТИВИ****Ткаченко С.М., Сопіна А.Є.***Запорізький національний університет**69600, м. Запоріжжя, вул. Жуковського, 66***Ключові слова:**інвестування, перспективи,  
будівельна компанія,  
інвестиційна привабливість.

Інвестиції є основним стимулом для економічного зростання не лише країни в цілому, але й окремих підприємств. Вони сприяють динамічному розвитку бізнесу, розв'язуючи різноманітні завдання, такі як розширення діяльності за рахунок накопичення матеріальних та фінансових ресурсів, освоєння нових сегментів бізнесу, придбання або створення нових підприємств (філій) і таке інше. Протягом останніх десятиліть стало очевидним, що конкурентоспроможність підприємств, їхній потенціал для розвитку та успішність у позиціонуванні товарів на внутрішніх і зовнішніх ринках значно залежать від інвестиційної активності.

Інвестиції є фундаментом розвитку будь-якого бізнесу та галузі. Вони виступають як ключовий ресурс для відтворення капіталу, що породжує потік доходу та реалізується через матеріалізацію в інноваціях. Таким чином, інноваційно-інвестиційна діяльність розглядається як процес, що сприяє активізації розвитку соціально-економічної системи за рахунок ефективного використання накопичених та інвестованих ресурсів у інноваційний процес. Такий підхід дозволяє стимулювати постійні зміни та покращення в суспільстві, сприяючи стійкому економічному зростанню та підвищенню конкурентоспроможності.

В сучасних умовах військового конфлікту між Україною та росією, значною мірою акцентується на аналізі та управлінні інвестиційною діяльністю на підприємствах. Це важливий аспект, який дозволяє вивчити механізми та інструменти її проведення, а також відтворити досвід стратегічного управління інвестиційною сферою. Особливою нішою для вкладення коштів виступають будівельні компанії. Навіть у період воєнного конфлікту та наступного відновлення економіки, вони зберігають значну привабливість як для внутрішніх, так і для зарубіжних інвесторів.

### Statement of the problem

A special role in ensuring the functioning of the investment sphere is acquired by state regulation and the development and implementation of the state strategy for investment development of the economy. This is due to many factors: in the context of globalization of the world market, dynamic changes in the scientific and technical sphere and increasing competition in all segments of the world market, as well as limited financial resources of all institutional investors in Ukraine. The main factor influencing investments today is the war between Ukraine and the Russian Federation.

### Analysis of the latest research and publications

In Ukraine, the state and potential investors communicate with enterprises through the signing of investment agreements, including those on social or economic cooperation, which in turn is the company's interest in obtaining investments for the development of its activities, or simplified conditions for carrying out activities, in the form of exemption from certain taxes, in connection with the use of innovative technologies, etc. [2]. Lemishko O.O. [6, p. 46] believes that the condition for improving the economic situation of the country is active innovation and investment industry activity and notes: «... It is necessary to create a system that, through internal mechanisms, will ensure the transition of all enterprises to the innovation and investment model of development.»

A number of government documents and regulations set the task of building a domestic investment system, which is strategically important, since it is associated with the growth of the role of investment as a key factor in modern socio-economic development and technological modernization of production [2].

### Objectives of the article

The purpose of the study is to find ways to improve the investment activity of the enterprise (on the example of the Zaporizhzhya construction company IC "Stroyinvest") to further increase its profitability, in particular: to analyze the investment activity of IC "Stroyinvest", to study the efficiency of management of the investment activity of the enterprise, to propose directions for improving the investment activity of the enterprise, to identify ways to improve the current system of management of innovation activity in the IC Stroyinvest.

### The main material of the research

With the help of investments, it is possible to develop important sectors of the economy, modernize the production base, create new jobs, etc.

The main directions of state regulation of the investment sphere in Ukraine consist of a set of means that are used to influence investment processes, they can be divided into several main areas (Figure 1): tax, credit, currency regulation; regulation of the stock market; attraction and protection of investments; examination of investment projects, etc.

During the analysis of the financial and economic activities of IC Stroyinvest on the basis of the Financial Reports of the small business entity for 2021-2023, the indicators that characterize the dynamics of the economic activity of the enterprise are determined, which are summarized in Table 1.

Based on the results of the calculations, it can be concluded that the net profit indicator for 2021, which significantly exceeds (by UAH 232.0 thousand) the annual figure of 2019. However, it can be seen that the amount of net profit in 2021 is lower than in 2020 (by UAH 104 thousand or 30.29%), this dynamics is explained by the timing of construction work that began in 2021, but has not yet been completed, and therefore the final calculations have not been made by customers, which was reflected in the profitability indicator.

During the study period, the total amount of income received by IC Stroyinvest in 2021 amounted to 1455.2 thousand rubles. UAH, in 2022 – 4477.4 thousand UAH. UAH, for 2023 – 3450.1 thousand. UAH, which is UAH 7.4 thousand more than the amount of expenses incurred in 2021, by UAH 343.4 thousand. UAH more than the amount of expenses incurred in 2022 and by UAH 239.4 thousand. UAH more than the amount of expenses incurred for 2023 (Figure 2).

Based on the results of calculations of absolute and relative indicators that characterize the financial condition of the researched enterprise, it can be concluded that the overall solvency indicators of IC Stroyinvest characterize an improvement in the situation at the end of 2023 compared to 2021, where, for example, the autonomy indicator improved (increased from 0.04 to 0.9).

Calculations of absolute, fast and current liquidity ratios show that IC Stroyinvest exceeds the normative values, which proves its absolute, fast and current liquidity. The absolute liquidity indicator demonstrates the proportion of the company's current liabilities that can be repaid immediately, that is, the company can fully repay its current liabilities.

At Stroyinvest, the strategic direction is the development and implementation of innovations in the construction industry, which tries to find as many new tools as possible, and which allows you to move to the next stage

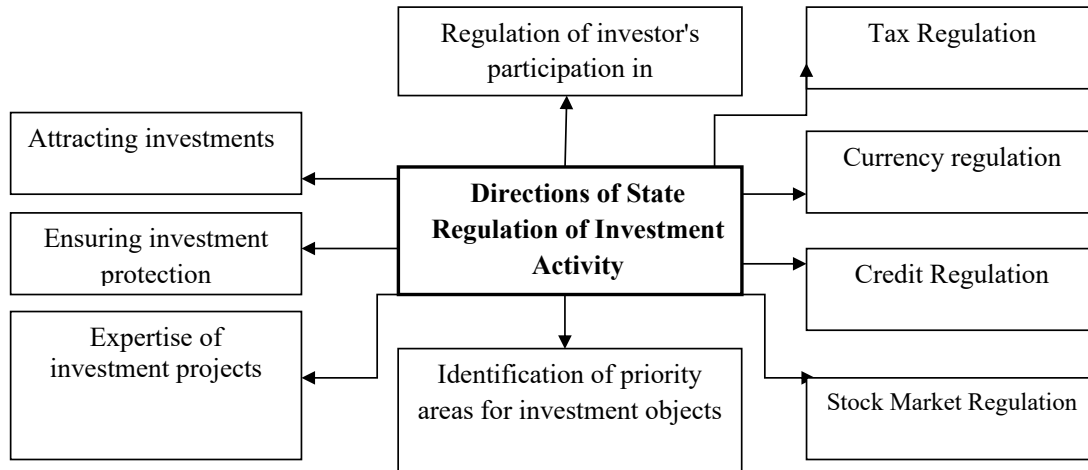


Figure 1 – Main directions of state regulation of investment activity

Table 1 – Dynamics of the main indicators of economic activity of the enterprise IC "Stroyinvest", thousand tons UAH

Indicators	Year 2021	Year 2022	Year 2023	Absolute deviation, +/-		Relative deviation, %	
				2023 to 2021	2023 to 2022	2023 to 2021	2023 to 2022
Net income from the sale of products (services rendered)	1444,5	4472,3	3437,6	1993	-1035	137,98	-23,14
Cost of products sold (services rendered, work performed)	1314	3767,3	2893,5	1580	-873,8	120,21	-23,19
Other operating income	0,7	5,1	5,5	4,8	0,4	685,71	7,84
Other income			7	7	7	100	100
Other operating expenses	123,8	366,7	317,2	193,4	-49,5	156,22	-13,50
Net profit	7,4	343,4	239,4	232	-104	3135,14	-30,29

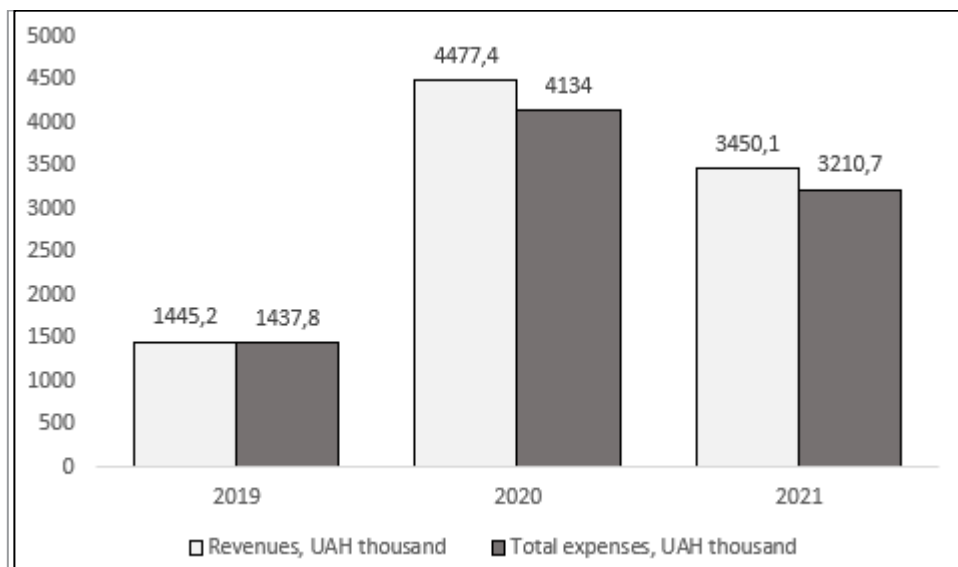


Figure 2 – Dynamics of changes in total revenues and total expenses for 2021-2023 IC Stroyinvest

of design and construction of buildings. At the same time, architects are testing new building materials and digital production technologies, striving to create urban housing, public and cultural spaces, taking into account individual requirements.

It should be noted that clients (consumers, customers)/ investors have a great power of influence on the construction company, since it is for them that Stroyinvest strives to create products that will be in demand by the market and meet the demand as much as possible. Consumers create demand for products and thereby cash flows that allow the construction company to develop innovatively in each region.

In recent years, the typical interests of investors are the opportunity to purchase high-quality, and at affordable prices, environmentally friendly products. This factor stimulates the construction industry.

Since any of the businesses, at different stages of their development, requires certain investments, the construction sector is no exception, therefore, IC Stroyinvest is constantly looking for funds, which is a topical topic for the further functioning of the enterprise. Many construction projects of IC Stroyinvest are implemented at the expense of invested funds.

An investor in the construction of real estate of IC Stroyinvest is an individual or legal entity that has entered into an investment agreement with the developer (or a person authorized by the developer) in the construction of residential real estate and made an investment under such an agreement.

Table 2 shows the dynamics of changes in the sources of financing of the activities (investment activities) of Stroyinvest Insurance Company, consisting of:

- at the expense of the company’s own funds (the share of which during 2021-2023 ranges from 37.44 to 37.37%);
- at the expense of non-resident investors (the share of which during 2021-2023 fluctuates between 21.20-24.69%);
- at the expense of resident investors (the share of which during 2021-2023 ranges from 32.04 to 35.33%);
- at the expense of bank loans (the share of which during 2021-2023 fluctuates between 3.19-6.03%);
- at the expense of funds from other sources (the share of which during 2021-2023 fluctuates up to 3%).

Based on the results of the analysis of the sources of financing the activities (investment activities) of IC

«Stroyinvest», it can be concluded that the rates of investments during the studied period are decreasing, namely: the amount of funds provided by non-resident investors decreased by 24.41 %; resident investors – by 8.06%; from other sources – by 40%. Growth can be observed only in the received bank loans, the volume of which increased by 66.53% (Figure 3).

It should be noted that among the sources of financing the investment activities of IC «Stroyinvest» there is the article «Funds of other sources», which includes a repayable loan from the founders of the enterprise. That is, the founders of the company provide an interest-free repayable loan for the construction of real estate, the volume of which in 2021 amounted to 1000 thousand rubles. UAH, in 2022 – 500 thousand. UAH, in 2023 – 600 thousand UAH. (which is 40% less than in 2021 and 20% less than in 2022).

Among the investors of IC Stroyinvest there are resident and non-resident individuals, whose total share is more than 50% of financing. An investment agreement for construction is concluded between Architerra Group LLC and the investor, which is one of the schemes for purchasing housing in a new building. On the basis of an investment agreement, the transfer of ownership does not take place, since the person receiving the investment is not the owner of the housing, but only undertakes to build it, and therefore cannot alienate it until the completion of construction. The investor becomes the first homeowner only after how the housing will be put into operation.

A negative aspect of the investment activity of Stroyinvest Insurance Company is passivity in attracting funds from the state and local budgets, and passive participation in state construction programs, which leads to a shortage of funds for the development of its activities.

Limited internal resources lead to the impossibility of forecasting the results of investment activity in the medium and long term, which means the lack of stability of the basic characteristic of modern business in the studied enterprise.

Since investment activity increases the external resources of the enterprise, we will consider the effectiveness of management of investment activities of the selected enterprise.

The conducted studies have shown that the threat to the enterprise is not only these factors, but there is also a limitation of external relations. Having a wide range of counterparties, the company does not have such communications, agreements and relations with them that contribute

Table 2 – Sources of financing of activities (investment activities) of IC Stroyinvest during 2021-2023

Source of funding (thousand UAH)	Oct. 2021	Oct. 2022	Oct. 2023	Absolute deviation, +/-		Relative deviation, +/- (%)	
				2023 to 2021	2023 to 2022	2023 to 2021	2023 to 2022
<b>The company's own funds</b>	14103,0	14891,0	12433,0	-1670,0	-2458,0	-11,84	-16,51
<b>Funds of the state and local budgets</b>	0,0	0,0	0,0	0,0	0,0		
<b>Funds of non-resident investors</b>	9300,0	8406,0	7030,0	-2270,0	-1376,0	-24,41	-16,37
<b>Funds of resident investors</b>	12069,0	13712,0	11096,0	-973,0	-2616,0	-8,06	-19,08
<b>Funds at the expense of bank loans</b>	1201,0	1300,0	2000,0	799,0	700,0	66,53	53,85
<b>Funds from other sources</b>	1000,0	500,0	600,0	-400,0	100,0	-40,00	20,00
<b>Just</b>	37673,0	38809,0	33159,0	-4514,0	-5650,0	-11,98	-14,56

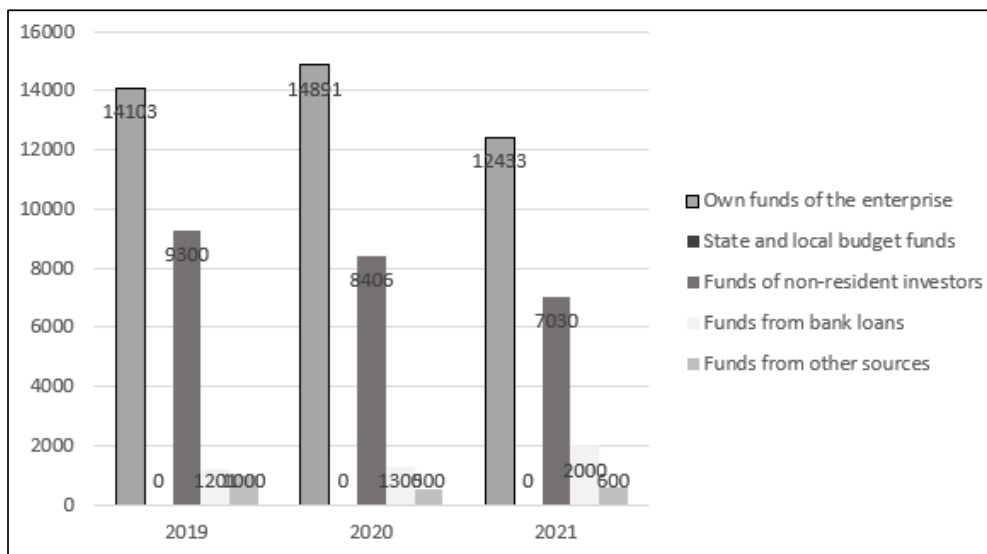


Figure 3 – Dynamics of changes in sources of financing of investment activities of IC Stroyinvest during 2021-2023

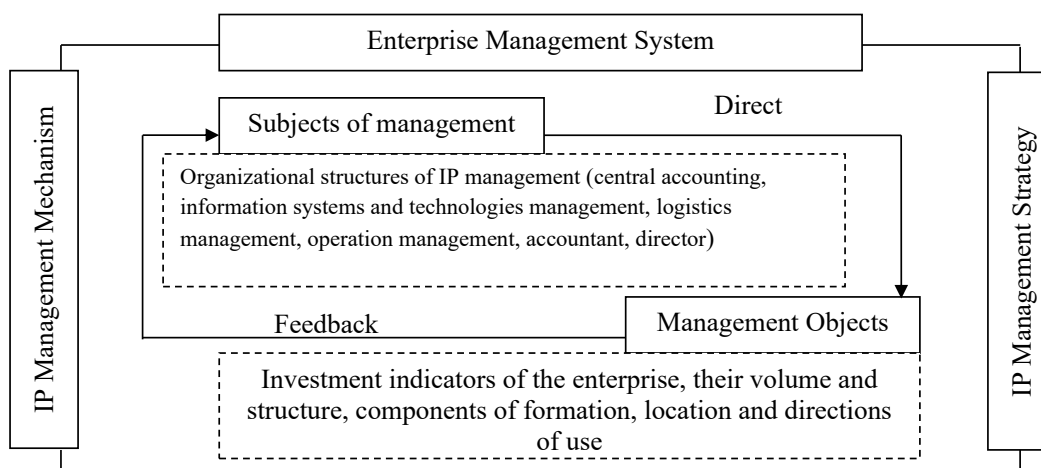


Figure 4 – Scheme of the investment development management mechanism at Stroyinvest Insurance Company

to or directly affect the improvement of personnel qualifications, the level of investment culture, the ability to objectively assess new ideas, developments and technologies.

The management mechanisms at IC Stroyinvest are analyzed. The general scheme of the organizational-structural subsystem of the mechanism of investment development management (hereinafter – IP) at the researched enterprise is shown in Figure 4.

The mechanism of management of investment development of enterprise is implemented using the following three main systems:

- 1) investment forecasting;
- 2) current planning of purchase, sale, write-off, renewal (current and major repairs, etc.) of assets;
- 3) operational planning.

During the assessment of the efficiency of management of investment activities of IC Stroyinvest, it was found that

the enterprise carries out strategic planning, in particular in terms of sources of financing.

Table 3 shows the implementation of the planned indicators in the direction of the company’s investment activities during 2021-2023: as a result of the management of the company’s investment activities, the plan is underfulfilled, the amount of planned investments is not met by 56.45% (in 2021), by 34.77% (in 2022) and in 2023 by 37.44%. In 2024, since the activity stopped, there was no funding at all for all items. Planned during 2021-2023. investments from the state and local budgets have not been received at all.

In general, the company planned to receive investments for the total amount of:

in 2021 – 86500 thousand tons. UAH. (according to the results of activity, the plan was underfulfilled by 48827.0 thousand UAH);

Table 3 – Evaluation of the effectiveness of investment management of IC Stroyinvest during 2019-2022

Source of funding (thousand UAH)	Oct. 2019			Oct. 2020			Oct. 2021			Oct. 2022		
	Plan	Fact	% of plan fulfillment	Plan	Fact	% of plan fulfillment	Plan	Fact	% of plan fulfillment	Plan	Fact	% of plan fulfillment
The company's own funds	14000,0	14103,0	100,74	15000	14891,0	99,27	17000	12433,0	73,14	19040	0	0
Funds of the state and local budgets	35000,0	0,0	0,00	20000	0,0	0,00	10000	0,0	0,00	11200	0	0
Funds of non-resident investors	12000,0	9300,0	77,50	10000	8406,0	84,06	9000	7030,0	78,11	10080	0	0
Funds of resident investors	25000,0	12069,0	48,28	13000	13712,0	105,48	15000	11096,0	73,97	16800	0	0
Funds at the expense of bank loans	0,0	1201,0		1000	1300,0	130,00	1500	2000,0	133,33	1680	0	0
Funds from other sources	500,0	1000,0	200,00	500	500,0	100,00	500	600,0	120,00	560	0	0
Just	86500,0	37673,0	43,55	59500	38809,0	65,23	53000	33159,0	62,56	<b>59360</b>	0	0

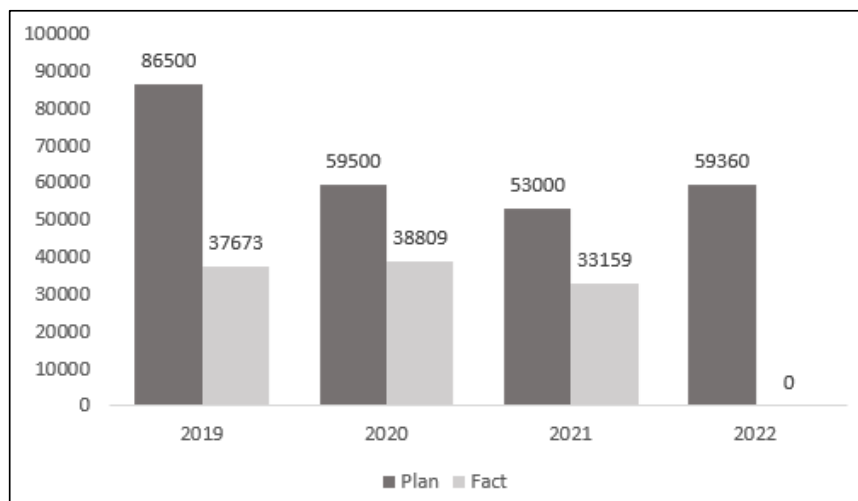


Figure 5 – Dynamics of investment volumes of IC Stroyinvest during 2019-2022

in 2022 – 59500 thousand tons. UAH. (according to the results of activity, the plan was underfulfilled by 20691.0 thousand UAH);

in 2023 – 5300 thousand tons. UAH. (according to the results of activity, the plan was underfulfilled by UAH 19841.0 thousand).

As can be seen, every year the company reduces the planned indicators, which in turn are not fulfilled (Figure 5).

An important component of the formation of an investment strategy is the assessment of the investment activity of the enterprise. To carry out such an assessment, the paper used a SWOT analysis (Table 4), the results of which show both the strengths and weaknesses of the studied enterprise.

Analyzing the results obtained in Table 4, the following conclusions can be drawn: the company has formed a positive image, the provision of construction services has become more qualitative and innovative. Therefore, the company has the opportunity to enter new markets and expand its clientele, increase investors.

A negative factor is that the company has underdeveloped advertising activities, but this can be corrected. Competition in the construction market is very high, so there is a threat of a decrease in the volume of construction work and a decrease in market share. This is not facilitated by the current situation in the country, as well as the low level of income of the population. Thus, the carried out assessment of the effectiveness of management of the company's investment activities showed that that the motives that existed before 2022 force the company, in order to maintain the niche occupied in the market, to take on additional risks of investment activity. At the same time, attracting external investors for the implementation of long-term projects is a rather problematic task that requires serious pre-investment study with the issuance of feasibility studies. IC Stroyinvest is forced to proceed from its own capabilities and use all internal and external reserves for innovations.

Studies have shown that the organization and implementation of new, more ideal and efficient means of production: machinery and equipment, mechanisms, materials,

Table 4 - SWOT analysis of the investment activity of the enterprise IC "Stroyinvest"

Strengths	Weaknesses
High level of qualification of employees engaged in the design and construction of real estate. Good reputation of the firm. Qualitative characteristics of the final product. Accessibility of construction services. A wide range of construction services. sufficient creditworthiness of the company.	Low level of qualification of employees employed to attract investment. Failure to meet the planned indicators of investment volumes. Lack of high-quality advertising. Lack of professional regular management.
Possibilities	Threats
Improving the level of employees' skills to attract investment. Development of the construction sector in the territories liberated from occupation. Increase in investors. Attraction of funds from the state and local budgets.	Increasing the level of competition in the industry. Flow of potential investors to competitors. Inflation risks Risks of property destruction

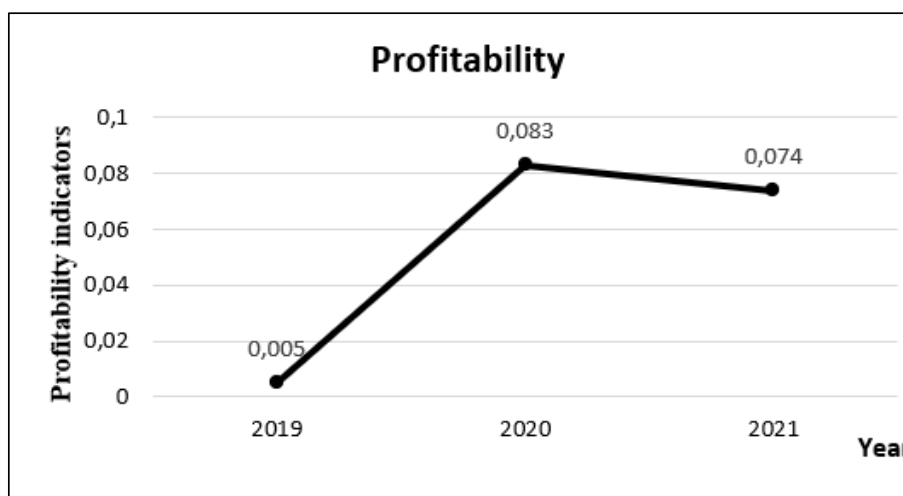


Figure 6 – Dynamics of changes in the profitability of IC Stroyinvest for the period 2019-2021

products, structures, new technologies for designing new products that contribute to the development of the enterprise, is an innovative activity that requires additional investments.

During the study of the investment activities of IC Stroyinvest, problems of the current management system were identified, which led to a decrease in the efficiency of activities in 2021 (Figure 6).

Although the profitability indicator increased in 2020, due to the investment of own funds in construction, due to the low level of investment and underfulfillment of the planned indicators for attracting funds for construction, in 2021 the profitability decreased to 0.074.

Based on the results of the assessment of the management of investment activities of the enterprise, the following weaknesses have been identified:

- lack of investment from the state budget and too low volume from foreign investors;
- lack of a marketing department for the development of investment potential;
- lack of active advertising;
- lack of strong cooperation with creditors;
- ineffective credit policy of the enterprise or its absence (for the implementation of innovation and investment projects);

- the presence of unused or inefficiently used property;
- untimely fulfillment of planned tasks in the direction of investment policy, etc.

Therefore, when studying the management of investment activities of a construction enterprise, it is recommended to focus on the use of the following areas:

- introduction of marketing in the field of investment activity;
- implementation of new solutions in matters of activity planning.

It should be noted that such external factors as: the economy in the country, the inaccessibility of credit programs for construction for the population, the unstable political situation have a great impact on both the client and the developer, in particular, for the developer, this threat is very high when performing work on the state order: change of power – new policies in the field of construction; a biased attitude on the part of regulatory authorities begins; political pressure, during which there is a biased attitude towards contractors-developers, whose activities are transparent. These factors had a significant impact (on the negative side) on the company’s construction activities in 2022 and are reflected in 2023.

At the same time, during the analysis, the strengths of Architerra Group LLC were identified: continuous training

of personnel and specialists in the field of construction; availability of all necessary certificates, licenses. These advantages distinguish the company from its competitors, who in fact have a different situation.

To improve the current management system, it is recommended

1) develop partnerships with all stakeholders involved in the construction: agencies for the sale of finished housing, loyal customers, investors (legal entities), suppliers of materials, sellers of related goods and services, avant-garde architectural agencies, design bureaus, etc.;

2) to develop Internet resources in parallel;

3) use a CRM system designed specifically for the construction industry;

4) work in all directions to increase the interest of a potential client base:

– provide special offers for existing customers and partners;

– apply a general advertising campaign to acquaint a wide audience with the philosophy (important issues that the company's activities help to solve)

– conducting various training and introductory events for partners, as well as for existing and potential customers.

Since in order to fulfill the above goals and recommendations it is necessary to have significant qualified labor resources, there is a need to introduce a marketing department in the field of investment activity at Stroyinvest Insurance Company, the functions of which include:

1. Formulation of investment goals.

2. Analysis of the existing state (diagnostics of the organization's problem or its individual element).

3. Identification of a problematic situation in the field of investment.

4. Making a decision on the feasibility of attracting investments.

5. Development (design) of estimates for investment (estimate documentation).

6. Coordination and approval of the investment project.

7. Implementation of the investment project.

8. Evaluation of the actual effectiveness of the investment.

To increase investment in the company's activities, it is recommended:

1) participate in business grants (develop a strategy and a business project to receive non-refundable financial assistance for construction, construction work), as during the war there were many opportunities to attract grant funds for development.

2) participate in state construction programs, thus attracting funds from state and local budgets for the construction of real estate.

3) to develop public-private partnerships, in particular, to participate in the state program «Affordable Loans 5-7-9%»

## Conclusions

The paper provides a general characteristic of the researched enterprise IC «Stroyinvest», which carries out its activities with the aim of making a profit as a result of its activities, the main of which is the construction of residential and non-residential buildings, the activity of which covers all stages and processes of construction: from drawing up a project to carrying out finishing works. During the analysis of the financial and economic activities of IC Stroyinvest, it was found that the net profit indicator for 2023, significantly exceeds (by UAH 232.0 thousand) the annual figure of 2021, during 2021-2023 the company worked profitably with an increasing trend. During the study period, the total amount of income received by Stroyinvest Insurance Company in 2021 is 1455.2 thousand rubles. UAH, in 2022 – 4477.4 thousand UAH. UAH, for 2023 – 3450.1 thousand UAH. UAH, which is UAH 7.3 thousand. more than the amount of expenses incurred in 2021, by UAH 343.4 thousand. UAH more than the amount of expenses incurred in 2022 and by UAH 238.1 thousand. UAH. more than the amount of expenses incurred for 2023.

The analysis of the sources of financing the activities (investment activities) of IC «Stroyinvest» showed a decreasing rate of investment during the study period, namely: the volume of funds provided by non-resident investors decreased by 24.41%; resident investors – by 8.06%; from other sources – by 40%. The growth can be observed only in the received bank loans, the volume of which increased by 66.53%.

Based on the results of the assessment of the efficiency of management of investment activities of IC «Stroyinvest», an unsatisfactory policy of conducting investment activities has been identified. The company does not pay enough attention to attracting investments for the implementation of its projects, which directly affected the indicator of project financing and the level of profitability of the enterprise.

Based on the results of the study, ways to improve investment activity to improve the efficiency of management of IC «Stroyinvest» are proposed, in particular: implementation of the marketing department in the field of investment activity. It is found that only a comprehensive management strategy will help in the improvement and development of investment activity, which helps to achieve an economic effect and a competitive position in the market.

Thus, the application of the proposed ways to improve the strategy of management of investment activity at the enterprise will lead to the achievement of the set goal – the development and growth of financial, economic, innovative and other indicators of activity of the business entity and the construction industry as a whole.

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## FEATURES OF TRANSFER PRICING IN BANKS FOR ENTERPRISES IN TODAY'S CONDITIONS

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### Key words:

controlling, transfer pricing, financial management, banking products, resource optimization, profitability, risk management, financial stability, individuals and legal entities, bank clients, investment lending.

This in-depth analysis embarks on the exploration of transfer pricing within the banking sector, a crucial component for effective financial management and strategic planning for both banks and customers. The complex nature and significant implications of transfer pricing practices necessitate a thorough understanding to optimize resource allocation and enhance the financial performance of banking institutions.

**Introduction.** The problem addressed in this research revolves around the intricacies of implementing transfer pricing mechanisms in banks, highlighting its critical role in managing financial resources efficiently. Transfer pricing is not merely a financial tool but a strategic element that influences the bank's operational integrity and market competitiveness.

**Purpose.** The objective of this study is to dissect various transfer pricing methods applied within the banking context, evaluate their impact on bank operations, and delineate potential risks and pragmatic solutions associated with these methodologies. This examination aims to illuminate the pathways through which banks can leverage transfer pricing for operational excellence and strategic advantage.

**Methods.** Employing a multifaceted research approach, this study combines a comprehensive literature review with analytical examinations of different transfer pricing strategies. It further enriches the analysis through case studies, illustrating real-world applications and outcomes of these strategies in the banking sector. The methodology is designed to uncover the nuances of transfer pricing and its multifarious effects on banking operations.

**Results.** Key findings from the research reveal a spectrum of transfer pricing methods, including cost-plus, market-based, and cost-based methods, each harboring unique benefits and suitable for distinct banking scenarios. The investigation elucidates the pivotal role of transfer pricing in resource distribution, liquidity management, cost efficiency, and capital utilization. Moreover, the study unveils potential risks and challenges such as regulatory compliance issues, interdepartmental conflicts, and inefficiencies that could arise from improper implementation of transfer pricing mechanisms.

**Conclusion.** The research underscores the indispensable role of transfer pricing as an essential tool for strategic management and controlling within banks. It posits that adept application and management of transfer pricing can substantially bolster a bank's financial stability and competitive edge in the market, transparency of price setting for bank customers. The study advocates for the adoption of recommended strategies and algorithms to refine financial flows, amplify operational transparency, and ensure adherence to regulatory standards, thereby facilitating a more robust and efficient banking operation.

## ОСОБЛИВОСТІ ТРАНСФЕРТНОГО ЦІНОУТВОРЕННЯ В БАНКАХ ДЛЯ ПІДПРИЄМСТВ В УМОВАХ СЬОГОДЕННЯ

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### Ключові слова:

контролінг, трансфертне ціноутворення, фінансовий менеджмент, банківські продукти, оптимізація ресурсів, рентабельність, ризик-менеджмент, фінансова стабільність, фізичні та юридичні особи, клієнти банку, інвестиційне кредитування.

У дослідженні глибоко аналізується концепція трансфертного ціноутворення по послугам для фізичних та юридичних осіб, що відіграє критичну роль у фінансовому менеджменті та стратегічному плануванні як для банків, так і клієнтів. Основна увага приділяється визначенню та методам трансфертного ціноутворення, а також аналізу ризиків і проблем, які можуть виникнути під час його впровадження та використання. Ретельно розглядаються різні підходи до ціноутворення, включаючи метод вартості, що додається, ринковий метод, та метод витрат, які застосовуються для розрахунку вартості внутрішніх трансакцій між різними підрозділами банку. Дослідження акцентує на значенні трансфертного ціноутворення для забезпечення ефективного розподілу ресурсів, підвищення ліквідності, оптимізації витрат та доходів, а також управління капіталом і ліквідністю банку. Аналіз ризиків висвітлює потенційні виклики, зокрема ризик невідповідності регуляторним вимогам, конфлікти інтересів між підрозділами та недостатню мотивацію до ефективної роботи, що можуть вплинути на стабільність та ефективність банківської діяльності. Стратегія алгоритму вирішення включає впровадження прозорих методологій, систем внутрішнього контролю та аудиту, розвиток ефективної взаємодії між підрозділами, впровадження мотиваційних програм, та використання ІТ-рішень для автоматизації процесів. Такий підхід дозволить не тільки мінімізувати ризики, але й значно підвищити рентабельність та ефективність банківських продуктів і послуг. У підсумку, дослідження підкреслює важливість трансфертного ціноутворення як інструменту для досягнення високої ефективності управління банком, забезпечення його фінансової стійкості та конкурентоспроможності на ринку, прозорості встановлення ціни для клієнтів банку. Реалізація рекомендованих стратегій та алгоритмів дозволить оптимізувати фінансові потоки в банку, підвищити прозорість операцій та забезпечити відповідність діяльності регуляторним стандартам.

### Statement of the problem

In the context of the dynamic world economy and its impact on national financial systems, the importance of effective management of bank resources becomes more and more obvious. In particular, controlling in the banking sector acquires strategic importance, acting as a key element in ensuring financial stability and contributing to the development of competitiveness. This becomes especially relevant in light of unpredictable economic challenges and the need to adapt to changing market conditions.

### The focus of the study

The focus of the study is transfer pricing in banks – a methodology that allows optimizing internal financial flows and improving capital allocation within the banking institution. The implementation of this concept contributes to the creation of a more transparent and effective internal pricing mechanism, which is critically important for risk management, increasing profitability and optimizing the bank's financial structure.

On the other hand, individuals and legal entities – clients of banks – want to understand and have a justification for the established price for banking services, especially regarding long-term investment lending.

### The purpose of this work

The purpose of this work is a detailed analysis of transfer pricing as a controlling tool in banks, with an emphasis on its impact on the general management strategy and operational activities of the bank. Special attention needs to be paid to the study of transfer pricing methods, their practical application in the banking sector and the impact on the effectiveness of bank management. It is also important to consider the challenges and prospects facing banks in the implementation and optimization of transfer pricing systems, including the analysis of regulatory requirements and the impact of global economic trends, and to determine strategic recommendations for improving the controlling mechanisms in banks using transfer pricing.

### Analysis of recent research and publications

Analyzing the latest research and publications, it is possible to reveal a significant interest in the problems of transfer pricing in Ukraine, as well as its international legal doctrine and practice. Research by Andrus O. and Cherevko O.I. significantly advanced the understanding of transfer pricing mechanisms by defining its role in financial management and controlling in banks [1, 8]. Research by Bazov V.P. and Bilyka Yu.L. highlight achievements in

the field of harmonization of Ukrainian legislation with international standards, but emphasize the need for further improvement of the legislative framework to ensure more effective tax control [2, 3]. Significant progress has also been made in determining the impact of transfer pricing on the effectiveness of bank resource management, which is highlighted in the works of Yu.L. Bilyk and Savchenko T.G. [3, 6], Bodnaryuk V.A. focuses attention on the current state and prospects for the modernization of transfer pricing in Ukraine, highlighting its role in the modernization of the country’s financial and economic system [4]. Serzhanov V.V. and Molenda A.R. analyze in detail the reasons for the use of transfer pricing by enterprises, which allows a better understanding of the logic of choosing this cost management strategy [5]. Yankovska V.A. emphasizes the importance of internal audit organization in banks, which is key to ensuring effective financial control and risk management, including in the context of transfer pricing [7].

Unsolved problems are concentrated mainly in the field of transfer pricing adaptation to the specifics of banking and risk management. This includes the development of effective transfer pricing management strategies to minimize risks and optimize the bank’s financial results.

**Research methods**

To achieve the goal of the research and solve the set problems, a set of theoretical methods was applied, including the analytical method, synthesis, comparative analysis, historical method, deductive method, analysis of various literary sources, including monographs, scientific articles, theses of conferences, regulatory and legal acts, and as well as electronic resource material

**Presenting main material**

Transfer pricing in banking is a key element of financial management, which involves the development and application of internal prices for transactions between different divisions of the bank. This process allows you to optimize the allocation of financial resources, increase the

transparency of costs and revenues, and ensure effective management of capital and liquidity. The objectives of transfer pricing in banks include:

- Increasing the efficiency of the internal distribution of resources through the creation of a motivational system for units based on the principles of market competition.
- Optimization of liquidity and capital management by setting prices that reflect the real value of resources and risks.
- Increasing the transparency of financial reporting by clearly displaying the income and expenses of divisions, which contributes to an adequate assessment of their efficiency.

Transfer pricing methods used in banks vary depending on the management structure, specifics of the bank’s activities and strategic goals (Table 1).

Examples of the application of transfer pricing in banking practice include:

- Pricing of internal loans and deposits between retail and corporate banking, where transfer prices help to optimize the use of capital and increase liquidity (Fig. 1).
- Setting prices for operational services (for example, payments and settlements, treasury operations) provided by some units to others, contributing to the effective distribution of costs and revenues (Fig. 2).
- Pricing of asset management products, where transfer prices are used to reimburse portfolio management costs and motivate effective asset management (Fig. 3).

Analysis of risks and problems related to transfer pricing in banks showed that:

- 1) there is a risk that transfer prices do not correspond to real market conditions, which can lead to inefficient allocation of resources and a decrease in the competitiveness of banking products;
- 2) the complexity and subjectivity of the transfer pricing process can cause internal conflicts between the bank’s divisions, especially if they perceive pricing as unfair or biased.
- 3) there is a risk of regulatory inconsistency, since incorrectly set transfer prices can be interpreted as

Table 1 – Methods of transfer pricing in banks

Method	Description
<b>Value Added Method</b>	provides for the establishment of transfer prices based on production costs plus a certain percentage of profit, is based on the principle of internal cost recovery plus a guarantee of obtaining a profit margin for the implementing unit. Cost may include direct fundraising costs, administrative costs associated with providing the service, and other operating costs. The added profit percentage is determined based on the bank's internal regulations. The method is effective for internal planning and control, requires accurate costing and a reasonable approach to establishing the level of profitability.
<b>Market method</b>	Transfer prices are set at the level of prices prevailing on foreign markets for similar products or services. The method allows to ensure transparency and objectivity in the assessment of internal transactions, facilitates adaptation to changes in the market environment. Requires constant monitoring of market prices and adjustment of transfer prices. In the case of unique banking products or specific services that do not have a clear market counterpart, the method can be complicated, so banks can adjust market prices taking into account the uniqueness of their products.
<b>Cost method</b>	involves setting transfer prices at the level of the sum of direct costs associated with the provision of services or the sale of products between internal divisions. Direct costs include the cost of raising funds, labor costs, costs of materials and other resources. The method is based on objectively measured costs, which ensures its transparency and ease of understanding, as well as internal fairness in pricing. However, the method does not take into account indirect costs and may lead to an underestimation of the real cost of internal services, which affects financial results.

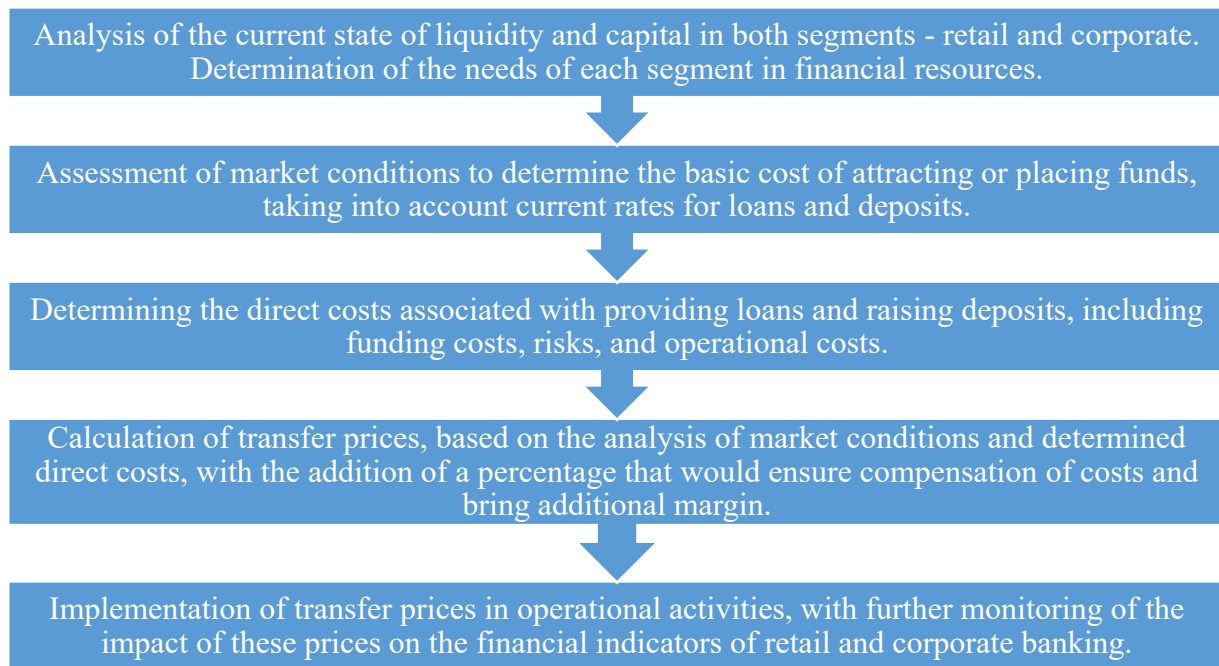


Figure 1 – Pricing algorithm for credit and deposit services of the bank

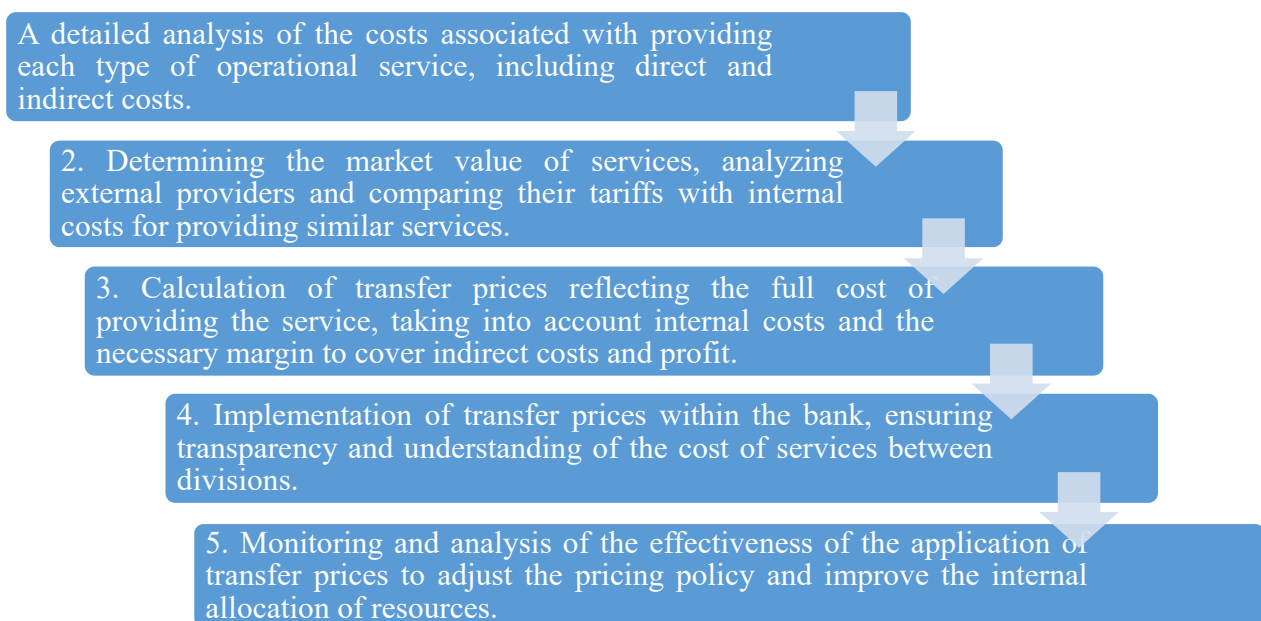


Figure 2 – Algorithm for pricing operational services of the bank

manipulations with the aim of minimizing tax liabilities or hiding the real financial position of the bank.

To minimize the mentioned risks and problems, it is necessary to ensure the transparency and objectivity of the transfer pricing process, to regularly analyze its compliance with market conditions and regulatory requirements, as well as to implement internal control and audit mechanisms. In addition, effective interaction and communication between the bank’s divisions is key to reaching a

consensus on transfer pricing methodology and resolving potential conflicts (Fig. 4).

Regarding the impact of transfer pricing on the profitability of banking products and services, correctly set transfer prices can significantly increase the efficiency of asset and liability management, optimize costs and revenues of divisions, and also ensure more accurate pricing of banking products and services. This, in turn, helps to increase the profitability margin and overall profitability of

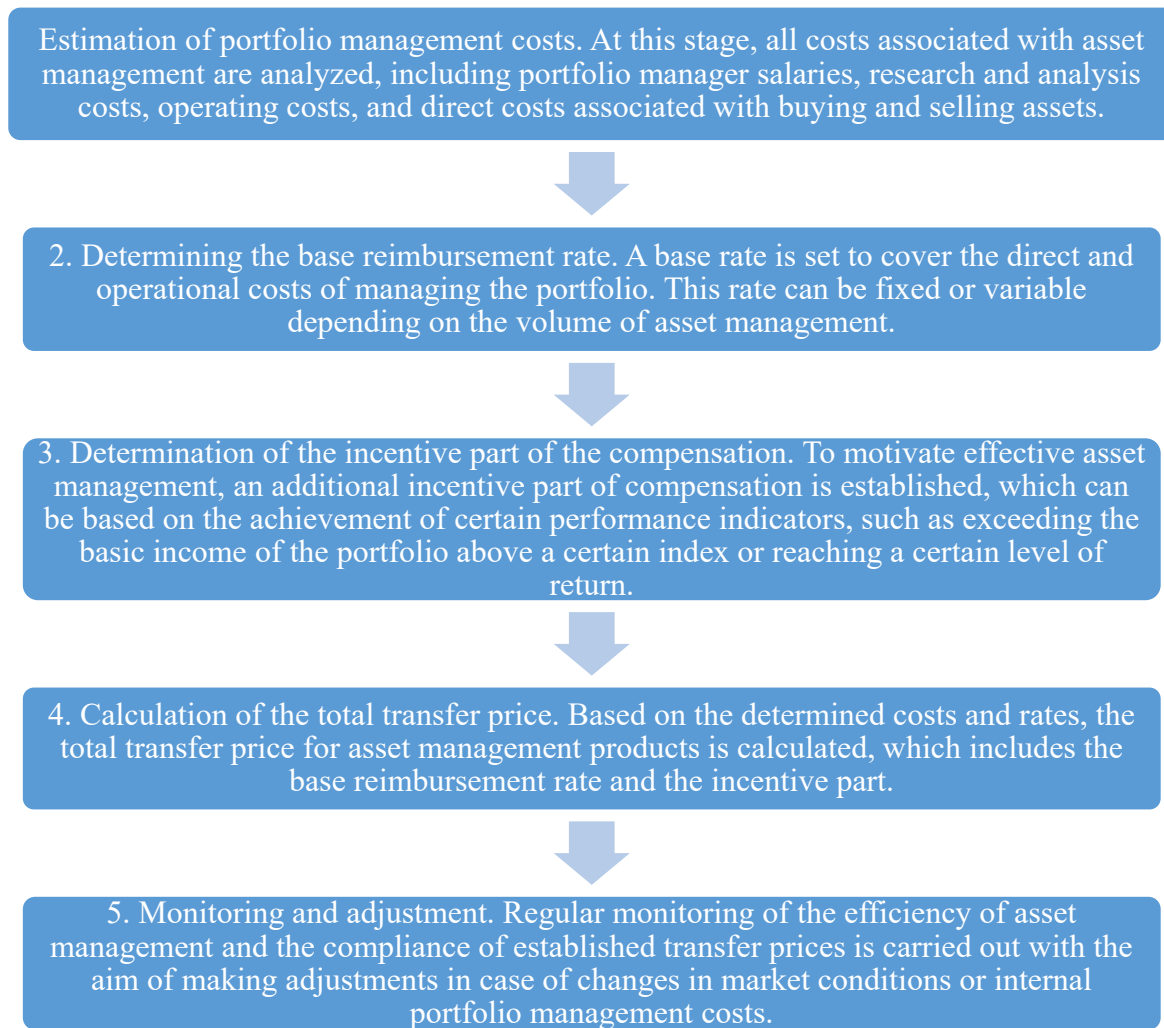


Figure 3 – Pricing algorithm for asset management products

the bank. However, if the transfer pricing process does not take into account all costs or does not reflect the true value of resources, this can lead to an underestimation of the profitability of certain products or services, as well as distortions in financial reporting and management decisions.

### Conclusions

Analysis of the risks and issues associated with transfer pricing revealed potential challenges for the banking sector, including risks of non-compliance with regulatory requirements, conflicts of interest between divisions, and challenges in motivation and efficiency of asset management. The strategy for solving identified risks and problems, based on transparency, an adequate algorithm for setting and adjusting transfer prices, the implementation of internal control and audit systems, as well as the

development of communication and motivation of internal divisions, opens the way to increasing the efficiency of financial management and optimizing the profitability of banking products and services.

The conclusions of the study emphasize the importance of transfer pricing as a tool of strategic management and controlling in banks. The correct application of transfer pricing can not only contribute to increasing the efficiency of internal financial management, but also ensure greater adaptability of the bank to external challenges, strengthening its financial stability and competitiveness in the market. Thus, transfer pricing in banks acts not only as an element of financial strategy, but also as an important tool for ensuring transparency, effective risk management and optimizing profitability, which requires constant analysis, adjustment and improvement.

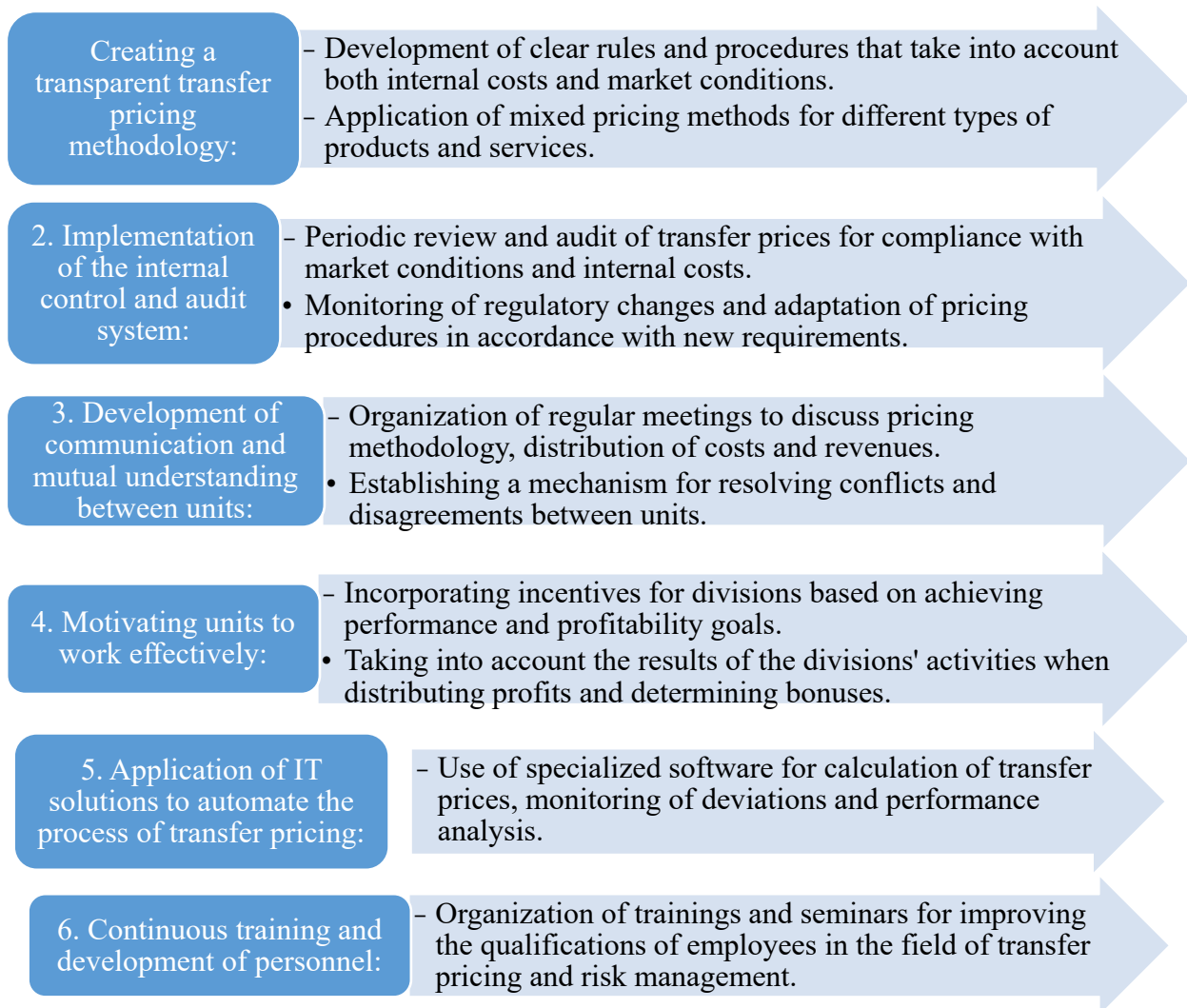


Figure 4 – Stages of the pricing process

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## MORTGAGE LENDING IN MODERN REALITIES: THE PATH TO AFFORDABLE HOUSING IN UKRAINE

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### **Key words:**

real estate, construction,  
mortgage, lending, «Оселя,  
Ukrfinzhytlo, grant program,  
appraiser.

The continuous development of mortgage lending, or lending against collateral of real estate, is a pressing issue today. In Ukraine, the issue of mortgage lending is becoming particularly relevant, especially in modern conditions, considering the powerful migration processes caused by the invasion of the Russian Federation into Ukraine, since it is now that the foundation of this system is being laid.

The article examines the current state of the mortgage market in Ukraine, its features and development prospects. The authors describe the main characteristics of mortgage credit, analyze the conditions of mortgage programs of leading banks and the dynamics of mortgage lending in 2022-2024.

Particular attention is paid to the state program «Оселя», which makes mortgages more accessible to a wide range of Ukrainians. The authors describe the advantages of the program, the conditions of participation and the process of оформлення іпотечного кредиту.

The article emphasizes the importance of state regulation and support of mortgage lending, especially considering the consequences of the full-scale invasion. The authors propose a number of measures aimed at stimulating the development of the mortgage market and protecting the rights of borrowers and lenders.

The research will be useful for specialists in the field of finance, civil servants, as well as for citizens who are interested in mortgage lending.

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## ІПОТЕЧНЕ КРЕДИТУВАННЯ В СУЧАСНИХ РЕАЛІЯХ: ШЛЯХ ДО ДОСТУПНОГО ЖИТЛА В УКРАЇНІ

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### **Ключові слова:**

нерухомість, будівництво,  
іпотека, кредитування, «Оселя,  
Укрфінжитло, грантова  
програма, суб'єкт оціночної  
діяльності

Безперервний розвиток іпотечного кредитування, або кредитування під заставу нерухомості, є актуальною проблемою сьогодення. В Україні питання іпотечного кредитування набуває особливої актуальності, особливо в сучасних умовах, зважаючи на потужні міграційні процеси, спровоковані вторгненням російської федерації в Україну, адже саме зараз закладається фундамент цієї системи.

Стаття досліджує сучасний стан іпотечного ринку в Україні, його особливості та перспективи розвитку. Автори описують основні характеристики іпотечного кредиту, аналізують умови іпотечних програм провідних банків та динаміку іпотечного кредитування в 2022-2024 роках.

Особлива увагу приділено державній програмі «Оселя», яка робить іпотеку доступнішою для широкого кола українців. Автори описують переваги програми, умови участі та процес оформлення іпотечного кредиту.

Стаття підкреслює важливість державного регулювання та підтримки іпотечного кредитування, особливо зважаючи на наслідки повномасштабного вторгнення. Автори пропонують ряд заходів, спрямованих на стимулювання розвитку іпотечного ринку та захист прав позичальників та кредиторів.

Дослідження буде корисним для фахівців у галузі фінансів, державних службовців, а також для громадян, які цікавляться іпотечним кредитуванням.



### Statement of the problem

The continuous development of mortgage lending, or lending against collateral of real estate, is a pressing issue today. On the one hand, mortgage is considered an effective tool for solving the housing problem in the country. On the other hand, the full-scale invasion of Ukraine has exacerbated the situation and put the mortgage lending market, which was rapidly gaining momentum until 2022, on hold. The experience of other countries suggests, on the contrary, that the mortgage mechanism will contribute to the acceleration of economic reforms, namely, it will allow to increase the investment orientation of the national financial market. It will also make it possible to expand the stock market by issuing mortgage securities. Mortgage credit also increases the investment potential of the national economy, and this is its main economic function. It is thanks to mortgages that it is possible to significantly increase the investment orientation of the national financial market.

Modern economic reality challenges Ukrainian families: high risks as a result of the war and high housing costs that significantly exceed the level of current incomes and savings, especially considering the circumstances of the forced displacement of a part of the country's population. These realities hinder the development of the real estate market and generally negatively affect the well-being of the population. Mortgage lending can become the key to solving this problem, as it allows you to purchase the desired housing, spreading payments over a long period.

From the point of view of the laws of development of the world economy, mortgage lending is an integral part of the market economy. It is not just a financial instrument, but also a driver of economic growth, stimulating construction, creating jobs and improving the living standards of the population.

### Analysis of recent studies

In Ukraine, the issue of mortgage lending is becoming particularly relevant, since it is now that the foundation of this system is being laid. Focusing on the formation of key elements that will ensure the effective functioning and development of mortgages is a critically important task.

Among foreign scientists who have studied the issue of mortgage lending, the most famous are G. Ashauer, D. Johnson, J. Sherman, M. Schneiderman, J. Schumpeter, G. McLeod, A. Smith, R. Strike, J. Friedman, R. Brealey, J. Kokko. The problems of mortgage lending in Ukraine are actively studied by Ukrainian scientists. Among them are K. Palyvoda, V. Lagutin, O. Lyubun, O. Savich, I. Lyutyi, B. Gnatkivskiy, M. Bodretskyy O. Yevtukh, P. Haydutskiy, O. Ryabchenko and others. Their works make a significant contribution to the understanding of the essence and mechanisms of functioning of the mortgage market, as well as to the definition of ways of its development.

### Presentation of the main material of the research

The consequences of the Russian-Ukrainian war have indeed affected all spheres of the economy. The mortgage lending market has suffered significant losses. The demand for real estate has plummeted, and most government mortgage support programs have been suspended.

According to the Law of Ukraine «On Mortgage», mortgage is a type of security for the fulfillment of an obligation with real estate (an undivided object of unfinished construction, a future object of real estate), which remains in the possession and use of the mortgagee, according to which the mortgagor has the right in case of non-fulfillment by the debtor of the secured mortgage obligation to satisfy its claims at the expense of the subject of the mortgage before other creditors of such debtor in the manner prescribed by this Law [1].

Features of mortgage credit are:

- Long-term nature;
- A specific defined goal;
- It is divided into housing and income. Housing mortgage credit is intended to improve the level of living and living conditions. Another case when a loan is granted for the reconstruction of housing for sale or further rent – income credit.

Since 2021, in Ukraine, according to the Cabinet of Ministers Resolution No. 451 of 28.04.2021 «Procedure for the use of funds provided for in the state budget under the program «Providing preferential mortgage loans to internally displaced persons», which regulates the issues of granting preferential mortgage loans to internally displaced persons at the expense of grant funds of one of the German state banks provided by the Reconstruction Credit Institution (KfW) [2].

With the start of the full-scale invasion in February 2022, the aforementioned mortgage lending program for IDPs was suspended, but after some stabilization of the situation, from August 2022 its implementation was resumed in accordance with the Cabinet of Ministers Resolution No. 856 of 02.08.2022 «Some issues of ensuring affordable mortgage lending to citizens of Ukraine by the Public Joint Stock Company «Ukrainian Financial Housing Company», which approved the terms of ensuring affordable mortgage lending to citizens of Ukraine by PJSC «Ukrfinzhytlo» [3].

Due to the limited grant resource since the beginning of the program, as of 01.01.2023, there have been 14 selections of winners to receive mortgage loans, 572 preferential mortgage loans were provided to IDP families for the purchase of housing for a total amount of 766 million hryvnias, of which 59% (336 loans) were issued in 2022).

During 2022-2023, there were: increased the maximum term for which a loan can be granted (from 20 to 30 years); the requirements for lending objects have been clarified. At the time of the introduction of this program, the Procedure required that the lending object be put into operation no more than 35 years ago (now – 50 years ago) or reconstructed no more than 25 years ago (now – 35 years ago); the normative housing area indicators provided for by the Procedure, which are used to calculate the loan amount, have been increased. If earlier it was 21 sq. m of the total living area per person and an additional 10.5 sq. m per family, then today the corresponding indicators provide for 52.5 sq. m per family of one person (single person) or a family of two persons and an additional 21 sq. m for each subsequent family member.

Although the loan holidays at the beginning of the war reduced the pressure on borrowers, even 2023 was marked by rapid changes in the dynamics of mortgage lending. According to the NBU, in February 2023, 126 mortgage loans were issued for a total of UAH 169.8 million, which is significantly less than in the previous year [4;6].

In the second half of 2023, the mortgage market finally felt positive changes, fueled by a decrease in the NBU's discount rate and the activation of government support programs, including «Оселя». This demonstrates the growth of the volume of mortgage loans in bank portfolios to UAH 25.5 billion at the end of the third quarter of 2023.

A particularly noticeable increase was recorded in October-November, when the share of housing purchased with borrowed funds reached 5.8%. According to statistics, PJSC Oschadbank in 2023 issued over 2,600 «Оселя» loans for UAH 3.6 billion, which is significantly more than in 2021. The bank's share in the mortgage lending market reached 43%, that is, almost every second such loan was issued by PJSC Oschadbank [5;6].

Experience of developed countries shows that mortgage loans are an important part of the bank's loan portfolio, especially in the USA and EU countries, where a significant part of loans is issued against the security of real estate. Mortgage lending conditions in these countries are more stringent, but interest rates are relatively lower. This ensures the affordability of housing and contributes to the development of the housing sector.

Moreover, mortgage lending abroad is considered as a means of investment. Mortgage lending played a significant role in the reconstruction of Europe after World War II. Governments used mortgages not only to solve housing problems, but also to stabilize the banking sector and the construction industry.

For example, in Germany, mortgage lending is carried out through Bausparkassen – savings and loan associations, which differ from traditional banks. These institutions offer nominal interest rates of around 6% per annum, but charge an administration fee.

In the USA, the mortgage sector is one of the key components of the financial system. The federal government has created several programs and organizations to support mortgage lending, including Fannie Mae, Freddie Mac, and Ginnie Mae.

In the UK, the mortgage market has developed under the influence of building societies. There, all efforts are aimed at increasing market stability and protecting borrowers, including through the introduction of an mortgage stress test [4].

Therefore, different countries, different mortgage systems, different availability and cost of loans, different level of protection of rights and investors, and a common feature is strong state support, since the development of mortgage lending requires a balanced approach that takes into account the needs of borrowers, investors and general economic goals.

Thus, it is mortgage lending that is a priority tool for the economic development of our state, because:

a) large part of the population, due to forced displacement from the front-line and occupied territories, needs housing, especially in large cities and towns;

b) the banks have shown their ability to adapt and support the economy even in the face of external challenges, the growth of mortgage lending in 2023 demonstrates the population's continued interest in investing in real estate.

Therefore, state regulation and support of this sphere, especially considering the consequences of the full-scale invasion, should be further improved. In particular, through control over developers, identifying unscrupulous developers and real estate sellers, developing the infrastructure for valuation and registration of real estate, providing preferential loans to certain categories of buyers, regulating interest rates, etc.

According to the NBU, in 2024, changes are expected in «Оселя», aimed at increasing the flexibility and attractiveness of mortgage programs. This gives hope for the development of the primary real estate market. In addition, it is planned to improve the legislative framework in the field of mortgage lending, which will protect the rights of borrowers and lenders [5].

To obtain a preliminary decision on a mortgage, the client must provide the following package of documents to the bank branch:

Real estate appraisal is also one of the key factors in the bank's decision to grant a loan: Upon submitting the documents, the bank employee must inform the borrower about the mandatory requirement to have the property appraised by a certified appraiser from a list provided by the bank.

The bank makes a decision on the possibility of granting a loan within two working days from the date of submitting the documents and receiving the property appraisal. It is also worth noting the need to open current accounts in the bank for the seller of the property and the borrower, which will be used to receive the loan and make subsequent payments on the loan.

Since October 2022, the state has implemented the «Оселя» program, which is being implemented by the Ministry of Economy together with the Ministry of Digital Affairs and PJSC «Ukrfinzhytlo» through designated banks of Ukraine. Let's analyze the main lending conditions for individuals (Table 2).

In addition to the mentioned banks, the current partners of the «Оселя» program include Globe Bank PJSC, Sky Bank PJSC, and Sense Bank PJSC.

According to the data of the Ministry of Economy of Ukraine, as of May 2024, a total of 9,757 Ukrainians have taken out loans to purchase housing under the «Оселя» program since its launch, for a total amount of over UAH 15 billion. Every fifth loan was obtained under the terms of mass mortgages – at 7%, 60% of mortgage loans were taken by military personnel and law enforcement officers, 11% by teachers and scientists, and 9% by medical workers. It is also worth noting that representatives of these professions can take out a loan to purchase an apartment or private house at 3%. Other Ukrainians who do not have housing or need to improve their living conditions can get a loan under the program at 7%. 81 loans were issued for the purchase of houses. Most often, loans were taken for the purchase of housing on the secondary market (150 loans)

Table 1 – Minimum List of Documents Required from an Individual to a Bank for Credit Committee Decision-Making and Loan Agreement Signing

To obtain a preliminary mortgage decision, the client provides	To sign mortgage and real estate purchase agreements, the buyer provides	To sign mortgage and real estate purchase agreements, the seller provides
<p>1. <b>Passport of a citizen of Ukraine:</b> Valid passport for identification purposes.</p> <p>2. <b>For ID-passports:</b></p> <ul style="list-style-type: none"> <li>• <b>Extract from the Unified State Demographic Register:</b> An official document containing information about an individual's registration in the Ukrainian population registry.</li> <li>• <b>Certificate of registration regarding the place of residence:</b> A document confirming an individual's registration address in Ukraine.</li> <li>• <b>Certificate of Internal Displacement (for Crimean residents):</b> A document issued to individuals displaced from the Autonomous Republic of Crimea due to the ongoing conflict.</li> </ul> <p>3. <b>Individual Taxpayer Identification Number (TIN):</b> A unique identifier assigned to each taxpayer in Ukraine.</p> <p>4. <b>Marriage certificate and/or birth certificates of children (for married clients with children under 18):</b> Official documents confirming marital status and the presence of minor children.</p> <p>5. <b>Copies of the technical passport and title deed for the property:</b> Documents providing detailed information about the property under consideration for mortgage financing.</p> <p>6. <b>Guarantor's documents:</b> Documentation provided by the guarantor(s) to support their financial capacity and ability to assume the mortgage obligation in case of the borrower's default.</p> <p>7. <b>Income verification documents:</b></p> <ul style="list-style-type: none"> <li>• <b>Income certificate from the place of employment for employed individuals (for the last 6 months):</b> An official document from the employer detailing the employee's income and salary history.</li> <li>• <b>Income declaration for private entrepreneurs (FOPs):</b> A tax declaration filed by private entrepreneurs reporting their taxable income.</li> </ul> <p>8. <b>For military personnel:</b></p> <ul style="list-style-type: none"> <li>• <b>Military ID:</b> A document confirming military service and identity for individuals in the armed forces.</li> <li>• <b>Certificate from the military commissariat (Form 5):</b> A document issued by the military commissariat providing information about the individual's military service status and financial obligations.</li> </ul> <p><b>For seafarers:</b></p> <ul style="list-style-type: none"> <li>• <b>Seaman's passport:</b> An official document issued to seafarers for international travel and identification purposes.</li> <li>• <b>Contracts for the last calendar year, future contract, and their translations:</b> Copies of employment contracts for the previous year and the upcoming year, along with official translations.</li> <li>• <b>Statement of account movement confirming contract income for the last 12 months:</b> A bank statement detailing income received from employment contracts within the past year.</li> </ul>		
		<p>10. <b>Title deed for the property:</b> A legal document establishing ownership of the property under consideration for mortgage financing.</p> <p>11. <b>Technical passport for the property:</b> A detailed document containing technical specifications and information about the property's structure, measurements, and condition.</p> <p>12. <b>Extract from the State Register of Real Property Rights on Real Estate regarding the registration of ownership:</b> An official document confirming the registration of ownership rights for the property.</p> <p>13. <b>Certificate of registration of children (if there are children under 18):</b> A document confirming the registration of minor children and their place of residence.</p> <p>14. <b>Presence of the spouse during the signing of the agreement with a passport and TIN (for married clients):</b> In addition to the marriage certificate, the spouse must be present during the signing of the mortgage agreement and provide their passport and TIN.</p> <p>15. <b>Spouse's consent to the sale of the property (if purchased during the marriage):</b> A notarized document expressing the spouse's consent to the sale of the property acquired during the marriage.</p> <p>16. <b>Document on registered persons at the address of the residential real estate that is the subject of the mortgage:</b> A document listing all individuals registered at the address of the property being mortgaged.</p> <p>17. <b>Statement of absence of arrears in utility bills:</b> A document from the utility company confirming that there are no outstanding utility bills for the property being mortgaged.</p>

\*Compiled by the authors based on sources [7;8].

Table 2 – Analysis of current basic bank mortgage lending offers

№	Назва банку	Вид кредиту	Сума	% ставки	строки	Особливі умови
1	OJSC Oschadbank	«Оселя State Program	Loan amount: UAH 100,000 – UAH 6 million	Interest rate: 3% with compensation, 7% without compensation	Loan term: 24-240 months	<a href="https://www.oschadbank.ua/credit/eoselia">https://www.oschadbank.ua/credit/eoselia</a>
2	OJSC PrivatBank	Discounted Mortgage for Apartments at 3%, 7% «Оселя»	Loan amount: UAH 100,000 – UAH 5 million	Interest rate: 3% with compensation, 7% without compensation	Loan term: 24-240 months	<a href="https://privatbank.ua/kredyty/e-oselya">https://privatbank.ua/kredyty/e-oselya</a>
3	OJSC Ukrgasbank	«Оселя State Program	Loan amount: UAH 100,000 – UAH 5 million	Interest rate: 3% with compensation, 7% without compensation	Loan term: 1 year (12 months) to 20 years (240 months)	<a href="https://www.ukrgasbank.com/private/credits/e-oselya/">https://www.ukrgasbank.com/private/credits/e-oselya/</a>
4	OJSC Ukrexim-bank	«Оселя State Program	Loan amount: UAH 100,000 – UAH 5 million	Interest rate: 3% for citizens in categories 1-4 7% for citizens in categories 5-7, those who lose their status in a specific category, or in the absence of interest compensation funding	Loan term: 1 year (12 months) to 20 years (240 months)	<a href="https://www.eximb.com/ua/business/pryvatnym-klientam/pryvatnym-klientam-kredituvannya/eoselya.html">https://www.eximb.com/ua/business/pryvatnym-klientam/pryvatnym-klientam-kredituvannya/eoselya.html</a>
5	OJSC Credit Dnipro Bank	«Оселя State Program	Loan amount: UAH 100,000 – UAH 6 million	Interest rate: 3% with compensation, 7% without compensation	Loan term: Up to 240 months (inclusive)	<a href="https://creditdnepr.com.ua/ipoteka/eoselia">https://creditdnepr.com.ua/ipoteka/eoselia</a>

• Compiled by the authors based on sources [8-13].

and from the developer (27). 21 Ukrainians also took out a loan to buy an apartment in a house under construction.

In four months of 2024, about 4,000 Ukrainian families took out loans to purchase housing for UAH 6.7 billion, most of them bought apartments, 161 families – private houses. About 30% of loans were issued under the program for the purchase of finished housing from a developer or under construction [14].

In the first week of May 2024 alone, Ukrainians received 264 loans under the «Оселя» program for UAH 467 million (Fig. 1).

Analysis of real estate sales contracts showed that Ukrainians, due to a number of reasons, continue to prefer buying housing on the secondary market – 69% of concluded transactions (Fig. 2).

The study of the most popular regions in terms of mortgage registration for housing purchases continues to be led by Kyiv and Kyiv Oblast, and in 2024, Lviv Oblast lost second place to Rivne Oblast (Fig. 3).

In the wake of the ongoing conflict in Ukraine, the issue of affordable housing has become increasingly critical. The «Оселя» program, launched in October 2022, aims to address this challenge by providing subsidized mortgage rates to a wider range of Ukrainian citizens.

The «Оселя» program offers several significant benefits to potential homeowners:

- Reduced Interest Rates: Borrowers can secure loans under the program at interest rates ranging from 3 to 7 percent per annum, significantly lower than prevailing market rates. This makes homeownership more attainable

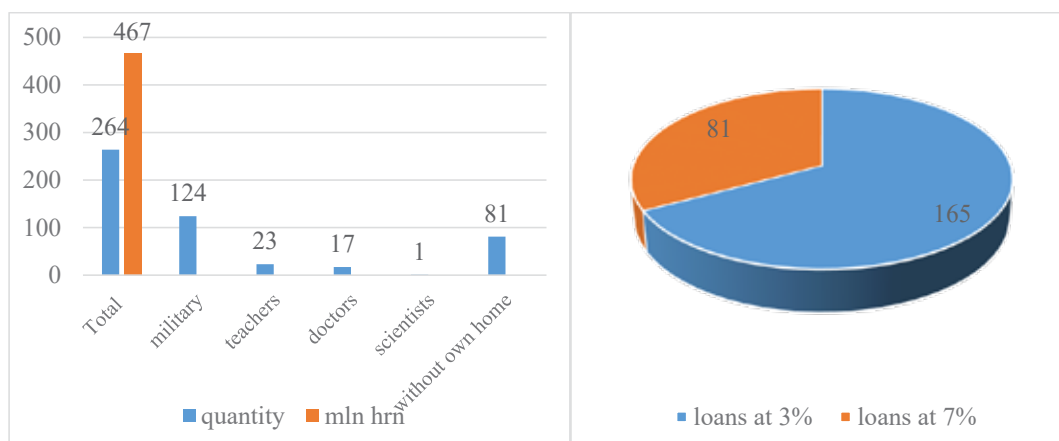


Fig. 1 – Number of loans by borrower category and interest rates, 2024 [based on source 14]

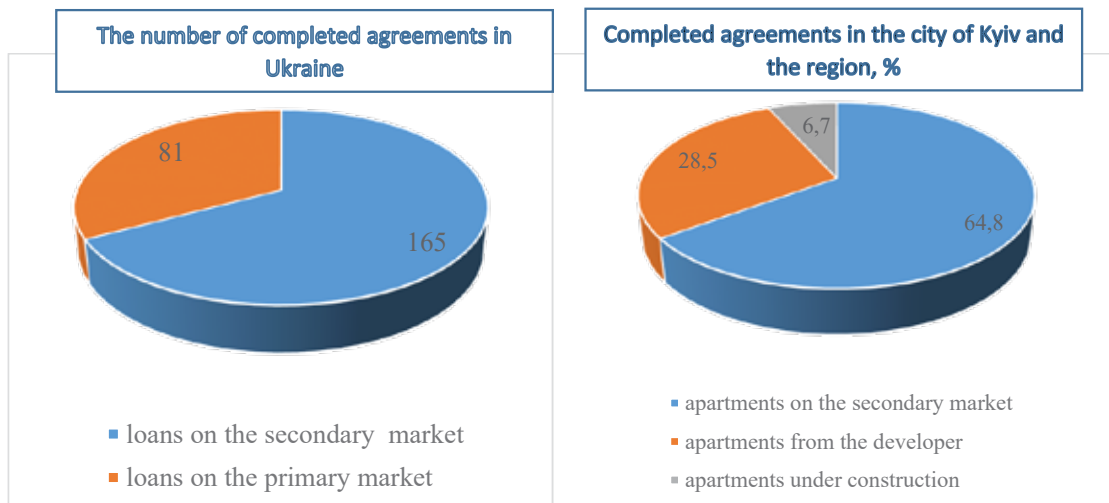


Fig. 2 – Number of transactions concluded on the primary and secondary real estate markets in Ukraine, Kyiv and Kyiv Oblast, 2024 [based on source 14]

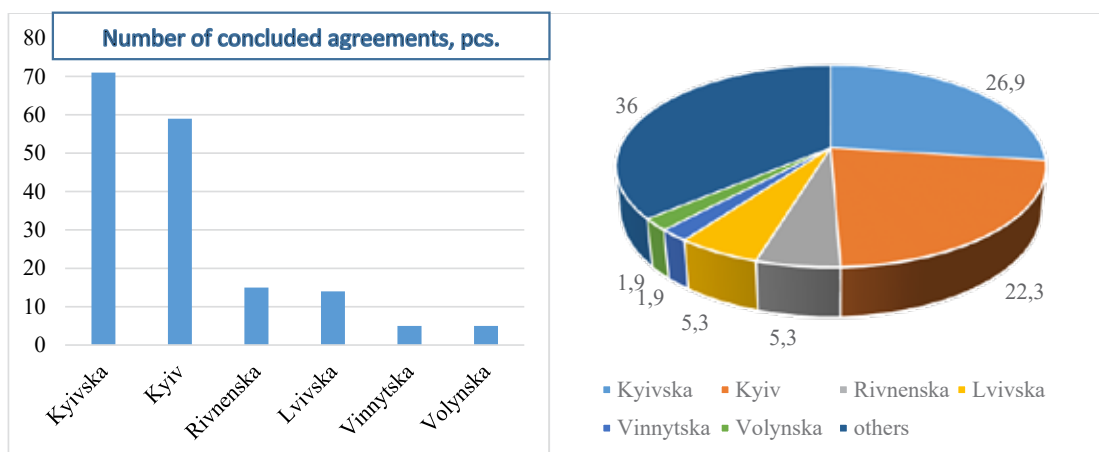


Fig. 3 – Number of transactions concluded, units, %, 2024 [based on source 14]

for many families who might otherwise struggle to afford commercial mortgage products.

– Affordable Homeownership: Purchasing a home through the «Оселя» program can be more cost-effective than renting. For instance, in Zaporizhzhia, a city that has welcomed a large number of internally displaced persons (IDPs), the monthly mortgage payment for a one-bedroom apartment in a new development can range from 6,500 to 9,600 hryvnia. This compares favorably to rental rates for similar apartments, which typically fall between 11,000 and 15,000 hryvnia per month. Additionally, homeowners have the freedom to personalize their living spaces without the restrictions associated with renting.

– Simplified Application Process: The «Оселя» program offers a convenient and straightforward application process. Potential participants can check their eligibility online through the «Diia» portal. Submitting an application allows individuals to receive a preliminary decision, streamlining the process and saving valuable time.

Since its inception in October 2022, the «Оселя» program has emerged as a crucial tool for accessing mortgage loans. While mortgage financing remains largely inaccessible for most Ukrainians due to the ongoing conflict, the program has provided a viable option for eligible categories of borrowers.

Expanding the eligibility criteria for the «Оселя» program can further stimulate the development of the mortgage market. Increased competition among banks is likely to lead to more relaxed borrower requirements and more favorable lending terms.

In light of the current challenges, efforts are underway to secure additional funding to support the continued operation and expansion of the mortgage market.

### Conclusions

Mortgage lending holds immense potential to empower Ukrainian citizens to achieve affordable homeownership and enhance their quality of life. Through the combined efforts of government agencies, researchers, banks,

businesses, and the general public, Ukraine can establish an effective and dynamic mortgage lending system that aligns with global standards.

A robust and transparent legal framework that safeguards the rights of both borrowers and lenders is paramount to ensuring the efficient functioning of the mortgage market.

A genuine revitalization of mortgage lending is anticipated only after Ukraine emerges victorious from

the ongoing conflict. This revitalization can serve as a catalyst for positive economic transformations, stimulating not only residential construction but also ancillary sectors such as home renovation, interior design, and furniture manufacturing. Affordable housing is not merely a matter of comfort and convenience; it is also a critical factor in fostering social stability and societal progress.

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# LABOUR ECONOMICS, PERSONNEL MANAGEMENT AND MARKETING

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## IMPACT OF INFORMATION TECHNOLOGIES ON THE DEVELOPMENT OF INTELLECTUAL CAPITAL OF ENTERPRISES

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**Key words:**

assessment of intellectual capital, competitiveness, innovative health, personal expertise.

The article examines the impact of the implementation and adaptation of advanced information technologies by personnel for the development of intellectual capital (IC) of enterprises. The author describes the importance of information technology skills in the arsenal of a modern person for successful employment and professional career development, provides statistical data on the development of the IT sector over 5 years, which indicate dynamic growth and significant investments in this area. The writer of the article defines the essence and components of IC that ensure competitive advantages in the market, analyzes the effects of information technology implementation on the efficiency of production processes, highlighting both positive and negative aspects. He presents the results of previous studies that allowed forming the most accurate definition of intellectual capital, which is based on human, structural and consumer capital, demonstrates the results of MIT and IBM research, which argue that human data analysis is necessary to increase net operating income at the enterprise. The author lists the most effective options for the development of IC through the implementation of trainings to enhance proficiency, improve production processes and increase the share of intellectual activity. Based on the popular methods for assessing intellectual capital, the writer proposes his own approach of measuring this indicator, which includes personal expertise and innovative health of the enterprise. In conclusion, the writer emphasizes the close connection between the development of these indicators based on the proposed methods of increasing IC. The article repeatedly states that it is difficult to define a single portfolio of indicators for assessing intellectual capital through the adoption of information technologies. The author emphasizes the formation of a comprehensive indicator and conducting an experiment to confirm the hypothesis about the impact of IT on the formation of IC.

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## ВПЛИВ ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ НА РОЗВИТОК ІНТЕЛЕКТУАЛЬНОГО КАПІТАЛУ ПІДПРИЄМСТВ

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**Ключові слова:**

інноваційне здоров'я, конкурентоспроможність, особистісна експертиза, оцінка інтелектуального капіталу.

В статті досліджується вплив впровадження та адаптації персоналом сучасних інформаційних технологій для розвитку інтелектуального капіталу (ІК) підприємств. Автор описує важливість навичок користування інформаційними технологіями в арсеналі сучасної людини задля успішного працевлаштування та розвитку професійної кар'єри; наводить статистичні дані розвитку ІТ-сектору за 5 років, які свідчать про динамічне зростання та значні інвестиції в цю сферу; визначає сутність та компоненти ІК, які забезпечують конкурентні переваги на ринку; аналізує наслідки впровадження

інформаційних технологій на ефективність виробничих процесів, виділяючи як позитивні, так і негативні аспекти; наводить результати попередніх досліджень, які дозволили сформувавши найбільш точне визначення інтелектуального капіталу, в основі якого лежать людський, структурний та споживчий капітали; демонструє результати дослідження MIT та IBM, які стверджують про необхідність аналізу людських даних для збільшення чистого операційного доходу на підприємстві; перелічує найбільш ефективні варіанти розвитку ІК шляхом запровадження тренінгів для підвищення кваліфікації, вдосконалення виробничих процесів та збільшення частки інтелектуальної діяльності; наводить приклади популярних методів оцінки інтелектуального капіталу, які враховують різні напрямки діяльності та пропонує власний метод його вимірювання, в основі якого лежать показники особистісної експертизи та інноваційного здоров'я підприємства. У підсумку автор підкреслює тісний зв'язок розвитку цих показників виходячи із запропонованих методів підвищення ІК. У статті неодноразово простежується твердження про складність визначення єдиного портфеля показників для оцінки інтелектуального капіталу шляхом впровадження інформаційних технологій. Автор наголошує на формуванні комплексного показника та проведенні експерименту задля підтвердження гіпотези щодо впливу ІТ на формування ІК.

### Statement of the problem

In the modern world, information technology has become an integral part of business processes in many areas. They help to increase labor efficiency, reduce resource consumption or improve the quality of the final product or service. Investing in the development of information technology at an enterprise seems to be the smart decision, as it creates a number of both tangible and intangible benefits. One of these intangible benefits is an increase in the company's intellectual capital, which allows for an overall boost in the company's competitiveness in the market. The problem is in the multi-component structure of this indicator and the difficulties in its calculation. The article proposes an alternative approach to assessing the indicators of intellectual capital formation.

### Analysis of recent studies and publications

The issue of the essence of intellectual capital is not new. Many Ukrainian and foreign scholars have devoted their works to the study of this concept. Among the most prominent are C. Swaby, T. Stewart, A. Brookings, D. Duffy, S. Legenchuk, A. Cherep, O. Nazarov, etc. At the same time, such scientists as M. Mura, L. Budovych, M. Demianchuk, M. Hetman and others have studied the issue of calculating intellectual capital in the context of tangible and intangible assets of the enterprise. However, due to the complex structure and the lack of a single definition of the IC essence, these studies cannot be considered as exhaustive, so it is necessary to study this problem in more detail by identifying additional indicators.

### Objectives of the article

The purpose of the study is to determine a portfolio of alternative quantitative indicators for measuring intellectual capital, which is formed during the implementation of information technologies in the business processes of an enterprise.

### The main material of the research

Today it is quite difficult to imagine an enterprise that does not use information technology in its business processes. The development of IT creates global trends that encourage management at various levels to attract additional investments in its implementation in enterprises. When people are constantly overwhelmed with a lot of information, rational use of mental resources by automating routine processes and delegating simple tasks to "programmable assistants" is not a whim, but a necessary step.

Statistics on the budget of the Ministry of Digital Transformation of Ukraine over the years confirms the previous opinion, as the development of information technology is taking place not only at the commercial but also at the state level (Fig. 1). We can see that there is a positive trend in this direction, and over 5 years the budget has increased almost 6 times, which indicates the prospects for investment in the IT sector [1].

Ukraine's achievements in digitalization are difficult to overestimate. It remains one of the most advanced countries in Europe in this regard, and our experience is being adopted by other European countries, notably Estonia [2]. At the same time, human intelligence is the driving force that allows information technology to develop and bring benefits. It would be incorrect not to use these achievements to improve the intellectual activity of humanity. That is why the use of IT is a powerful tool for the development of intellectual capital. However, it can lead to both positive and negative consequences. The positive ones include:

- increasing labor productivity. IT helps automate many routine tasks, which frees up employees' time for more creative and innovative work;
- improvement of collaboration and knowledge sharing. IT helps to minimize the number of unnecessary communications, keep all information up-to-date and speed up decision-making;



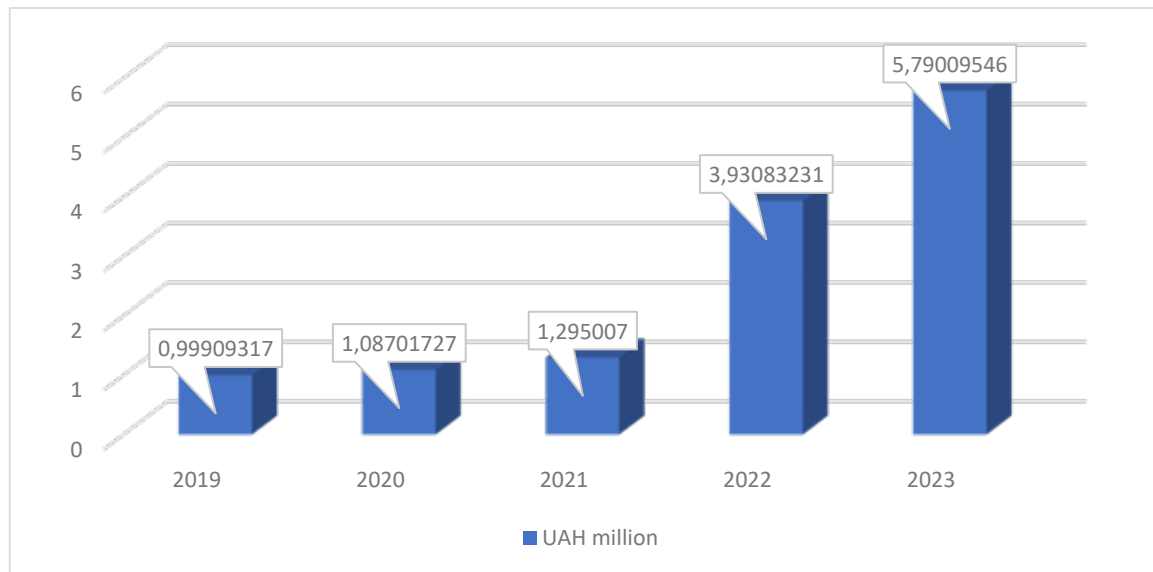


Figure 1 – Budget of the Ministry of Digital Transformation of Ukraine for 2019-23, UAH million

– increasing the quality of the product/service. Technologies for automating testing, improving quality control, and customer support affect the final quality of the product/service.

The negative consequences of IT implementation include:

– additional maintenance costs. Implementing and maintaining information technology in an enterprise can be an expensive investment and can hold management back;

– the necessity of training. New processes may require additional time and effort from employees to master new tools;

– employee resistance. Some employees may not share the initiative to integrate IT into their functional tasks due to the complexity of the process, lack of transparency or the threat of losing their jobs.

It is important to mention that the scale and speed of information technology adoption depends on such factors as the type and size of companies, industry sector, corporate culture etc.

Despite the factors mentioned above, it is difficult to assess the impact of information technology implementation on the development of intellectual capital. Generally, the definition of intellectual capital is divided into 2 groups: either it is identified only with the human factor; or it is a more complex system that includes various components (processes, intellectual resources etc.) and the links between them [3].

D. Duffy suggests that “intellectual capital is the aggregate knowledge possessed by an organization through its employees, as well as in the form of methodologies, patents, architecture and relationships” [4]. However, I personally like O. Davydova’s definition that “intellectual capital is a set of knowledge, information, experience, qualifications and motivation of personnel, organizational capabilities, technologies that can create added value and ensure the company’s competitive advantages in the market” [5].

Compared to other tangible assets, knowledge, experience and creativity cannot be physically measured, so there is no unified metric for measuring it. The best way to evaluate the development of intellectual capital is through innovation, i.e. through the creation of new or improvement of existing products or processes. That is why, in the context of comparing tangible and “mental” assets, the latter are focused on the future.

Similarly to tangible capital, intellectual capital is exposed to depreciation and eventually becomes obsolete, which means it requires costs to adjust and maintain. Companies that take into consideration intellectual capital indicators while calculating their company’s success are more likely to achieve their tactical and strategic goals. I. Kaplia’s research has shown that intellectual capital is not only “goodwill” (or company reputation) but a much broader concept [6].

The structure of intellectual capital is ambiguous, but one of the most popular is the classification of K. Swayby, who identified three main components [7]:

– human capital. It includes all the knowledge and experience of the organization’s employees (life and work), innovative education etc.

– structural capital. It includes the company’s mission and policies, work culture, organizational structure, copyrights etc.

– consumer capital. Includes the company’s brand, reputation and covers the organization’s relationships with employees, service providers, customers and other stakeholders.

To sum up, intellectual capital is an important component of a company’s normal functional activities. At the same time, the socio-cultural characteristics of different generations (X, Y, Z) determine the actual parameters of consumer interest in a product or service [8]. That is why managers of many enterprises create appropriate conditions for the retention and development of their employees,

taking into account current trends, because the cost of hiring and adapting a new specialist to the previous level will be more expensive for the company.

A study conducted by MIT and IBM showed that the use of human data analytics by companies could increase net operating income by 24% [9].

The use of information technologies in work can contribute to the growth of the intellectual capital of an enterprise, as they allow to access information faster, analyze more resources, acquire advanced tools, i.e. increase the intellectual potential of an employee. These skills are related to human mental activity, which is more valuable than physical activity today [10] and allows rational use of intellectual resources for creative activities rather than routine tasks. Thus, in the near future, employees who are able to use the benefits of information technology in their professional field will be more in demand and attractive to companies in various industries.

It is crucial for companies to invest in the development of their employees' intellectual potential if they want to stay relevant and deliver competitive advantages. This view is confirmed by a study conducted in 2021, which shows a direct link between the importance of intellectual capital and maintaining market competitiveness in the telecommunications sector [11].

The most effective methods of preserving human resources and improving intellectual potential in terms of IT proficiency are:

- development and implementation of trainings and qualification improvement courses. Continuous training, bonuses from the company and a circle of like-minded people contribute to the professional and social growth of employees;
- improvement of work processes. The use of new technologies, best international practices and methodologies enables to increase the efficiency of operational tasks and improve customer relations;
- intellectual activity. The development of new products and patents using advanced tools and approaches

contributes to the creation of intellectual assets of the enterprise.

It is important to assess changes in intellectual capital when implementing any method. The challenge is that calculating this issue is a non-trivial task, as there is no clear system of indicators (moreover, individual companies have developed their own assessment tools over time). One of the most famous analytical methods of assessment is the Skandia Navigator, developed in 1997 by the eponymous company, which uses a system of financial and human indicators (Table 1) [12].

Demianchuk M. supplemented this assessment system by introducing such quantitative criteria as “educational level of personnel”, “timeliness of staff development”, “digitalization coefficient” [10] etc. and thus defining the relationship between information technology and intellectual capital fairly closely.

The above assessment methods are significant, although, given the rapid development of IT, other indicators can measure intellectual capital. The above portfolio of assessments can be divided into 2 categories (table 2).

The described metrics in the “personal expertise” category are designed to measure an employee’s skill in performing work tasks – the time required to solve a problem, the number of errors in the process etc. Reduction of these indicators indicates that tasks are performed at a lower cost and/or with higher quality.

The indicators of the “innovation health” category take into consideration the factor of continuous training and research activities of employees to create new products or processes, which in the long run affects the material indicators of the enterprise (innovative and market property, competitiveness etc.).

It is important to note that these indicators describe the elementary part in the calculation of the intellectual capital of an enterprise in the context of information technology implementation. However, the use of IT in practice should improve these indicators, which will lead to an increase in the intellectual capital of the enterprise. I consider further

Table 1 – Skandia Navigator intellectual capital valuation method

Area	Key indicators
<i>Financial</i>	Revenue/employee, new customer revenue/total revenue, management revenue/costs
<i>Customer</i>	Sales funnel duration, number of lost customers, satisfaction index etc.
<i>Process</i>	Administrative expenses/total income, interest rate volatility rating
<i>Innovative</i>	Employee satisfaction index, market costs/management costs, market costs/customer etc.
<i>Human</i>	Number of managers with higher education, annual staff turnover rate, leadership index etc.

Table 2 – Alternative portfolio of intellectual capital valuation metrics

Area	Key indicators
<i>Personal expertise</i>	Number of tasks returned for revision to the total number of tasks (taking into account the employee's experience) Amount of time spent on researching the issue to the total time spent on the task Number of overtime hours to the total number of working hours Number of hours spent on communication to the total number of hours spent on the task
<i>Innovative health</i>	Number of initiatives accepted from an employee to the total number of initiatives generated (taking into account the person's experience and age) Number of employees who are studying/finished trainings to the total number of employees (per year) Number of employees involved in cooperation with international institutions in the field of research to the total number of employees

research to be the development and calculation of a general (integrated) indicator for the categories of “personal expertise” and “innovative health” of the enterprise, as well as conducting an experiment and comparing these indicators before and after the integration of IT tools into work processes.

### Conclusions

Based on the analysis of the previous researchers' works, the article studies the impact of information technologies on the formation of intellectual capital of an enterprise. It is determined that information technologies serve as a powerful tool for increasing the productivity of human mental and physical labor, while intellectual

activity is the engine of development of these technologies, so companies should pay attention and invest resources in the development of intellectual capital. The complexity of the study was the lack of a single definition of this concept and the lack of a generally accepted system for calculating intellectual capital. Taking into consideration the analysis of existing methods for assessing intellectual capital, a portfolio of alternative indicators was proposed, which is designed to study the impact of the implementation and maintenance of information technologies on the formation of the “mental potential” of enterprises. Further development of this topic includes the creation of a comprehensive indicator and an experiment on the relationship between IT and IC.

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DOI <https://doi.org/10.26661/2414-0287-2024-3-63-15>**PERSONNEL MANAGEMENT BASED ON INNOVATIVE APPROACHES****Maltuz V.V., Dashko I.M., Koloberdyanko I.V.***Zaporizhzhia National University**Zaporizhzhia, Zhukovsky str., 66; Ukraine**ma.viktorija@ukr.net, irina.znu@i.ua, koloberdjanko@ukr.net**ORCID: 0000-0002-3863-6456, 0000-0001-5784-4237, 0009-0001-2556-4019***Key words:**

staff, personnel, recruitment, hiring, selection, adaptation, recruiting, personnel leasing, personnel audit, coaching.

The changes in the business environment caused by technological innovations are characterized. The concept of innovation is considered. The innovativeness of the personnel service is analyzed. The need to improve personnel management at enterprises in modern conditions is analyzed. The concept of an employee of an enterprise, which is the basis of any innovation process, is disclosed. The concept of personnel is considered, which ensures the effective operation of the personnel management system and helps to eliminate shortcomings in the work process or in production in general. The approaches to managing employees of an enterprise are substantiated, which can be divided into the following groups: economic, administrative, social and psychological. Innovative approaches to personnel management are revealed, in particular: recruitment, performance evaluation, personnel training, remuneration system, career management. The advantages and disadvantages of innovative approaches to personnel management are analyzed. It is proved that the only reasonable approach to personnel management is the use of new different methods and styles of management for different employees, both for the team as a whole and for each employee separately, depending on the situation. The concept of «staff leasing» is characterized and the advantages of introducing staff leasing technologies into the practical activities of business entities are indicated. The most important indicators of employee performance are analyzed. It is determined that coaching technologies are used to motivate employees, evaluate and develop them, resolve conflict situations and regulate relations in the team and are intended to solve many problems.

**УПРАВЛІННЯ ПЕРСОНАЛОМ НА ЗАСАДАХ ІННОВАЦІЙНИХ ПІДХОДІВ****Малтюз В.В., Дашко І.М., Колобердянко І.В.***Запорізький національний університет**Україна, 69600, Запоріжжя, вул. Жуковського, 66***Ключові слова:**

персонал, кадри, підбір, найм, відбір, адаптація, рекрутинг, лізинг персоналу, кадровий аудит, коучинг.

Охарактеризовано зміни у бізнес-середовищі, що спричинені технологічними інноваціями. Розглянуто поняття інноваційності. Проаналізовано інноваційність кадрової служби. Проаналізовано необхідність удосконалення управління персоналом на підприємствах в сучасних умовах. Розкрито поняття працівник підприємства, що є основою будь-якого інноваційного процесу. Розглянуто поняття кадри, що забезпечують ефективну роботу системи управління персоналом і допомагають усунути недоліки в робочому процесі або на виробництві загалом. Обґрунтовані підходи в управлінні працівниками підприємства, які можна розділити на наступні групи: економічні, адміністративні та соціально-психологічні. Розкрито інноваційні підходи управління персоналом, зокрема: підбір персоналу, оцінка діяльності, навчання персоналу, система винагороди, управління кар'єрою. Проаналізовано переваги та недоліки інноваційних підходів управління персоналом. Досліджено, що єдиним обґрунтованим підходом в управлінні персоналом є використання нових різних методів і стилів управління для різних працівників як в цілому для колективу так і окремо для кожного працівника, в залежності від ситуації. Охарактеризовано поняття «лізинг персоналу» і зазначено переваги при впровадженні технологій лізингу персоналу в практичну діяльність суб'єктів господарювання. Проаналізовано найважливіші показники ефективності роботи працівників. Визначено, що коучингові технології використовується для мотивації працівників, їх оцінки та розвитку, вирішення конфліктних ситуацій та врегулювання стосунків у колективі і призначені для вирішення багатьох завдань.

### Problem statement

The modern economy is characterized by rapid changes in the business environment caused by technological innovations, the rapid development of new industries and activities, changes in consumer needs and increased competition. In such situations, the role of employees, their ability to improve their performance and use their capabilities in the workplace to achieve the company's goals, is growing. The need to constantly bring the characteristics of employees in line with the requirements of the enterprise, time and business environment leads to the need to implement modern management systems. Innovation in the field of human resources management in modern conditions should be aimed at increasing productivity and quality of work; improving the quality of working life; organizing continuous development of employees; empowering employees and cohesion of the company's teams. The specific part of innovations in the HR sphere of each enterprise is individual and is determined by the strategy, financial capabilities and priority of the chosen HR policy.

The need to improve human resources management at enterprises is primarily driven by the requirements of international quality standards, which provide for the use of specific measurable and time-bound goals, as well as the need to make administrative decisions based on targeted and timely information on the effectiveness of personnel procedures. In these cases, the development of the enterprise's HR management system should be viewed as a purposeful activity of employees of all structural units, including the development of a HR policy strategy and a HR management concept, and their implementation is achieved by bringing the goals, structures, methods and ways of HR management in line with the requirements of the new labor market, as well as the possibility of their change.

### Analysis of recent research and publications

A large number of works have been devoted to the study and analysis of personnel management problems with regard to innovative approaches, namely: D. Bogina, M. Bondar, I. Dashko, A. Shegda, V. Vesnin, A. Yegorshin, V. Dyatlov, A. Kolot, S. Shekshna and others. Despite the large number of scientific developments in personnel management with regard to innovative methods, this issue is still relevant in the modern world, as it has not been sufficiently addressed.

### Formulation of the article's objectives

The purpose of this article is to study modern methods of personnel management with due regard for innovative approaches.

### Summary of the main research material

Employees of an enterprise are the basis of any innovation process, as they provide new ideas and create new projects. For this reason, the question arises at the enterprise of how to properly manage these employees, implement their ideas and help the development of the enterprise.

Human resources ensure the effective operation of the HR management system and help to eliminate

shortcomings in the work process or in production in general. Implementing innovations in the human resources management system requires the company to make changes in the training and education of employees, recruitment, selection or selection of personnel, information support for employees, as well as psychological support and motivation of subordinates. To solve these problems, there are various approaches to managing employees of an enterprise, which are ways of influencing employees, both individually and collectively, to coordinate their activities at a given enterprise. There are many different approaches to personnel management that can be divided into the following groups: economic, administrative, and socio-psychological. These approaches are still used at many enterprises, but they are not so effective now, because each enterprise is focused on continuous improvement and therefore it is necessary to constantly improve approaches to personnel management [1; 7; 8].

Innovative approaches to HR management include the following:

1. Recruitment, i.e., it is necessary to carefully select applicants for the offered position in order to find the best employees who will be able to develop and improve the company. This approach is characterized by consistency and efficiency in the recruitment and selection process. On the other hand, it promotes a systematic selection and recruitment process and identifies the most suitable candidates for the job.

2. Performance appraisal is the process of establishing a comparison between the requirements of the position and the characteristics of the employee. Based on this approach, you should constantly evaluate your employees in two ways: first, by the results they have achieved; and second, by why they have achieved them and how they can improve.

3. Staff training is the improvement of staff skills through trainings, webinars, seminars, etc. This approach helps employees to acquire new knowledge and new skills, which in turn will further promote innovation.

4. A reward system is the motivation of employees through various incentives and rewards. It is a motivational approach that offers monetary rewards, various types of incentives, and other types of recognition to encourage employees to come up with new creative ideas, take risks, and continuously improve.

5. Career management is the achievement of career goals. This approach ensures the professional development of employees through internships, training and professional development [2; 4].

The advantages and disadvantages of innovative approaches to HR management are shown in Table 1.

The results of the research conducted in this paper show that the only reasonable approach to HR management is to use new different methods and styles of management for different employees, both for the team as a whole and for each employee separately, depending on the situation.

Thus, the management of employees' innovative activities is a purposeful activity of the company's managers and HR specialists to ensure the speed and scope of employees'

Table 1 – Advantages and disadvantages of innovative approaches in personnel management [3; 8]

№ s/n	Name of the approach	Advantages.	Disadvantages
1	Recruitment, selection and hiring of personnel	Possibility of continuous professional and psychological assessment of employees with further consideration of the company's specifics and the employee's position in the future	Time and capital costs
2	Performance evaluation	Activity in the field of innovation, creation of new things through opportunities to discuss their work with management	Spending a lot of time
3	Staff training	Increasing the potential of employees and the enterprise as a whole and increasing staff productivity	Expenses for trainings and educational literature
4	Reward system	Increased motivation of employees to create new projects and increased job satisfaction	Economic costs
5	Career management	Increased interest in the company's business and reduced staff turnover	Increasing the level of competition among employees

recovery from illness by implementing employees' innovative activities in practice in accordance with the current and strategic goals of the company.

The management of innovative activities involves, first of all, the restructuring of the enterprise, i.e., changing the entire structure of the enterprise or individual units for the efficiency of economic activity.

Innovation management also includes various innovations in forms, principles and methods of payment. Important importance is also attached to the implementation of new ideas for the development of the company's corporate culture.

Having analyzed the foreign experience of introducing innovative technologies [5; 6] into the personnel management system, we can conclude that in order to increase the efficiency of the enterprise, it is recommended to implement:

1. Recruiting, namely, the selection of qualified personnel by specialized enterprises. One of the types of recruitment is personnel leasing, which should be considered as a management technology that provides the company's business process with the necessary quantitative and qualitative labor resources using the services of a third-party company. In this case, legal relations arise between the employing company and the employee with whom the employment contract is concluded.

One of the types of leasing that is advisable to use is the recruitment of temporary workers, which involves the participation of employees for a short period of time, namely from one to three months. The introduction of personnel leasing technology into the practical activities of business entities has the following advantages

- engagement of personnel of a certain qualification and the required number;
- the possibility of repeated replacement of employees in case of incorrect performance of their duties or for other reasons;
- release of the HR department from the usual administrative work and document flow related to the official registration of employees in the staff, as well as the removal of expenses for payroll and payment of compensation in case of dismissal;
- no downtime due to employee's illness or vacation, as the employee is obliged to be replaced under the agreement or contract;

- the possibility of transferring employees who have proven themselves as experienced specialists over time to the company's staff.

Thus, staff leasing allows you to avoid problems related to the recruitment of employees, paperwork, payment of wages and tax deductions. It also makes it possible to formulate the most flexible personnel policy by hiring additional employees or reducing the number of employees depending on the company's goals and strategy, but when deciding to implement this technology in the HR management system, the company's management should analyze the shortcomings and take into account the possible decrease in employee loyalty to the company.

2. A personnel audit is a complete assessment of the labor activity of the company's employees, which makes it possible to find out the correlation between the level of skills, knowledge and abilities possessed by the employee for the position he or she holds, and aims to analyze the organizational structure and human resources in a certain way. Conducting an HR audit of an enterprise involves analyzing the most important performance indicators of employees and developing recommendations for improving its performance, in particular

- efficiency of the organizational structure, rationality of its construction and coordination;
- document flow, creation of a unified accounting system, registration and storage of documents;
- development of employee service rules, labor instructions, remuneration system, system of incentives and penalties;
- qualitative and quantitative characterization of employees, their compliance with the company's goals and objectives;
- efficiency of personnel placement;
- Formation of a management «chain», i.e. selection of promising candidates for managerial positions;
- determining the level of professional and personal qualities of the company's employees in order to develop appropriate training and development programs;
- employee appraisal, which involves assessing the level of compliance of employees with their positions and responsibilities, their personal contribution to the company's performance;
- establishing a policy of reduction and dismissal of employees, improving internal cooperation;

– general assessment of the HR department and improvement of its work, development of an employee motivation system, development of technologies for search, recruitment, selection, selection and dismissal of employees and adaptation programs.

3. Coaching is a tool for the professional and personal development of employees of the enterprise, for the development of their skills and qualifications, mobilization of internal resources and talent, including creative and intellectual abilities, self-awareness, business qualities and creativity. Coaching is a tool that allows you to find the most effective ways to achieve the company's goals and implement them.

Coaching gives the manager real control, which is not an illusion, and gives the subordinate real responsibility, so training is the most effective tool for increasing employee productivity. The difference between coaching and traditional management is determined by the style of communication between employees: the manager (coach) gives the «right» questions and practical feedback about subordinates.

Coaching technologies are used to motivate employees, evaluate and develop them, resolve conflict situations and settle relationships in the team and are designed to solve the following tasks, in particular

- create a comfortable and creative atmosphere in the team;
- to maximize the efficiency of employees' performance;
- encourage employee initiative;
- create a corporate culture for the company;
- organize an effective system of personnel development;

- motivate employees through non-material incentives;
- to create the necessary conditions for self-development and personal development of employees, manifestation of their creative and professional abilities.

### Conclusions

Having analyzed the innovative approaches to the personnel management system of a modern enterprise, the most effective of them were analyzed and substantiated, in particular: personnel leasing, personnel audit and coaching, which allow the management of the enterprise to influence the increase in the efficiency of its activities through the innovative construction of the personnel management system on new principles and to make the right management decisions regarding the formation, development and implementation of talent.

When developing and implementing these innovative approaches in the HR management system, it is necessary to evaluate their time, feasibility and effectiveness, and to do everything necessary to ensure that employee resistance is as low as possible and that the effectiveness of the new innovation is uniform and efficient.

Thus, the main task in the current realities of the enterprise is to introduce innovative approaches to personnel management aimed at ensuring the continuous development of employees in order to improve their knowledge by establishing a lifelong learning system and creating all the necessary conditions for full self-expression and development, the existing mental and physical abilities of employees, their ability to create new creative ideas to improve production processes and increase the competitiveness of products.

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# PROJECT MANAGEMENT AND FINANCIAL AND ECONOMIC SECURITY IN THE CONDITIONS OF GLOBALIZATION

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## WORKING CAPITAL MANAGEMENT AS A STRATEGIC TOOL FOR ECONOMIC SECURITY OF THE ENTERPRISE

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working capital, financial management, economic security, enterprise, working capital, financial condition.

In today's unstable economy and growing competition, ensuring the economic security of an enterprise is becoming one of the top management priorities. The economic security of an enterprise is a complex and multifaceted phenomenon that covers a wide range of aspects, from financial stability and competitiveness to protection against external and internal threats. In this context, effective working capital management is one of the key strategic tools that allows an enterprise not only to survive but also to develop successfully in the face of uncertainty and risks. Effective working capital management is one of the key tools to achieve this goal. Working capital, as a set of a company's rapidly revolving assets, provides financial flexibility and the ability to respond to changes in market conditions. An insufficient level of working capital can lead to insolvency and loss of competitiveness, while an excess can lead to reduced profitability and inefficient use of resources. Thus, effective working capital management, which involves optimizing its structure and volume, is an integral part of the strategy for ensuring the economic security of an enterprise. It allows balancing liquidity and profitability, minimizing financial risks and ensuring the stability of operating activities. The article examines the issues of working capital management as a strategic tool for economic security of an enterprise. The essence of the concept of «working capital» and its components is clarified. Various approaches to understanding the essence of working capital are presented. The key aspects of managing the components of working capital are indicated.

## УПРАВЛІННЯ ОБОРОТНИМ КАПІТАЛОМ ЯК СТРАТЕГІЧНИЙ ІНСТРУМЕНТ ЕКОНОМІЧНОЇ БЕЗПЕКИ ПІДПРИЄМСТВА

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оборотний капітал, управління фінансами, економічна безпека, підприємство, оборотні кошти, фінансовий стан.

У сучасних умовах нестабільної економіки та зростаючої конкуренції, забезпечення економічної безпеки підприємства стає одним з пріоритетних завдань менеджменту. Економічна безпека підприємства – це складний та багатогранний феномен, який охоплює широкий спектр аспектів, від фінансової стійкості та конкурентоспроможності до захисту від зовнішніх та внутрішніх загроз. У цьому контексті, ефективне управління оборотним капіталом виступає як один з ключових стратегічних інструментів, що дозволяє підприємству не лише виживати, а й успішно розвиватися в умовах невизначеності та ризиків. Одним з ключових інструментів досягнення цієї мети є ефективне управління оборотним капіталом. Оборотний капітал, як сукупність активів підприємства, що швидко обертаються, забезпечує фінансову гнучкість та здатність реагувати на зміни ринкової кон'юнктури.



Недостатній рівень оборотного капіталу може призвести до неплатоспроможності та втрати конкурентоспроможності, тоді як надлишок може спричинити зниження рентабельності та неефективного використання ресурсів. Таким чином, ефективне управління оборотним капіталом, що передбачає оптимізацію його структури та обсягу, є невід'ємною складовою стратегії забезпечення економічної безпеки підприємства. Воно дозволяє збалансувати ліквідність та прибутковість, мінімізувати фінансові ризики та забезпечити стабільність операційної діяльності. У статті досліджено питання управління оборотним капіталом як стратегічним інструментом економічної безпеки підприємства. Уточнено сутність поняття «оборотний капітал» та його компоненти. Наведено різноманітні підходи до розуміння сутності оборотного капіталу. Зазначено ключові аспекти управління компонентами оборотного капіталу.

### Problem formulation

Modern businesses face numerous internal and external threats that can negatively affect their economic security. These threats include financial crises, market instability, changes in legislation and other factors. In such circumstances, working capital management becomes strategically important, as it ensures the flexibility and sustainability of the company's financial system. In the context of instability and uncertainty, exacerbated by global economic crises and geopolitical challenges, ensuring the economic security of enterprises becomes a priority for management. Effective working capital management, as a key element of financial stability and liquidity, plays a crucial role in this process. However, the existing theoretical and practical approaches to working capital management often do not take into account the specifics of current market conditions and do not ensure an adequate level of economic security of enterprises. Ukrainian enterprises face additional challenges related to military operations, economic crisis and inflation, which requires adaptation of working capital management methods to the specifics of the national economy. The mismatch between the needs of enterprises to ensure economic security and the existing methods of working capital management creates a problematic situation that requires scientific research and development of new approaches.

### Analysis of recent research and publications

Studies of working capital management as a strategic tool for economic security of the enterprise are reflected in the works of: Hrynko T., Hubaryk, O., Klymenko S., Kosareva I.P., Machak T., Nosan N.S., Khodzha K. Ya.

### Formulation of objectives

The purpose of the study is to develop theoretical and practical recommendations for working capital management as a strategic tool for ensuring economic security of an enterprise in conditions of instability and risks. The article also studies:

- the essence of working capital,
- key aspects of working capital as a strategic tool for economic security of an enterprise,
- the main components and methods of building an effective working capital management system,

- the peculiarities of working capital management in the conditions of economic crisis and instability are identified,

- practical recommendations for improving the efficiency of working capital management in order to ensure the economic security of the enterprise are developed.

### Presentation of the main research material

The existence of a large number of theoretical developments does not reduce the expediency of studying working capital management as a strategic tool for economic security of an enterprise, determining the sources of its formation, and ways to stabilize the movement of working capital, which require further scientific substantiation.

The term «working capital» is derived from the English concept of «circulating capital» – a part of production capital which transfers its value to the newly created product in full and returns to the producer in cash after each capital turnover.

Working capital can be viewed as a monetary equivalent labor item that is present at all stages of the circulation and is consumed within one operating cycle, transferring its value to the created product in full during the production process [1]. Working capital is a part of the company's assets (current assets), which includes:

- working capital (or current assets);
- short-term financial investments.

In her study, Kosareva proposed to distinguish the following approaches to understanding the essence of working capital:

- 1) working capital as cash advanced for the formation of current production and circulating assets;
- 2) working capital as mobile assets that are used and sold by an enterprise during the year or operating cycle;
- 3) working capital as an advance cost [2].

Taking into account these approaches to the interpretation of the essence of working capital, let us consider this category according to different authors (Table 1).

Working capital consists of various components that can be divided into assets and liabilities. Assets include: cash and cash equivalents (cash in bank accounts, cash, readily marketable securities), accounts receivable (trade receivables, notes receivable, other receivables, inventories (raw materials, work in progress, finished goods, goods for resale), prepaid expenses (advances paid), and other current assets. Liabilities include: short-term liabilities

Table 1 – Definition of the concept of “working capital” of the enterprise

Source	Table 1 Definition of the concept of “working capital” of the enterprise	Keywords
Gotsulyak S.M. [4]	Working capital of an enterprise is a set of economic relations related to the formation and use of financial resources necessary to ensure the efficiency and continuity of the enterprise's operation in the short term.	– a set of economic relations
Peltek L.V., Pisarenko S.M. [5]	- monetary resources or a group of mobile assets of an enterprise with a period of use of up to one year, which directly serve the operating activities of the enterprise and, due to the high level of liquidity, should ensure its solvency under current financial obligations;	– monetary resources
Soroka R.S. [6]	Working capital is the financial resources of enterprises that are invested by them to form current assets in order to generate profit;	– financial resources of enterprises
Podderiyogin A.M. [7]	Working capital (current assets) are funds advanced to current production assets and circulating assets to ensure the continuity of the production process, sales of products and profit.	– funds advanced to working capital and circulating assets
T.V. Droboshevskaya, L.M. Filstein [8]	Working capital is money invested in working capital and means of circulation in order to ensure the process of production and sale of products and, under favorable conditions, to make a profit.	– cash invested in working capital and circulating assets to ensure the production and sale of products
Mazaraki A.A. [9]	Working capital is a set of material and monetary assets (economic resources) of an enterprise that are in constant circulation, change their material form during one operating cycle and transfer their value in full to the goods sold by the enterprise	– a set of material and monetary assets
Azarenkova G.M. [10]	Working capital is cash resources invested in current production and circulating assets to ensure continuous production and sale of manufactured products and which participate in the production process once and fully transfer their value to the cost of production	– monetary resources that are invested in current production assets and circulating assets to ensure continuous production

(accounts payable, notes payable, short-term loans and borrowings), liabilities to the budget and social funds (tax liabilities, contributions to pension and other social funds), advances received (prepayments from customers for future deliveries of goods or services).

The key aspects of working capital management include:

1. efficient cash management: ensuring sufficient liquidity to cover current liabilities;
2. control over receivables: implementation of an effective credit and collection policy;
3. optimization of inventories: a balance between the adequacy of inventories for a continuous production process and minimization of storage costs;
4. management of short-term liabilities: effective planning and repayment of short-term loans and debts.

Management of these components is important for ensuring financial stability and economic security of the enterprise.

Economic security is an important element of the success and stability of enterprises and depends on the ability of managers to respond to potential threats in a timely manner and quickly adapt to changes in the economic environment. At the same time, each component of economic security, including financial, legal, human resources, technological and information security, has its own weight and affects the overall state of the enterprise. When studying the structure of economic security, it is important to take into account that all components are interconnected and form the basis for the stable development of the enterprise. Each of these components is important for ensuring the effectiveness of the company's economic security.

The interaction between them and the formation of an integrated approach allows the enterprise to optimize its activities, reduce risks and ensure sustainability in difficult market competition conditions [3].

The main criterion for the economic security of an enterprise is the economic effect obtained by the enterprise as a result of its business activities. Thus, the main goal of economic security of an enterprise is to ensure constantly stable and maximally efficient functioning of the enterprise and to ensure high potential of its development. One of the functional goals of economic security is to ensure the efficient use of all types of resources. At the same time, to increase economic efficiency, an enterprise seeks to improve the use of a set of corporate resources, among which labor, material and information resources are of particular importance [11].

Therefore, in our opinion, working capital is not just cash on the account, but a dynamic resource that ensures the continuity of the company's operations. Effective working capital management directly affects the liquidity, solvency and overall financial stability and economic security of the enterprise.

The policy of managing current assets is key to ensuring the continuity and efficiency of the company's current operations. To effectively manage working capital, first of all, it is necessary to study its circulation. This will help identify the main aspects that shape working capital management. The working capital cycle includes six stages (Fig. 1).

Working capital management should be viewed not just as a type of management, but as a system that interacts with internal and external factors of influence, as well

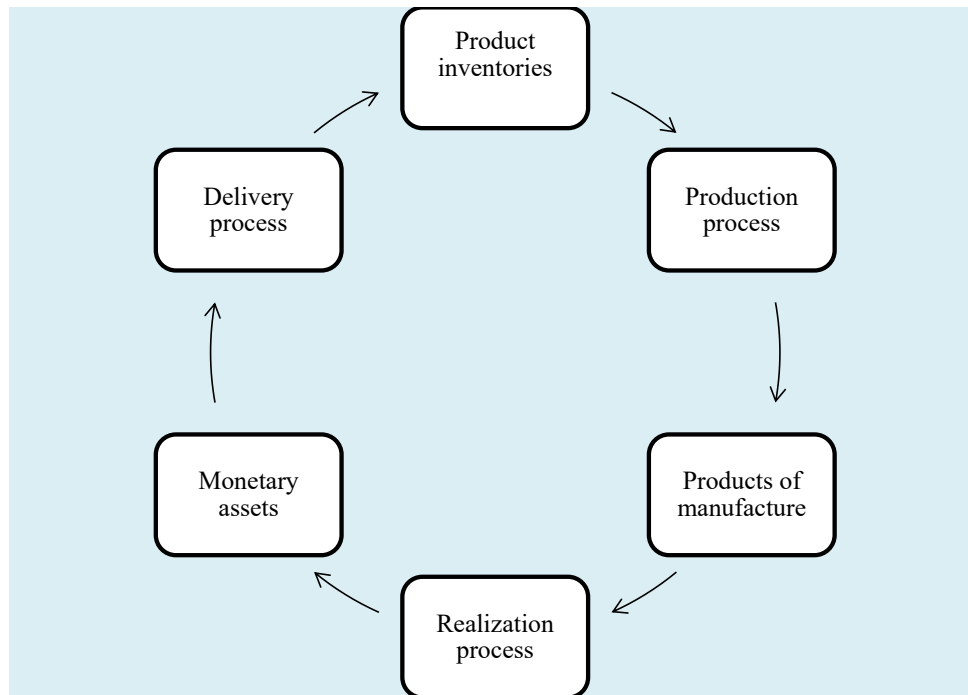


Fig. 1 – Scheme of the working capital turnover

Note. Complies by the author.

as with the consequences that Liabilities arise as a result of effective or ineffective management. A working capital management system based on certain methods is an important component of ensuring the effective operation of enterprises.

Working capital analysis is an important step in the financial analysis of a company. Working capital reflects the difference between current assets and current liabilities and reflects the financial resources that are invested in current assets (such as inventories, accounts receivable) to ensure the operating activities of the enterprise.

In our study, we analyzed the state of current assets of Zaporizhstal PJSC (табл. 2).

During 2021-2023, PJSC «Zaporizhstal» underwent significant changes in its financial position. Non-current assets decreased significantly, especially in 2023, which may indicate the sale of assets or their revaluation. On the contrary, current assets increased in 2023 after a decline in 2022, which may indicate an increase in operating activities. Total assets (balance sheet) decreased in 2022 but recovered in 2023. Equity has been decreasing for three

years, which may indicate a decrease in profitability or an increase in liabilities.

Working capital management requires the cooperation of all business units (finance, procurement, sales, logistics...) Insufficient working capital can lead to insolvency, loss of counterparty confidence, and even bankruptcy. Excessive levels lead to unjustified expenses and reduced profitability. Therefore, for effective working capital management, it is necessary to ensure optimization of all components (Fig. 2).

Thus, an integrated and flexible approach to working capital management will allow the company to maintain financial stability and increase the efficiency of its operations.

In light of the rapid pace of technological development and growing competition, companies need to constantly update their working capital management strategies and implement new approaches and innovative solutions. In this context, we propose the following approaches (Fig. 3).

These approaches will allow companies to optimize the use of their working capital, reduce financial risks, and

Table 2 – Financial condition indicators of PJSC "Zaporizhstal" for 2021-2023

	2021 (in thousands of UAH)	2022p. (in thousands of UAH)	2023p. (in thousands of UAH)
Non-current assets	25 201 278.00	22 600 343.00	5 147 796.00
Current assets	51 425 691.00	46 796 743.00	55 847 755.00
Non-current assets held for sale and disposal groups	265.00	267.0	267.00
Balance sheet	76 627 234.00	69 397 353.00	77 617 483.00
Shareholders' equity	44 215 015.00	39 845 700.00	36 721 228.00

Source: compiled by the author based on [12, 13, 14].

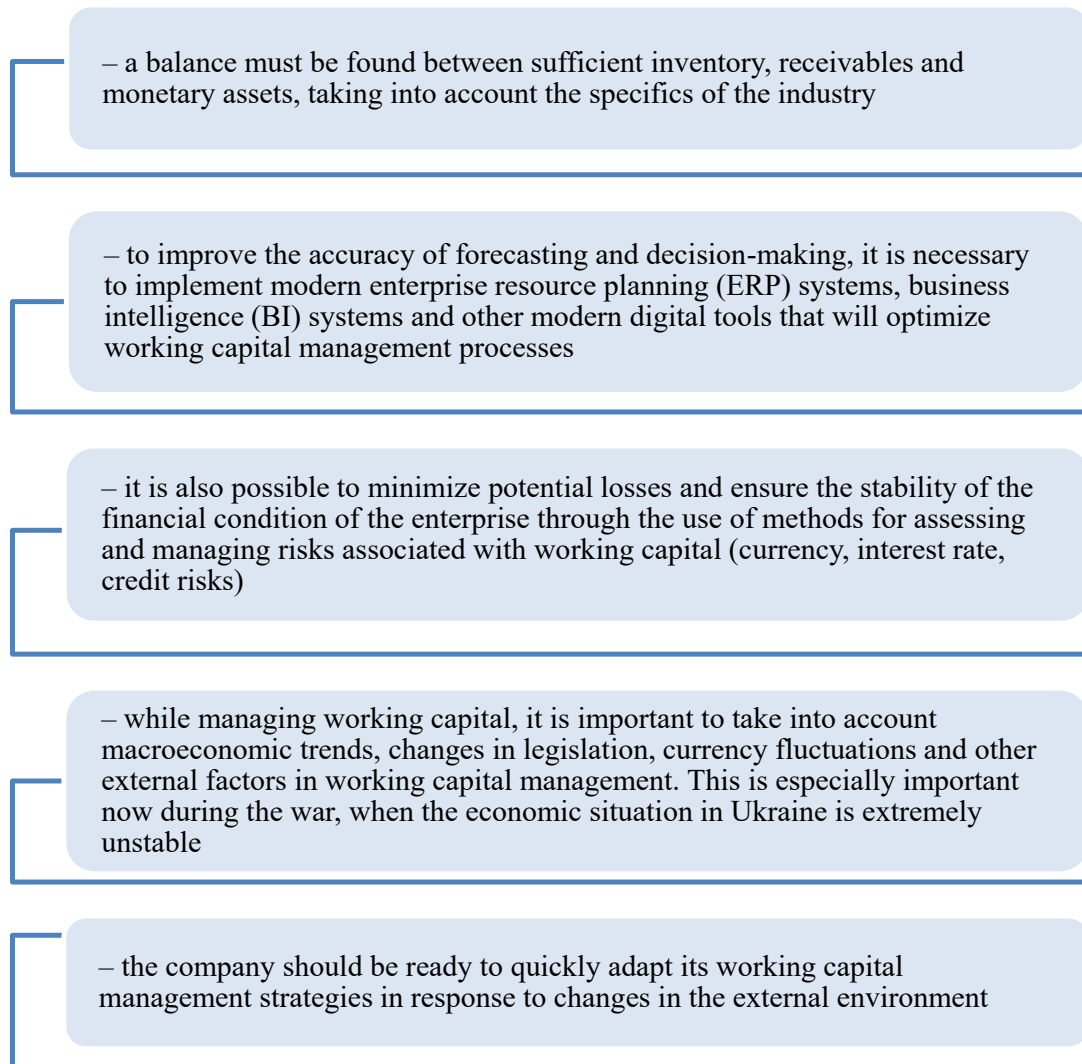


Fig. 2 – Effective working capital management components

ensure the stability of their financial position, which contributes to their success and competitiveness.

### Conclusions

Identification of working capital sources, stabilization of its flow and effective management of its components (monetary assets, receivables, inventories, short-term liabilities) are key aspects that affect the financial stability of an enterprise. Working capital management should be viewed as a system that takes into account internal and external factors, as well as the consequences of effective or ineffective management.

Ensuring the economic security of an enterprise requires an integrated approach to managing all types of

resources (labor, material, information), which will allow the company to reduce risks, optimize its operations and ensure sustainability in a competitive environment. Effective working capital management is an important tool for achieving this goal, so it is very important to create an atmosphere in the company where each employee understands their role in ensuring the efficient use of working capital.

In our opinion, the implementation of our proposed approaches will allow an enterprise to turn working capital management into a powerful strategic tool that ensures not only economic security but also sustainable development even in conditions of instability and crisis.

<b>The use of artificial intelligence and data analytics</b>	Use of machine learning algorithms to predict changes in demand for goods and services, which will allow for more efficient inventory management.
	Automation of customer lending decision-making processes based on the analysis of their creditworthiness and payment history.
<b>Ecologically oriented approaches</b>	The concept of "green" logistics management, which involves minimizing emissions and reducing the cost of transporting goods should be used.
	Shifting to environmentally friendly alternative materials and packaging to reduce negative environmental impact and optimize costs.
<b>Flexible financial management</b>	Introduce flexible financing methods, such as crowdfunding or peer-to-peer loans, to quickly raise additional funds when needed.
	Developing flexible financial strategies that allow us to respond quickly to changes in the internal and external environment.
<b>Creating digital platforms and ecosystems</b>	Developing digital platforms for cooperation with suppliers and customers to optimize the supply chain and reduce the turnover time of goods.
	Creating ecosystems where different companies can share resources and services to optimize working capital management.
<b>Process automation</b>	Implementation of automated inventory management systems and data collection and analysis processes to effectively control working capital.
	Development of software for automatic monitoring and management of accounts payable and receivable.

Fig. 3 – Working capital management approaches

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DOI <https://doi.org/10.26661/2414-0287-2024-3-63-17>**PROJECT OF ECONOMIC SECURITY OF THE ORGANIZATION****Kisilyova I.Yu.***Zaporizhzhya National University  
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ORCID: 0000-0002-6486-6546***Key words:**security, economic security,  
mechanism for ensuring economic  
security, management of  
economic security.

The article is devoted to the study of the problems of the formation of the concept of organizational and economic mechanism for ensuring the economic security of the enterprise in modern conditions for the development of the domestic economy. In particular, scientific approaches to the definition of the concept of «mechanism for ensuring economic security» are analyzed, as well as the interpretation of the category «organizational and economic mechanism for ensuring the economic security of the enterprise» is summarized. The study of the organizational and economic mechanism for ensuring the economic security of the enterprise from the point of view of an integrated approach makes it possible to present it as a holistic system, which is formed from a set of interrelated elements. The concept of enterprise security is a holistic and systematic understanding, vision and representation of ways to eliminate hazards that really threaten or may threaten the enterprise from the inside and outside, as well as ways to minimize possible harmful consequences. The sequence of stages of formation of the concept of management of financial security of enterprise has been formulated: analysis of risks and threats to financial security of enterprise; development of methodological tools for assessing the state of economic security of enterprise; development of a strategy for managing the financial security of the enterprise; development of a mechanism for managing the financial security of the enterprise; assessment of the effectiveness of the implementation of the concept of managing the financial security of the enterprise; adjustment of tactics and strategy of financial security management in accordance with changing conditions. It is shown that the mechanism of economic security of enterprise functioning is a set of: philosophy of economic security of enterprise; functions that implement the process of managing economic security; resource support for the mechanism; target orientation, containing the main organizational forms and economic tools necessary to ensure the economic security of the functioning of the enterprise. The general algorithm of the process of organizing financial security has been induced.

**ПРОЄКТ ЕКОНОМІЧНОЇ БЕЗПЕКИ ОРГАНІЗАЦІЇ****Кисільова І.Ю.***Запорізький національний університет  
Україна, 69600, Запоріжжя, вул. Жуковського, 66***Ключові слова:**безпека, економічна безпека,  
механізм забезпечення  
економічної безпеки,  
управління економічною  
безпекою.

Статтю присвячено дослідженню проблематики формування концепції організаційно-економічного механізму забезпечення економічної безпеки підприємства в сучасних умовах розвитку вітчизняної економіки. Зокрема, проаналізовано наукові підходи до визначення поняття «механізм забезпечення економічної безпеки», а також узагальнено трактування категорії «організаційно-економічний механізм забезпечення економічної безпеки підприємства». Вивчення організаційно-економічного механізму забезпечення економічної безпеки підприємства з позиції комплексного підходу дає змогу подати його як цілісну систему, яка формується із сукупності взаємопов'язаних елементів. Концепція безпеки підприємства являє собою цілісне та системне розуміння, бачення та уявлення шляхів уникнення небезпек, які реально загрожують або можуть загрожувати підприємству зовні або зсередини, а також спосіб мінімізації шкідливих наслідків.

Сформульована послідовність етапів формування концепції управління фінансовою безпекою підприємства: аналіз ризиків та загроз фінансовій безпеці; розробка методологічного інструментарію оцінки стану економічної безпеки підприємства; розробка стратегії управління фінансовою безпекою підприємства; розробка механізму управління фінансовою безпекою підприємства; оцінка ефективності реалізації концепції управління фінансовою безпекою підприємства; коригування тактики та стратегії управління фінансовою безпекою у відповідності до зміни зовнішніх умов. Показано, що механізм економічної безпеки функціонування підприємства являє собою сукупність філософії економічної безпеки підприємства; функцій, які реалізують процес управління економічною безпекою; ресурсне забезпечення механізму; цільова спрямованість, яка містить основні організаційні форми та економічні інструменти, необхідні для забезпечення економічної безпеки функціонування підприємства. Побудовано загальний алгоритм процесу організації фінансової безпеки підприємства.

### Problem statement

In the context of post-crisis economic development, instability of the external environment and lack of financial resources, one of the main tasks of an entity is to determine the optimal financing strategy that ensures maximum profit growth at minimal risks. Today, borrowed funds are the main resource for providing money for the economic activities of enterprises, regardless of their ownership. In this regard, there is a problem of financial security of the enterprise.

Hence, the key elements of financial management are well-developed long-term financial policy, investment portfolio management, effective control over the own and borrowed capital ratio, which assess the financial stability and independence of the organization. An important element is the formation of an effective mechanism for ensuring the financial security of the enterprise.

### Analysis of recent researches and publications

Domestic and foreign scientists such as Y.V. Bas, T.V. Butenko, Y.A. Buchakchyska, T.S. Karpova, O.S. Korpán, L.Y. Naumova, G.O. Partin, and others deal with the development of issues related to the formulation of the economic essence of project approach to the organization economic security, its tasks, management methods, stages of development, etc. However, this issue is not sufficiently developed, in particular, the ambiguous definition of the concept «project approach to the organization economic security».

### Formulating of objectives

The purpose of the article is to study the essence of the «project approach to the organization economic security» concept, its formation and peculiarities.

### Presentation of the main research material

The project approach to the organization economic security is a purposeful method of future economic system forming. Such complex characteristic as economic security of the organization takes into account the totality of financial, social, production, investment, innovation, resource, industrial and environmental and other potentials» [21,22].

In the process of forming a plan to ensure the economic security of the organization, it is necessary to identify its key determinants and determine the appropriate indicators, which will assess the need for resources, time and opportunities to increase the level of economic security. In our opinion, it is advisable to single out the key determinants of the economic security of the organization, taking into account the levels of its provision. For this purpose it is necessary to distinguish macro-, meso- and micro-levels.

The composition of the key determinants in the system of organization economic security is given in Table 1.

The process approach [7] allows to ensure economic security through the proper organization as well as management and improvement of organization financial and economic processes. The advantages of this approach include the independence of employees and departments in making managerial decisions, concentration on work, a large distribution of responsibility, minimal control and administration [73].

At the same time, it is not without drawbacks, such as inefficient use of resources, due to tight deadlines and “safe” assessments of tasks, including time reserves, the preservation of the risks of delaying the completion of tasks. So the hard finish dates of tasks, typical of any repetitive processes, require appropriate reserves of time, which leads to insufficiently efficient use of resources. At the same time, the risks of task delays remain. [73] These factors show the internal reserves of growth for the organization.

Nowadays in practical activities, there are trends in the transition from traditional theoretical approaches to the management of the organization (situational, structural and functional [6, 30, 92]) to relatively new (process and project) approaches.

The need for the existing approaches evolution is due to the shortcomings identified as a result of the analysis of the processes of financial and economic activities of organizations, based on the study of the tools of each approach and the methodology for studying the category “economic security of the organization” (Table 2).

The process approach is a natural evolution of the functional approach. Each business process is a logical series of



Table 1 – Key determinants of economic security of the organization

Level of economic security	Key determinants
Micro level	Financial
Meso-level	Industrial
	Production
	Territorial
	Informational
Macro level	Political
	Socio-economic
	Resource (personnel, raw materials)
	Sales
	Social
	Investment technology
	Industrial-ecological
	Managerial
	Institutional

Table 2 – Disadvantages of traditional approaches to the management of the organization

Approach	The basis of organizational structure	Disadvantages
Situational	Adaptation to the environment	Inconsistency between departments
Structural	Hierarchical basis	Bureaucracy, inefficient methods, low motivation
Functional	Principle of functional areas	Lack of interest in the final product

interdependent actions, using the resources of the organization, aimed at obtaining the final result necessary for the organization and satisfying the interests of customers. In this case, the process is considered as a mode of operation, reflecting the change in the states of the system.

Taking into account the fact that functions and processes cannot exist in isolation from each other, modern enterprises have to combine functional and process approaches. To do this, it is necessary to simultaneously design the organizational structure (functional areas) and the order of interactions within this structure (processes)”[51].

Analysis of the influence of the external environment on the efficiency of production using the process approach showed the impossibility of obtaining a long-term competitive advantage due to the possibility of applying similar procedures by competitors. Therefore, only business models (processes) and complementary assets that are difficult to replicate by competitors give a competitive advantage [5].

In the conditions of an innovative economy, the effectiveness of the process approach in comparison with others has strengthened its position in operational management, but as a tool for implementing strategy and strategic changes in the organization, business structures prefer project management.

Economic security is an important element of the strategic management system of the organization. In our opinion, it is advisable to consider increasing the level of economic security of the organization as a project, that is, to interpret this category from the standpoint of the project approach [73]. The project approach assumes the possibility of solving any technical problem with a sufficient amount of time and money. One or more resources are often scarce in practice, necessitating the development of tools for this approach.

The essence of project management is expressed by the implementation of the project with the maximum possible efficiency with time constraints, financial and material resources, as well as high requirements for the quality of the final results of the project. The content of the project will be the economic security of the organization, the target component of the project is the achievement of a certain level of economic security of the organization, in the role of classical constraints – time and resources.

So let highlight the main features of the project “Economic Security of the Organization”:

1. The goal of the project is to achieve a certain level of economic security of the organization.
2. The need to comply with the financial and time constraints of the project under the influence of external and internal threats.
3. The uniqueness of each project is determined by its target component (overcoming the crisis, increasing individual indicators, achieving the optimal level).
4. Purposeful transfer of the system from the existing state to some desired state”[73].

In our country, the project approach is now actively developing on the basis of such sciences as management, marketing, HR management and others, and is being implemented in organizations of various industries. Reasonable use of project management tools is aimed at creating an integrated methodology for implementing this approach in the activities of the organization.

The main difference between a business process and a project is its repetition or reproduction over time. The project involves the creation of a unique product, “through the implementation of complex activities and the provision of continuous integrating and coordinating influence with strict restrictions on time, costs and quality of work”[51].

Obviously, management needs to clearly understand the results of the business. The business case for the need to implement a project management system for an organization requires its initial comparative assessment with traditional methods. The results of the comparative assessment are presented in Table 3.

The introduction of professional methods of project management into the organization’s activities increases production efficiency, and allows achieving target results with minimal costs. According to some estimates[77], the effectiveness of the implementation of the project management system is confirmed by an increase in the value of the business by up to 20% due to the improvement of the quality of planning and the most efficient use of resources.

At the same time, the implementation of the project approach is associated with certain difficulties and problems of an organizational and technical nature.

The first problem is the interpretation of the category of “project”.

A misunderstanding of the essence of the project structure can lead to complete organizational and managerial chaos. Nowadays, depending on the conditions of operation, industry affiliation, market conditions and other factors in different organizations, different initiatives are understood as a project.

As an independent field of knowledge, project management has existed for quite a long time, but the interpretation of the category “project” under the influence of trends occurring in the development of the theory and practice of project management continues to be clarified. Despite the existing differences in the definition of the essence of the project, there are common features that allow us to identify it as an activity aimed at achieving a specific result in the foreseeable future with fixed deadlines and budget.

It should be remembered that each project is inherently unique. Therefore, for different types of projects, depending on the goals and limitations, it is advisable to develop an individual risk management system with the appropriate depth and evaluation intervals, as well as a set of measures. Planning project activities, in contrast to the current one, is a more complex and responsible procedure, since the risks inherent in projects due to its uniqueness are much higher. The development of the theoretical basis of project management and the generalization of practical experience

made it possible to apply this approach in each organization that needs specific systemic changes.

The achievement of the set goals and effective results is ensured by the rational use of all resources in the process of developing its activities. Thus, the management of the organization, when deciding on the transition to project management, should correlate its business idea with the main features of the project. The transition to the project “rails” for the sake of the transition itself will not allow you to get the expected benefits, but it will not save you from the complexities and costs of implementing and implementing this approach. “The second problem is the readiness to switch to the project system [55]

The introduction of project management in an organization with a linear management structure is accompanied by a transformation into a matrix structure. In this case, each employee simultaneously reports to the heads of the structural unit and the project, which requires a clear prioritization of tasks, rational allocation of resources, detailed time planning and consistency of managers at various levels.

In practice, the following key stages of the transition to the project system are distinguished:

1. Creation of a unified procedure for project management, described in the relevant regulations.
2. Reorganization of the company.
3. Clear functional separation of employees and departments within the projects.
4. Coordination of projects.
5. Development and implementation of an information system as a tool for scheduling and control of project work.

Thus, in order to move to full-fledged project management, the organization must reach a certain level of maturity.

The third obstacle on the way to the project system is the cost of setting up project management. The cost of implementing a project management system is determined by the size of the organization and the cost of the project management information subsystem responsible for project planning, budgeting, database of implemented projects, etc.

There are the following main strategies for optimizing the cost of implementing project management:

1. Development of internal methods with the participation of competent employees involved in projects, and

Table 3 – Comparison of traditional methods and project management

Parameter	Traditional approaches	Project approach
Management methods	bureaucratic administrative-command	modern market relations
Methods of work and expense planning	obsolete, inefficient use of material and human resources	detailed planning, optimization of all costs and resources,
Motivation for the final result	No	reasoned
Timing of work	delayed deadlines for work	in the shortest possible time
Approach to the organization and selection of specialists	departmental	competitive basis a
Interest in high quality of work	No	focus on high quality
The ratio of time costs and quality of work	excessive involvement of employees, loss of quality	minimum necessary time expenditure for high quality
Work costs	do not correspond to their real volume	for the amount of work performed τ

the involvement of specialists from a consulting firm. This method of transition to project management takes more time, but is cheaper.

2. The use of start-up consulting in key departments of the organization in order to move the formulation of project management “from the dead point”. This method is relatively fast, but requires large financial investments. Obviously, the costs of implementing project management should not exceed the expected benefits from its use.

The next organizational problem in the transition to project management is the issue of combining process and project activities. The introduction of project management involves reorganization and changes in the organizational structure. The responsibility of a manager who applies a functional or process approach is to solve specific problems, form business processes and control personnel. With the implementation of the project approach, the control of process stages and their boundaries moves from functional managers to project managers. Thus, in order to ensure the sustainability and increase the efficiency of the organization's activities, it is necessary to define formal rules for the coexistence of process and project activities.

The next issue is the control of project costs. To solve it successfully, it will be necessary to review the applied planning methods and the level of control. “It is advisable to plan the costs of the project in proportion to the cost of working time for the implementation of the project and coordinate with the management. Project costs should be controlled on the basis of their compliance with the planned level on the basis of the distribution of personnel time and salary costs according to the relevant drivers [75].

At the same time, the control of project costs must comply with the principles of expediency and economy, otherwise bureaucratic administrative and command methods of control can lead to irreversible consequences for the “project team”, violating the corresponding necessary level of trust.

Successful completion of any project is possible with a comprehensive accounting of two components of project management:

1. The technical side of project management includes planning and cost assessment, project management and control, risk and quality management, as well as the preparation of project documentation and evaluation of results.

1. The managerial competence of project management is determined by the unity of the project team, the level of communication, the motivation system and the focus on the result. It is the ability to form a team charged with obtaining the necessary “product” as a result of the project, in conditions of limited material and time resources, to instill in it the psychology of success, is often a key factor in leveling some inevitably arising technical inaccuracies due to the uniqueness of the project.

Accounting, monitoring and analysis of these factors is a very laborious process that requires significant time and certain financial costs, which necessitates the allocation of a full-fledged system responsible for ensuring the economic security of the organization. At the same time, it is impossible to ensure full monitoring and accounting of these factors in the absence of an appropriate system

for ensuring the economic security of the organization. The system itself needs appropriate theoretical, methodological and legal support. Theoretical aspects of economic security, such as threats, criteria, indicators and indicators in practice do not receive real application due to the lack of specific management decisions aimed at both “targeted” troubleshooting in the system (tactical measures) and promising strategic measures [74].

Thus, economic security as a project is defined as a set of management decisions of an organizational and economic nature that regulate the process of the organization's activities under the influence of various kinds of threats in the appropriate regulatory and legal form.”[74]

To date, the combination of project and process approaches seems to be very effective. At the same time, the introduction and application of this methodology requires the development of an appropriate corporate standard for the unification of management procedures and uniform measures for the application of process or project approaches, depending on the activities carried out. “Ensuring a harmonious combination of process and project activities in the organization involves the following stages:

1. Development of the structure of operational activities of the organization. At this stage, the project managers conduct a formal description of the organizational and functional structure of business processes, the allocation of all functions of the organization, the appointment of performers. Partial restructuring of business processes allows you to replace redundant and duplicate functions with missing ones.

2. Creation of mechanisms for the implementation of processes in project form:

- construction of alternative options for the implementation of processes;
- adaptation of the company's management system and transition to the implementation of projects;
- formation of regulations for the interaction of process owners with project managers.

3. Creation of mechanisms for unified project implementation. The processes required for project execution are grouped and described in the form of procedures [51].

Each procedure is assigned a manager who controls its effective implementation and further development, which ensures equality between projects and processes. The result of the project can be not only products, but also the solution of certain internal tasks to improve the quality of products and the efficiency of labor organization, optimization of financial flows.” [74]

In view of the above, economic security can be considered as the content of the project. Today, project management is an integral part of the organization's management system. In our opinion, the PRINCE2 methodology is most convenient for the purposes of the project “Economic Security of the Organization”. Let's fix the main stages of work on this project:

1. Determination of the deviation of the actual indicator from the target.
2. Identification of threats to the economic security of the organization.

Table 4 – Correlation of the main components of the economic security of the organization and the procedures of the project approach [73].

Components of the EB system	Procedures consistent with the project approach	Contents of the project "Economic security of the organization"
1 Determining the level of Economic Security	Beginning of the project ra (SU).	Determining the deviation of the actual level of economic security of the organization from the target
2 Threats of EB		Identification of EB threats
3 Criteria, indicators, indicators of EB, threshold values of indicators	Project Planning (PL).	Calculation of scenario options for the ratio: a) high budget, short-term period; b) average budget, medium term; c) low budget, long-term period.
4 Measures to counter threats	Project management (DP).	Preparation of an action plan – Gantt schedule for three periods (short-term, medium-term, long-term)
5 Countermeasure mechanism	Stage Control (CS). Stage boundary control (SB). Product Manufacturing Management (MP).	Solving the problem of optimization of financial and time resources on the basis of the critical chain method
6 Monitoring	Project Completion (CP).	Identify your organization's EB threats according to key determinants

Calculation of scenario options for the ratio of financial resources and time: a) high budget, short-term period; b) average budget, medium term; c) low budget, long-term period.

4. Solving the problem of optimizing the distribution of time and financial resources of the organization;

5. Drawing up an action plan – Gantt schedule for three periods (short-term, medium-term and long-term);

6. Identification of threats to the economic security of the organization in accordance with the main determinants [73].

Next, we will adapt the main stages of work on the project to the PRINCE2 methodology. Let compare the main components of the economic security of the organization and the procedures of the project approach. The results obtained are presented in Table 4.

The final stage will be the formation of a plan reflecting the key determinants and indicators of the organization's economic security system, in order to determine the available resources, time and opportunities to improve the level of economic security of the organization.

Further assessment of the level of economic security is carried out as follows: 1) on the basis of the traditional approach, the main indicators are identified in accordance with the key determinants characterizing the activities of a particular organization at the macro, meso- and micro levels;

2) calculation of actual values of indicators;

3) determination of threshold values of indicators;

4) comparison of actual and threshold values of indicators;

5) allocation of “sagging” indicators;

6) determination of the minimum (min), average (ave) and maximum (max) time required to achieve the target value of the indicators;

7) determination of the minimum (min), average (ave) and maximum (max) budget necessary to achieve the target value of the indicators;

8) ranking of threats to economic security;

9) formation of a plan of measures to ensure economic security [74].

The proposed methodology makes it possible to adapt the process of ensuring economic security taking into account all its applicable organizational structure.

### Conclusions

Despite the shortcomings the project approach to the organization economic security is a purposeful method of future economic system forming. The use of this approach allows you to optimize the resources of the enterprise, clearly build an algorithm for carrying out work, thereby allowing you to achieve the goal in the shortest possible time and avoid unnecessary expenses.

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DOI <https://doi.org/10.26661/2414-0287-2024-3-63-18>**FINANCIAL AND ECONOMIC SECURITY OF THE ENTERPRISE:  
ESSENCE, SIGNIFICANCE AND PRECONDITIONS FOR ITS EMERGENCE****Stefanyk S.M.***Zaporizhzhia National University  
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ORCID: 0009-0006-5232-8413***Key words:**security, economic security,  
financial security, financial and  
economic security, enterprise,  
financial resources, risk, security,  
innovation, profit.

The concept of «security» according to different scholars is analyzed. The approaches to the essence of the concept of «security» are determined. The opinions of leading economists on the definition of the concept of «economic security» depending on the content and important features are summarized and divided into groups: the condition of efficient use of resources to prevent risks and create conditions for the stable operation of the most important elements; coordination of economic interests; the state of protection against various threats and dangers; the state of the production system, which ensures the prevention or reduction of the level of risk impact on the stability of functioning and development of enterprise; the state of economic development, which ensures independent. The concept of «economic security» is revealed. The concept of «financial security» is substantiated. The emergence of the concept of «financial and economic security» is studied. The purpose of ensuring the financial and economic security of enterprise is disclosed. The author's own definition of financial and economic security is provided. The criteria for determining the financial and economic security of enterprise are defined and substantiated: functional, static and resource. The conclusions on the emergence, essence and prerequisites of the concept of «financial and economic security» are provided.

**ФІНАНСОВО-ЕКОНОМІЧНА БЕЗПЕКА ПІДПРИЄМСТВА:  
СУТНІСТЬ, ЗНАЧЕННЯ ТА ПЕРЕДУМОВИ ВИНИКНЕННЯ****Стефаник С.М.***Запорізький національний університет  
Україна, 69600, Запоріжжя, вул. Жуковського, 66***Ключові слова:**безпека, економічна безпека,  
фінансова безпека, фінансово-  
економічна безпека,  
підприємство, фінансові  
ресурси, ризик, захищеність,  
інновації, прибуток.

Проаналізовано поняття «безпека» за різними науковцями. Визначено підходи до сутності поняття «безпека». Узагальнено думки провідних економістів щодо визначення поняття «економічна безпека» залежно від змісту та важливих ознак. Розкрито поняття «економічна безпека». Обґрунтовано поняття «фінансова безпека». Досліджено виникнення поняття «фінансово-економічна безпека». Розкрито мету забезпечення фінансово-економічної безпеки підприємства. Надано власне визначення фінансово-економічної безпеки. Визначено та обґрунтовано критерії щодо визначення фінансово-економічної безпеки підприємства: функціональний, статичний та ресурсний. Надано висновки щодо виникнення, сутності та передумов виникнення поняття «фінансово-економічна безпека».

**Statement of the problem.** In an unstable economic environment, the activities of domestic business entities are subject to the risk associated with the negative impact of external and internal factors. An increase in the level of risk in the economic activity of an enterprise leads to a lack of income and profit, loss of liquidity, solvency and financial independence, causes a decrease in solvency, an

increase in unreasonable amounts of available and payment funds, and leads to a crisis situation. Therefore, the priority goals are to identify the time and level of unexpected situations that lead to the financial stability of business entities.

**Analysis of recent research and publications.** The study of the issue of determining the essence and importance of financial and economic security is devoted to

the works of leading domestic economists, in particular: Belyalov T. E., Korin I. V. [1], Vasylytsiv T. [2], Dekhtyar N. A., Deineka O. V. [6], Moiseenko I., Marchenko O. [10]. However, despite the thorough developments of these scientists, it should be noted that financial and economic security are considered as separate parameters, but since financial security is a component of economic security and the principles of their provision are based on common goals and objectives, therefore, in our opinion, in an unstable economic situation they should be considered comprehensively as financial and economic security of the enterprise.

**Formulation of the objectives of the article.** The purpose of this scientific study is to define the essence and meaning of the concept of financial and economic security of enterprise and to determine the prerequisites for the emergence of this concept.

**Summary of the main research material.** In modern scientific literature, the concept of «economic security» is often identified with the general category of «security». In some literature, security is defined as a situation where everything is in a place of reliable protection and is not negatively affected by everything that exists. In a broad scientific sense, security is understood as the protection of natural and physiological, socio-economic, ideal-spiritual and situational needs of resources, technologies, information and moral ideals necessary for the life and development of the population.

An analysis of the scientific literature shows that there is no single definition of the category «security», so it is defined as the condition of the facility, the order of property, the capacity of the facility, the guarantee and the required state, etc (Fig. 1):

In addition, security is understood in situations where there is a complex system, where the actions of external and internal factors do not lead to paths that are considered bad in relation to this complex system according to the available needs, knowledge and ideas.

Security is one of the basic human needs, i.e. it is very important for society. The study of scientific literature has confirmed the contradictory interpretation of the concept of «financial and economic security of business», since the existing methods reflect the essence of «financial security» or «economic security».

The generalization of the opinions of leading economists on the definition of the concept of «economic security» can be divided into the following main groups depending on the content and important features:

- the condition of efficient use of resources to prevent risks and create conditions for the stable operation of the most important elements (Varnalii Z. S., Gaponenko V., Bepalko A., Vlaskov A., Gusev V., Demin V., Kuzin B., Grunin O. A., Ilyashenko S. N., Kuzenko T. B., Kirienko A. V., Sudoplatov A., Lekarev S., Oleynikov E. A.) [6];

- coordination of economic interests (Kozachenko H., Ponomarev V., Lyashenko O. [8]);

- the state of protection against various threats and hazards (Bendikov M., Dykan V., Nazarenko I., Kovaliev D., Sukhorukova T., Ortynsky V., Plotnikova I., Plokhikh D., Shalagin D., Shlykov V.);

- the state of the production system, which ensures the prevention or reduction of the level of risk impact on the stability of the enterprise's functioning and development (Tambovtsev V., Lysenko Y., Mishchenko S.)

- the state of economic development that ensures the independence, stability and ability of an enterprise to thrive in destructive situations (Datskiv R., Zabrodskyi V., Kapustin N., Kostiuk J., Komlyk M., Nikolaiuk S., Niki-forchuk D., Stakhoviak Z.)

- the condition of protection of the enterprise's interests from real sources of risks or financial risks (Shlykov V. [39], Zubik V. D., Zubik D. V., Sediegov R. S., Razdin O. V.) [6].

Thus, the presented groups of definitions of economic security of an enterprise show that they are based on the use of administrative, economic and financial concepts, such as efficiency, effectiveness, resource availability, protection against external and internal environmental risks, goal achievement, economic and financial interests, economic and financial development.

However, most definitions do not take into account the most important characteristics of the company's financial and economic activities, in particular, the level of remuneration, efficiency of formation, distribution and use of financial resources of the company.

However, most definitions do not take into account the most important characteristics of the financial and economic activities of an enterprise, in particular: the level of remuneration, the efficiency of formation, distribution and use of financial resources of an enterprise.

When considering the financial security of an enterprise, strategic guidelines for the protection of financial interests are taken into account (Papekhin R. S., Shlemko V. T., Binko I. F.).

It should be noted that the most complete methodology was considered by the authors who mainly defined the financial security of the enterprise, its functional part and resources (Baranovsky O. I., Epifanov A. O., Goracheva K.) [6].

Given that the essence of the concepts of «economic security of an enterprise» and «financial security of an enterprise» is expressed through economic and financial priorities, which are very difficult to distinguish between the respective types of security, in our opinion, the systemic concept is «financial and economic security of an enterprise».

The financial and economic security of an enterprise is a complex integrated system that includes specific internal features designed to ensure the efficient use of material, labor, information and financial resources.

The purpose of ensuring the financial and economic security of an enterprise is to achieve the highest efficiency and stability of its operation and create conditions for further development by timely detection and prevention of external and internal risks and threats.

When studying the issue of the concept of «financial and economic security of an enterprise», it is necessary to pay attention to the fact that this issue is not enshrined in law this issue is not enshrined in law. At the doctrinal level, there are a large number of approaches to defining the concept of «financial and economic security of an enterprise»

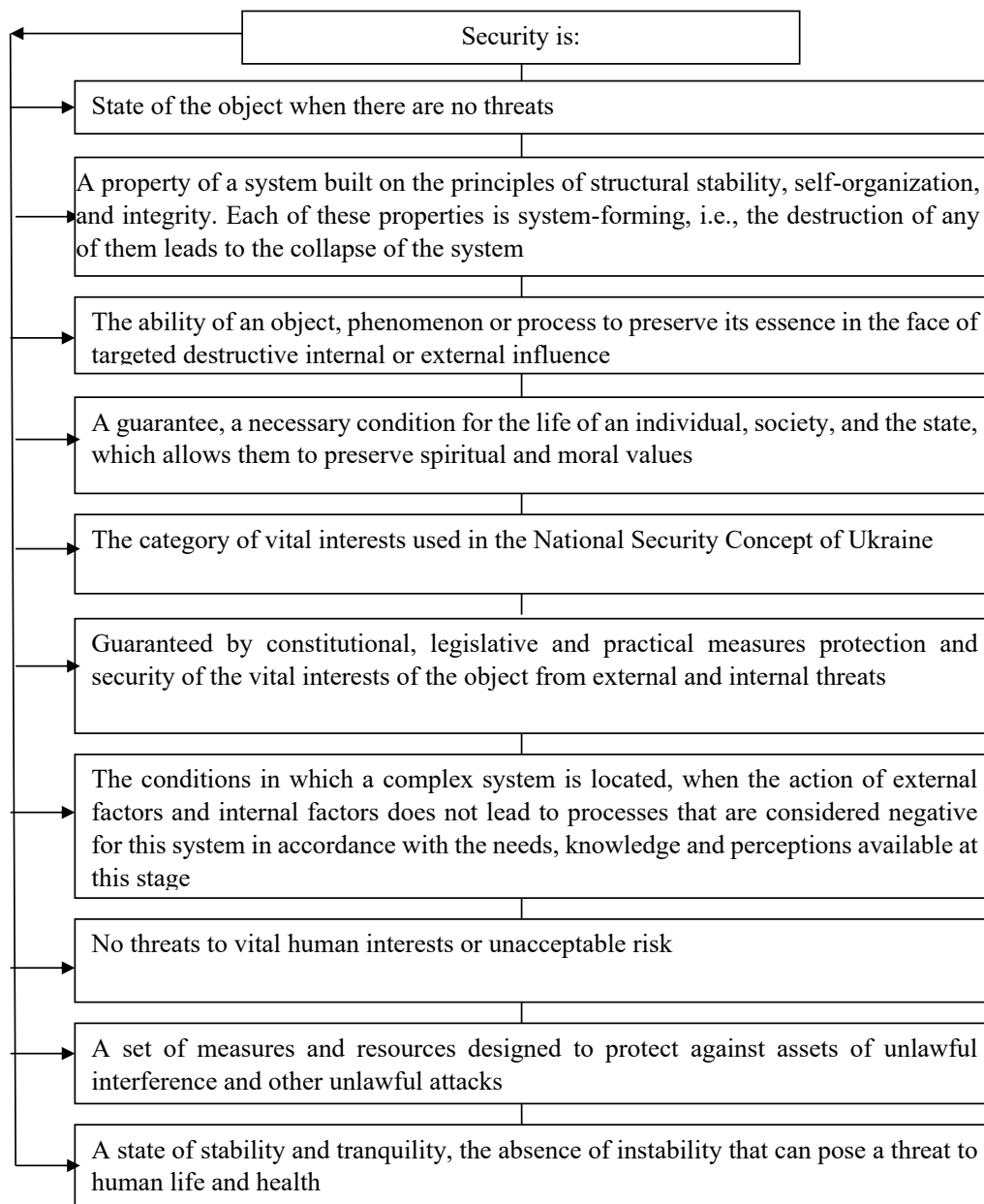


Fig. 1 – Approaches to the essence of the concept of «security» [9]

[3]. Thus, I. Moiseenko and O. Marchenko believe that the financial and economic system is a state that ensures the protection of its financial and economic interests from internal and external threats and creates the necessary financial and economic prerequisites for sustainable development in the current and long-term periods [10].

T. Vasylytsiv understands financial and economic security as the ability of a business entity to carry out its economic activities efficiently and sustainably through the use of a set of interrelated diagnostic, instrumental and control measures of a financial nature, which should optimize the use of financial resources, ensure the proper level and offset the impact of internal and external environment risks [2].

O. Trukhan defines it as a static direction, that is, as the result of the enterprise’s activity on a certain date and as

a dynamic direction – the development of the enterprise in the conditions of financial and economic security in the short and long term [11], and V. Ilchuk and V. Sadchykov consider financial and economic security as the protection of the capital of enterprises, organizations or institutions, as well as the willingness to create new mechanisms for the implementation of financial transactions, protection of the rights of all participants in financial relations, as well as the regulation and control of financial and economic

Thus, taking into account the above definitions, we can define the financial and economic security of an enterprise as: «the financial and economic state aimed at protecting its financial and economic interests and protecting it from negative internal factors and the external environment and creating economic and financial conditions necessary for



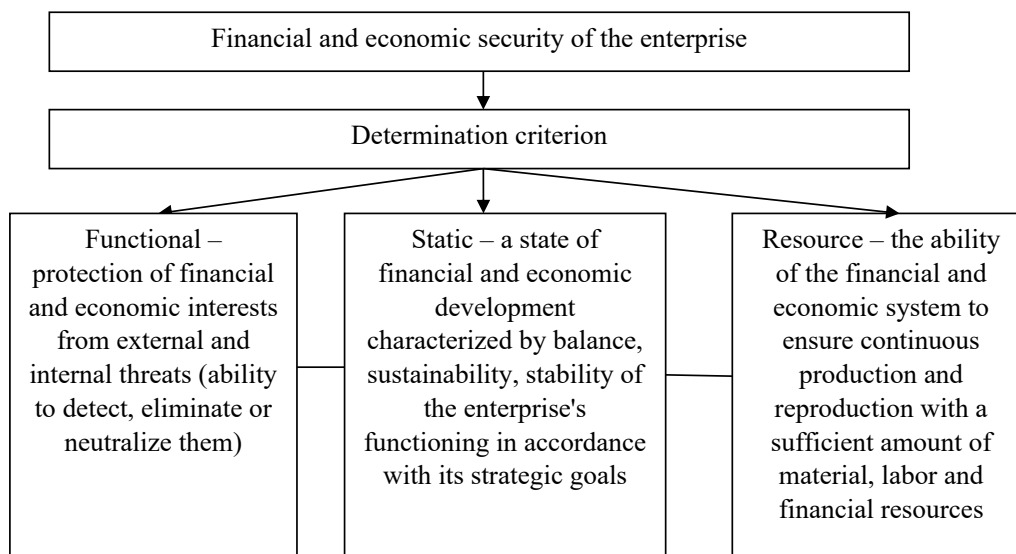


Fig. 2 – Criteria for determining the essence of the concept of financial and economic security of an enterprise

Source: developed on the basis of [1]

the continuous successful operation and continuous development of the enterprise.

The following criteria for determining the financial and economic security of an enterprise are distinguished: functional, static and resource (Fig. 2).

An important part of the process of promoting the improvement of

financial and economic security of an enterprise is the implementation of financial measures aimed at covering losses and eliminating their causes, creating, restoring (maintaining) liquidity and solvency, reducing debt, improving the structure of working capital, etc.

Activities aimed at creating a reliable system of financial and economic security of an enterprise may include the use of such economic measures as: improving direct and indirect costs of activities; presentation of estimated financing and cash settlements; saving resources; prepayment; improvement of the settlement system; improvement of the labor incentive system; price adjustments; improvement of financial resources for the operation and development of the enterprise.

Thus, the financial and economic security of an enterprise is a complex multidimensional concept that requires detailed study. The problem of developing a unified system for assessing the financial and economic security of

business entities remains unresolved. This fact is explained by the fact that the process of managing the financial and economic security of an enterprise involves the existence of related working participants and ensuring the procedure for selecting, processing and studying data on financial resources, a sufficient level of solvency and liquidity, planning and implementation of financial and economic activities of an enterprise, and introduction of various innovations at all levels of production of goods or provision of services to increase the level of profit.

**Conclusions.** Thus, the financial and economic security of an enterprise is a complex multifaceted concept that requires a detailed study. The problem of developing a unified system for assessing the financial security of business entities remains unresolved. This fact is explained by the fact that the process of managing the financial and economic security of an enterprise involves the presence of related functional elements and ensuring the process of selection, regulation and study of data on financial resources, a sufficient level of solvency and liquidity, planning and implementation of financial and economic activities of an enterprise, and implementation of various innovative actions at all levels of production or provision of services to increase the level of profit.

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## ENSURING PERSONAL SOCIAL SECURITY AS A FACTOR OF SUSTAINABLE ECONOMIC DEVELOPMENT OF THE STATE

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### Key words:

personal social security, social security, ensuring social security.

This study explores the essential characteristics of personal social security, identifies the standards for its adherence, and outlines ways to ensure it. The relevance of ensuring personal social security in the context of military aggression and the deepening of related socio-economic problems is examined. The concept of human social security is justified as a multifaceted process with an objectively subjective nature. It is determined that personal social security is a result of the state's social policy. Special attention is paid to social standards, the observance of which contributes to ensuring personal social security, as well as to threats that are particularly acute during the current turbulence in the Ukrainian state. The results of an expert survey on the issues of social security, specifically its manifestations for individuals, are revealed. It is determined that ensuring the basic needs of people in Ukraine is primarily influenced by the external situation in the state and society. In conclusion, it is summarized that a person, being at the nano-level of the complex structure of social security, loses their most important life resources when in danger, which negatively affects the socio-economic potential of the state. Therefore, ensuring and guaranteeing their protection is a leading factor in building a competitive economy.

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## ЗАБЕЗПЕЧЕННЯ СОЦІАЛЬНОЇ БЕЗПЕКИ ОСОБИСТОСТІ ЯК ФАКТОР СТАЛОГО ЕКОНОМІЧНОГО РОЗВИТКУ ДЕРЖАВИ

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### Ключові слова:

соціальна безпека особистості, соціальна безпека, забезпечення соціальної безпеки.

Досліджено сутнісні характеристики соціальної безпеки особистості, визначено стандарти її дотримання та шляхи її забезпечення. Розглянуто актуальність забезпечення соціальної безпеки особистості в умовах військової агресії та поглиблення спричинених через це соціально-економічних проблем. Обґрунтовано поняття соціальної безпеки людини як багатоплановий процес, який має об'єктивно-суб'єктивний характер. Визначено, що соціальна захищеність особи є результатом соціальної політики держави. Особливу увагу в статті приділено соціальним стандартам, дотримання яких сприяє забезпеченню соціальної безпеки особистості, а також приділено увагу її загрозам, що особливо відчутні в часи сучасної турбулентності української держави. Розкрито результати експертного опитування з проблем соціальної безпеки, а саме її проявів для особистості та визначено, що забезпечення базових потреб людини в Україні визначається передусім зовнішньою ситуацією в державі та суспільстві. Як висновок підсумовано, що людина будучи нанорівнем складної структури соціальної безпеки в небезпеці втрачає свої найважливіші життєві ресурси, що негативно впливає на соціально-економічний потенціал держави, тому забезпечення та гарантування її захисту є випереджальним фактором розбудови конкурентоспроможної економіки.

### **Problem statement and its connection to important scientific or practical tasks**

The timely issue of supporting personal security in a stressogenic context, driven by the objective dangers of military actions on the territory of Ukraine, is examined. In these conditions, the contemporary individual increasingly requires support from social security institutions. Moreover, ensuring the social security of individual citizens is a necessary measure for normalizing the socio-economic situation in the country as a whole. This is primarily related to maintaining the health of the population as a socio-economic unit, but it also contributes to capital concentration to ensure effective response to future crises and to increase GDP in connection with longer life expectancy and higher living standards.

Thus, the primary stage of economic recovery in the post-war period is the process of ensuring personal social security as a guarantee and prerequisite for sustainable recovery and economic development of the state. This includes encouraging citizens to return to Ukraine and preventing population emigration and subsequent assimilation in other countries. The population of the country is the most valuable resource for the economic development of the state and the reconstruction of its economy in the post-war period. The state's task is to actively support the provision of personal social security as the connecting link between the two subsystems of state governance—economic and social. In the context of military conflict and the accompanying economic decline, the urgent task is the transformation and prioritization of directions for ensuring social security.

### **Analysis of recent research and publications**

A significant number of scientific sources are dedicated to the study of personal social security and the forms of its provision, which emphasizes the multi-component nature of the subject under investigation. Theoretical and applied aspects of social security at various levels have been studied by economists such as I.I. Bilous [1], N.M. Buniak [2], M.A. Kalnytska [3], O.H. Klipkova [4], O.F. Novikova [5], I.O. Samborskyi [6], O.H. Sydoruk [7], P. Saunders [8] and R. Walker [9]. Social security from the perspective of economic security has been explored by Z.S. Varnalii [10] and O.I. Hrynyk [11]. However, despite the diverse research on social security, the question of the variability of methods for ensuring social security and their impact on the state economy requires further scientific investigation.

Alla Cherep, Oleksandr Cherep, Iryna Dashko, Oleksandra Rozhenko, Oksana Kornukh, and Petro Matkovskyi studied the relationship between investing in the development of enterprise personnel to ensure their social security and strengthen the economic security of the enterprise and the state [12].

### **Formulation of the article's goals (task setting)**

The purpose of this article is to reveal the essence of the concept of personal social security and the ways of its provision as a basis for sustainable economic growth of the state.

### **Presentation of the main research material with full justification of the obtained scientific results**

In the conditions of military aggression and globalization threats, solving social problems becomes even more important and relevant. The war in Ukraine poses a particular threat, significantly affecting the state of the Ukrainian economy. Its negative consequences have both direct and indirect effects, representing real social and economic threats [10].

Despite the relevance and importance of the issue of social security, the only official definition of the term «social security» is found in the Methodological Recommendations on the Calculation of the Level of Economic Security of Ukraine, where social security is defined as a state of development in which the state can ensure a decent and quality standard of living for the population, regardless of age, gender, or income level, and promote the development of human capital as the most important component of the country's economic potential [1].

Social security in Ukraine is enshrined at the constitutional level. According to the Constitution, Ukraine «is a sovereign and independent, democratic, social, and legal state» (Art. 1); «the person, their life and health, honor and dignity, inviolability, and security are recognized in Ukraine as the highest social value» (Art. 3). The establishment and protection of human rights and freedoms are the main duties of the state (Art. 3). Therefore, a person, along with their rights, freedoms, interests, and needs, is the direct object of the state's social security [13].

The systematization of domestic scholars' definitions of the essential features of the «social security» category indicates that experts generally do not study the problems of human social security separately from the categories of state and societal social security. In scientific works, these concepts are organically combined and studied in relation to and interdependence with each other. The definition of the «social security of an individual» category is found in the scientific works of many researchers [7].

Social security of an individual is the ability and readiness of the state, society, and the individual to protect themselves from dangers and threats to life, health, and the basic social values—human rights and freedoms. The instruments and mechanisms for ensuring the social security of an individual include:

- laws that protect the rights and freedoms of citizens;
- a partnership type of relationships;
- the cultivation by the state and society of respect for the dignity of another person, their life, and freedom;
- the establishment of fair and effective justice;
- safe and responsible behavior of citizens that does not cause risks to themselves or others;
- the development of peaceful means for resolving conflicts and the ability to compromise [5].

British scholar Robert Walker distinguishes between public and private provision of social security. This approach involves distributing responsibility between state and private institutions, which allows for the creation of a more flexible and resilient social support system. Modern challenges, such as population aging, changes in

employment structures, and globalization, require constant updating, flexibility, and innovation in the development of effective social security models and programs [9].

Social security of an individual should be considered as a state of guaranteed protection of a person from internal and external threats that make it impossible or difficult to realize the interests, rights, and freedoms of the individual, ensuring their full-fledged life activities and the creation of conditions for their development and self-realization [2]. At the same time, the concept of social security of an individual is multifaceted and has an objectively-subjective nature: on the one hand, it is the absence of threats to the social interests (life and health) of a person; on the other hand, it is the individual's awareness of their security [4].

The multi-system nature of the social security concept indicates the balance of human existence in the political, economic, psychological, cultural, informational, demographic, environmental, and other spheres of social life. Social security has a complex multi-level system from the perspective of the economic level, namely: nano-, micro-, meso-, macro-, and mega-levels: social security of an individual (nano-level); social security of a business entity (micro-level); social security of a region (meso-level); social security of the state (macro-level); global social security (mega-level) [10].

Today, the relevance of ensuring the social security of the individual, the state, and society is a priority task for Ukraine in the face of escalating external and internal threats to national security. This is manifested in supporting economically vulnerable segments of the population; protecting the population from various social risks through pension provision for old age, disability, unemployment, etc.; maintaining and supporting the living standards of the population; and modernizing education and healthcare. State-guaranteed social protection provides individuals with the opportunity to live, work, and serve society fully, which significantly contributes to the socio-economic growth of the state [11].

The object of an individual's social security, in general terms, includes their vital rights, freedoms, and guarantees in the social sphere: the right to life, to work and its fair remuneration; the right to free medical care; the right to free education; the right to rest; and state-guaranteed social protection. Considering this, an individual's social security is primarily related to the observance of social standards at the state level, the most important of which are:

- educational standards, ensuring real accessibility of quality preschool, primary, secondary, and higher education for all segments of the population;
- employment and quality of working life standards, wage payment, social protection, rest;
- standards of physical and economic access to basic food products and their actual consumption;
- standards for the protection of legal rights and freedoms of individuals and citizens;
- standards for protection from physical violence and threats;
- standards for the quality of the natural and social environments;

- healthcare service standards, ensuring a high level of public health and preventing the spread of socially dangerous diseases.

The full-scale military aggression of the Russian Federation against Ukraine, the complex socio-economic situation, and the intensification of globalization processes negatively impact the state and dynamics of human potential, as well as create additional challenges in the social sphere. In the current realities, the main threats to an individual's social security in Ukraine are:

- increasing poverty (reduction or loss of labor income due to hostilities);
- insecurity of citizens' rights and freedoms;
- loss of housing by part of the population due to enemy shelling;
- rising unemployment due to the cessation of activities of most enterprises in the combat zone;
- intensification of social conflicts against the backdrop of military aggression and the destruction of the social value system;
- increased criminalization of society, the development of terrorism in temporarily occupied territories, as well as looting;
- decreased accessibility of quality medical care, especially in regions where hostilities are taking place, leading to deteriorating public health and the spread of social diseases;
- attempts to manipulate the consciousness of citizens through the dissemination of unreliable and biased information in the media and social networks. The decline in the level of an individual's social security not only has serious negative consequences for their health, well-being, and social well-being but also reduces the effectiveness of the country's economic system, negatively affecting all spheres of society's life [2].

The vision of individual social security in Ukrainian society is revealed in the results of an expert survey on the problems of social security. The experts' responses to the questionnaire question: «In your opinion, what manifests individual social security?» are presented in Figure 1.

Experts believe that individual social security is primarily manifested in favorable and safe living conditions (63.8%), a decent standard and quality of life (56.2%), social and psychological stability, and confidence in the future (39%), and the protection of citizens' rights and freedoms (33.3%). It is noteworthy that employment, access to quality medical and educational services, and ensuring a healthy lifestyle are not considered primary manifestations of individual social security. This indicates that the provision of basic human needs in Ukraine is primarily determined by the external situation in the state and society, even though the value of human health for a full life is paramount. After all, «health is the life energy, inspiration, and satisfaction from a life filled with events; the ability to set and achieve goals, to fully realize one's potential; freedom from pain, destructive passions, egoism, and spiritual decline» [7].

According to the Constitution of the World Health Organization (WHO), «health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. The health of all peoples is



Figure 1 – Expert assessment of the manifestations of individual social security (responses to the questionnaire question: «In your opinion, what manifests individual social security?»), % of respondents

fundamental to the attainment of peace and security and is dependent upon the fullest cooperation of individuals and states. The achievements of any State in the promotion and protection of health are of value to all» [14].

A person in danger loses the most important life resources—their health, physical, social, and spiritual well-being—losing the ability to live a full life oriented toward development. They may cause harm to themselves while trying to escape danger. The dangers in a person's life change their worldview, primary needs become priorities, and everything related to development is postponed for a certain period or not realized at all.

Considering individual social security as the nano-level of the overall multi-level system of social security, one can speak of its significant and primary role in building the economic development of the state, given the priority of the individual at all levels of state and international activities. Ensuring individual social security is a guarantee and an important factor in the stable and sustainable economic development of the state through the impact and involvement of the individual in all sectors of the economy [3]. In particular, it can be argued that the following aspects contribute to economic growth:

- reducing poverty and inequality: when people's basic needs are met, they can invest more in economic activities;

- increasing employment levels: retraining programs, job benefits, and other measures facilitate job search, increasing overall employment and productivity;

- long-term investments: social security is an investment in human capital. Education, healthcare, and other forms of social assistance contribute to the development of skills and public health, which in the long run increases productivity and the competitiveness of the economy [8].

The socio-economic instability and increasing social tension in Ukrainian society indicate a low level of social security in society at all levels. This requires strengthening state regulation of both the economic and social spheres, optimizing the state administrative apparatus, and developing a scientifically grounded strategy for socio-economic development. It is the solution to social problems at all levels of social security—from the macro level to the nano-level—that determines the level of social stability in society, the quality of life of the population, and the creation of real prerequisites for further economic development [3].

#### **Conclusions and prospects for further research in this area**

Thus, social security is a multi-level structure based on the security of the individual, which, in turn, is guaranteed and protected by the state. Social standards have been

identified, adherence to which is a guarantee of ensuring social security, and the threats and problems of social security in Ukraine under current conditions, including during military aggression, have been formulated.

It can be concluded that a low level of social security in the state leads to such negative consequences as economic decline, associated with a drop in labor morale and motivation; deepening economic crises; increased likelihood of environmental disasters due to society's neglect of a safe

living environment; and undermining the country's future prospects due to the disregard for the system of value orientations in society and a negative attitude toward education and science.

Further research should focus on actively identifying and utilizing factors that will contribute to strengthening the sectors of the socio-economic complex, both in guaranteeing social security and in increasing Ukraine's competitiveness.

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