

MANAGEMENT OF ECONOMIC SECURITY OF ENTERPRISES IN THE CONTEXT OF DIGITAL TRANSFORMATION

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Abstract. The *subject* of the study is the management of economic security of enterprises in the context of digital transformations. *Methodology.* The research uses general scientific methods, in particular: theoretical generalisation; methods of analysis and synthesis and statistical analysis, and the graphical method to visualise the results of the study. The article is *aimed* at highlighting the results of a study of economic security management of enterprises in the context of digital transformations. *Conclusion.* The article analyses the economic security of enterprises in the context of global challenges. The impact of the war on the country's economy as a whole is underestimated and has far-reaching studies at both the macro- and micro-levels. It has been determined that at the beginning of the full-scale Russia's invasion on the territory of Ukraine, there was a significant reduction in the main economic indicators of enterprises' performance compared to the previous year. The analysis showed that the volume of products (goods, services) sold in 2022 decreased by 3,8 million UAH compared to the previous year, but remained at the level of the years before the pandemic, as well as the nature of the increase in business activity due to completely closed ports and an inadequate logistics system. At the same time, the number of business entities decreased by 223 thousand units, but their number only increased during the pandemic. It was noted that the acute shortage of personnel begins in 2022 with a significant decrease in the number of employees by 1,4 thousand persons. It was emphasised that over the past ten years, the number of employed workers has fluctuated around 8 thousand people and has not decreased, and in 2022 this figure was 7,5 thousand people. The economic security management system was improved, which is based on security levels and has a complex operating system that takes into account the external environment (customers, competitors, suppliers, etc.). A system for managing economic security in the context of digital transformation is proposed, based on the characteristics of the sublevels of security – financial, economic, social, information, environmental and security. It is emphasized that the main element of improving the economic security management system is to take into account the strengthening tools, such as risk insurance, forecasting, modelling, etc.

Key words: economic security management, digital transformation, information technology, war, system, strengthening tools.

JEL Classification: A10, D29, G22, O10

1. Introduction

Under the conditions of war, domestic enterprises, both large and small, are increasingly at risk. Under the constant all-out bombardment, a significant part of the enterprises was destroyed, which led to the impossibility of carrying out the main activities. Today, there are practically no areas where the enemy would carry out all-out bombardment, resulting in the destruction of industrial and even civilian

infrastructure, which in turn does not ensure the effectiveness of enterprise security management. In addition to conducting hostilities, the enemy also uses various attacks on enterprises to intimidate the civilian population.

With the beginning of a full-scale invasion, a large part of enterprises suffered from cyber-attacks, which also affected their ineffective management of economic security. In the conditions of digital

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transformation of enterprises, it is necessary to ensure the increase of their information security, which in turn will affect the economic security. Practical experience shows that ineffective management of economic and information security of enterprises leads to their liquidation, closure, in the best case to reorganisation or merger. A significant number of managers are failing to anticipate and ignore the modern challenges of digital business transformation, trying to save money or using outdated technologies, all of which will lead to an increase in cyber-attacks by hackers. The inaction of managers in this direction will only increase the information threat to enterprises, reduce their competitiveness, affect performance indicators and lead to the deterioration of economic security management. Therefore, the analysis of the current state of economic security of enterprises in the conditions of global challenges and threats under the influence of digital transformation is quite relevant and requires research.

The *purpose of the article* is to manage the economic security of enterprises in the context of digital transformation.

2. Analysis of Economic Security of Enterprises in the Context of Global Challenges

One of the biggest challenges for domestic enterprises was the Russia's full-scale invasion on the territory of Ukraine, with a large part of the country under occupation, which made it impossible to relocate enterprises and led to their complete closure. A significant number of businesses were able to relocate to safer areas, which was also facilitated by the government's relocation programme.

The main tasks of the Enterprise Relocation Programme are to select a location for the company's facilities; provide assistance with transportation to the new location; assist in the resettlement of employees and the search for new employees; assist in the restoration of logistics, the purchase of raw materials and the search for sales markets (Enterprise Relocation Programme, 2023). Naturally, the programme envisages that, once the war is over, the companies will return to the areas from which they were relocated and become a powerful engine for economic recovery in the regions concerned.

However, it is worth considering the authors' opinion that "the duration of hostilities will determine the outcome of internal and external migration. As the duration of the war increases, the likelihood of successful resolution of housing problems and employment difficulties increases, and the likelihood of migrants returning to their previous places of residence decreases. The massive

destruction of infrastructure may be another reason for displacement. Even after the war ends, it will take time to rebuild housing and social infrastructure. Most of the destroyed areas will be uninhabitable or almost uninhabitable for some time to come" (Onyshchenko, Maslii, & Zagorulko, 2023).

Consequently, it is necessary to be realistic about the possibility of companies returning to the areas from which they were evicted. Currently, a large part of the de-occupied territories have no access to electricity, water or gas, and most of the fields are landmined. The constant bombardment by the enemy is destroying civilian and industrial infrastructure, making it impossible to run households in these areas. All of this will discourage civilians from returning to their homes and starting from scratch, so it is possible that the economy will return, but not to pre-war levels. The main threats and challenges to the economic security of businesses include war and active hostilities in most of the territory of Ukraine.

It is only in the conditions of sustainable development of the economy that it is possible to create and ensure all other components (types) of national security. In turn, it should be noted that the state of economic security today is unsatisfactory and problematic, existing theoretical approaches to understanding the meaning, essence and priorities of the components of economic security need to be revised. The issue of economic security seems to be one of the highest priorities. The issue of creating a new concept of economic security deserves special attention, which should be built, first of all, taking into account the counteraction to new challenges and threats. This will encourage the search for new ideas and effective mechanisms for solving pressing problems (Lutsyk, 2023).

The impact of the war on the country's economy as a whole is underestimated and has far-reaching consequences at both macro and micro levels. According to the data of the State Statistics Service of Ukraine, in 2022 there was a significant decrease in the main economic indicators of business activity compared to the previous year (Figure 1).

The volume of products (goods, services) sold in 2022 decreased by 3.8 million UAH compared to the previous year, but remained at the level of the COVID-19 years, which were also characterised by a deterioration in the activities of most business entities due to completely closed ports and an unregulated logistics system. The number of business entities decreased by 223 thousand, but their number only increased during the pandemic. In 2022, an acute staffing crisis began with a significant reduction in the number of employees by 1.4 thousand persons. It should also be noted

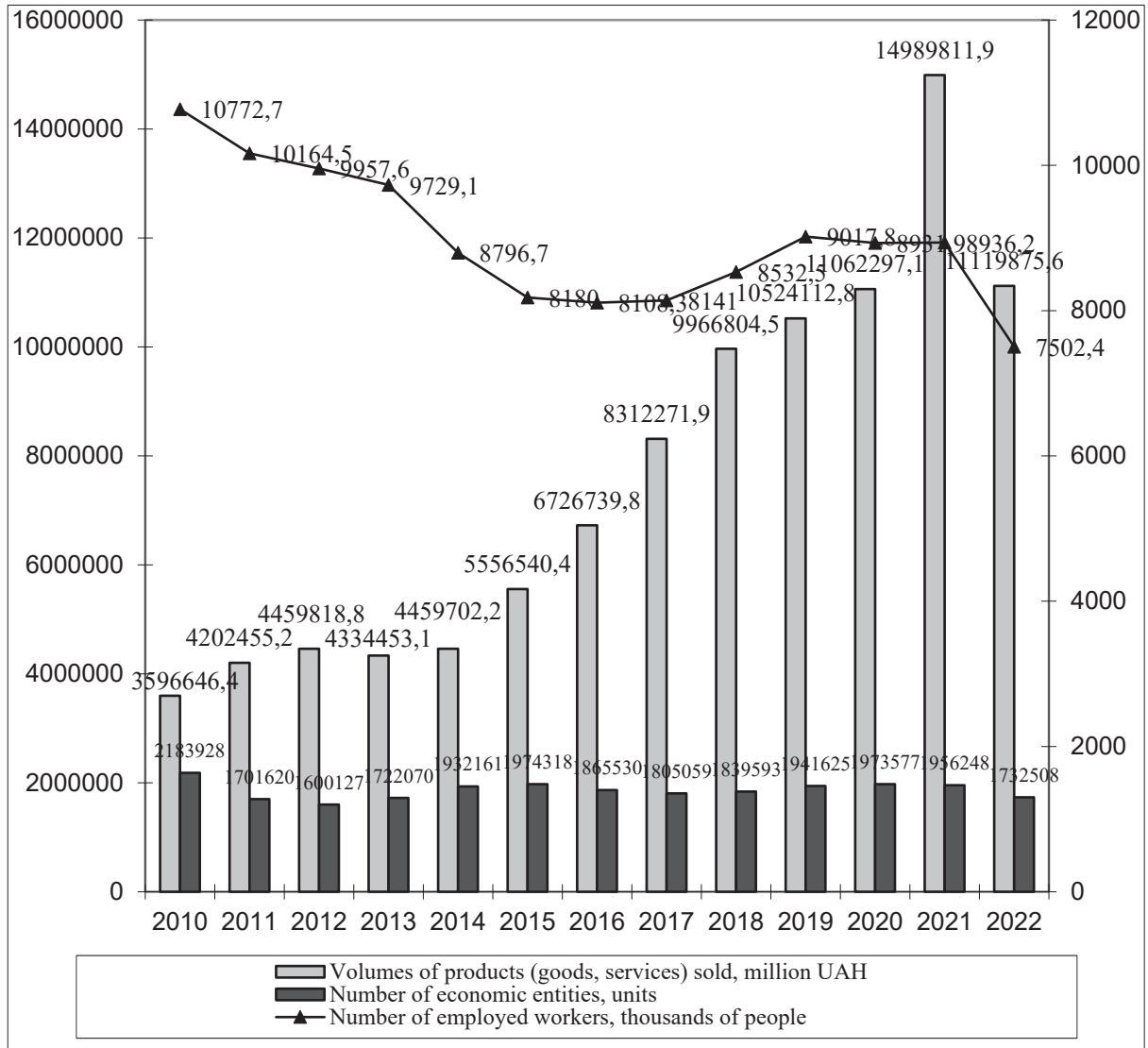


Figure 1. Key economic indicators of the company's operations for 2010–2022

Source: compiled according to the data of the State Statistics Service of Ukraine (State Statistics Service of Ukraine, 2023)

that over the past ten years, the number of employed workers has fluctuated around 8 thousand people and has not decreased, and in 2022 this figure reached 7,5 thousand people.

The war in Ukraine will also have a global impact on economies linked by foreign trade. The majority of experts, analysts and scientists note that the consequences of the war for the national economy will be worse than after the global financial crisis.

In the conditions of modern transformational trends caused by the impact of digitalisation of business, threats of local and global factors of socio-economic development, structural shifts in the international economic space, a necessary component of the effective functioning of the enterprise in the context of ensuring its economic security and the application of preventive management measures should be continuous innovative development.

In general, the tools and methods of preventive management are characterised by flexibility and mobility, and their use affects the improvement of the effectiveness of the functioning of management units through constant monitoring and ensuring the prevention of crisis situations (Zaliznyuk, Safonik, & Kaya, 2022).

Today, the economic security management of enterprises is negatively affected by various cyber attacks by hackers, which leads to the suspension of business operations and the disruption of information systems. Accordingly, a significant number of business entities are constantly improving their information systems or looking for their protection in order to reduce the impact of cyberattacks.

In 2022, the cyber defence unit of the Computer Emergency Response Team of Ukraine (CERT-UA) registered 2.8 times more cyber incidents than in the

pre-war year. The number of threats with a geolocation linked to the Russian Federation increased by 26%. One in 10 attacks was aimed at the financial sector or software developers (Fintech armor for hundreds of thousands of dollars. During the war, cyber-attacks on financial businesses became more frequent. How companies protect themselves from attacks, 2023).

Most cyber-attacks are aimed at state-owned monopoly companies that keep the social infrastructure functioning, in order to increase discontent and further repress society. Among the main companies affected by cyber-attacks are the energy holding DTEK, Naftogaz, Ukrposhta and State Service of Ukraine for Transport Safety. Every year, energy companies spend more than 100 million UAH just to renew licences for cyber protection systems. The energy sector has had liquidity problems since the beginning of the war. The lack of money for cyber defence is compensated by donors.

The development of international cooperation to strengthen Ukraine's cyber resilience is a priority task to prevent global information threats, ensure a high level of quality in cybercrime investigations, arrest and prosecution of criminals, and overcome cybersecurity issues. At the same time, there are areas of cybersecurity that negatively affect Ukraine's position in these rankings and need to be improved. In particular, the current level of contribution to global cybersecurity is low, the level of protection of digital services is insufficient, and the area of military cyber operations is underdeveloped.

Considering Ukraine's achievements in cyberspace, it is legitimate to define it as an equal participant in the international arena in the field of cyber security. The future tasks should be the further improvement of information protection systems of critical infrastructure objects based on the best global practices, as well as the coordination of actions with international organisations to counter threats related to the development of the digital economy and information society. Building an effective cybersecurity system in terms of comprehensive counteraction to cyber threats will help to create a preventive mechanism to counteract threats and localise them, and proactively respond to dynamic changes in cyberspace (Onyshchenko, & Hlushko, 2022).

Therefore, when formulating the economic security policy of enterprises, management should take into account the information security component in accordance with modern challenges and threats, which will make it possible to reduce their impact on the activities of business entities in the future.

3. Improvement of the Economic Security Management System of Enterprises under the Influence of Digital Transformations

The accumulated experience makes it possible to assert that economic security is a key characteristic of stable functioning and achievement of the required development indicators of both individual business entities and society as a whole. The security of economic processes is characterised by numerous political, legal and economic mechanisms and instruments that help protect economic interests. In a broad sense, economic security can be viewed as the ability of the institutional and organisational system to protect the interests of business entities on the basis of international and national legal norms and compliance with national traditions and business values. Innovative information and computer technologies that form the basis of the digital economy play a significant role in the development of all aspects of society. Digitalisation processes have a particularly significant impact on the economic activities of business entities and, accordingly, on their economic security. Despite the close attention to the problems of digitalisation by numerous studies, the impact of digital technologies on the economic security of enterprises has not been sufficiently studied and elaborated (Samoilenko, Britchenko, Levchenko, Loşonczy, Bilychenko, & Bodnar, 2022).

Research into the economic security of enterprises is always given its due role, but under the influence of global changes associated with digital transformation, there is a need for continuous improvement of the management system itself. Finding ways to improve economic security management systems will enable timely response to new challenges and threats to enterprises. New systems must be built on the basis of information technologies, while at the same time creating a powerful operating system.

The modern development of the world economy and society is being driven by the introduction of key technologies that underpin the digital economy: blockchain, cloud computing, big data, the Internet of Things, cyber-physical systems. Their use leads to positive economic and social effects: automation and intensification of traditional economic and technological processes, creation of new branches of the economy; improvement of the business and investment climate by increasing the availability and efficiency of public services, transparency of business conditions; increasing the availability, quality and convenience of medical, educational, cultural and financial services for the population; creation of comfortable and safe cities for line (Kasianova, Kravchuk, & Koval, 2020).

An enterprise economic security management system should contain virtually all information and have reliable protection to reduce its leakage. As mentioned above, businesses today operate in an extraordinary environment, and that is why they need a reliable economic security management system.

At the same time, the structure of primary and analytical information within the framework of the enterprise's economic security management system should be improved. The form and composition of the indicators of the economic, investment and financial questionnaires may also be changed in order to identify more precisely the essential and complementary factors that determine the dynamics of the economic situation of the enterprise, to adapt the quantitative indicators of the questionnaires to changes in accounting and statistical reporting. Layouts of the initial analytical information are being developed, and the methodology of thematic and aggregate analysis is being improved based on the system's information base, taking into account regulatory, legislative and foreign economic information (Andrushkiv, 2022).

That is why there is a need to improve the economic security management system of enterprises in accordance with modern conditions. This system should be created with the help of reliable information systems that will take into account absolutely all areas of the enterprise's activity with the possibility of information leakage from the outside.

According to the authors, an improved system of economic security management should have sublevels of security and be comprehensive in nature, taking into account the external environment (customers, competitors, suppliers, etc.) (Figure 2).

The proposed system for managing economic security in the context of digital transformation is based on the specificities of the sub-levels of security: financial, economic, social, information, ecological, security,

environmental and safety. The main element is the consideration of strengthening tools.

In the context of digital transformation, enterprises must adapt their overall economic security system to new risks that may arise as a result of the introduction of digital innovations. In this regard, it is advisable to identify the following stages of risk management in the economic security system of enterprises undergoing digital transformation:

- Identification and diagnosis of emerging risks associated with digital transformation, including the characteristics, significance and benchmarks that will be used to measure the risk;
- risk minimisation (implementation of initiatives that meet the strategic goals of the company's digital transformation);
- monitoring of the state of economic security of the enterprise (calculation of key indicators of each subsystem of the overall economic security system, determination of the overall level of economic security, qualitative and quantitative analysis of work with identified risks, analysis and verification of the implementation of plans) (Bilychenko, & Kasianova, 2023).

The need to take into account digital transformation in the development and reconstruction of socio-economic systems is also addressed by the work of well-known scientists (Irtysheva, Pavlenko, Boiko, Stehnei, Kramarenko, Hryshyna, & Ishchenko, 2022; Kramarenko, Irtysheva, Stehnei, Boiko, Nadtochii, Pavlenko, Rakipov, Hryshyna, Sirenko, & Ishchenko, 2022).

The economic security of an enterprise in the context of digital transformations is considered as a state of protection against external and internal threats to the stability of the enterprise's economic space caused by transformational processes of various origins, with respect to its corporate interests. It is determined that the development of the modern

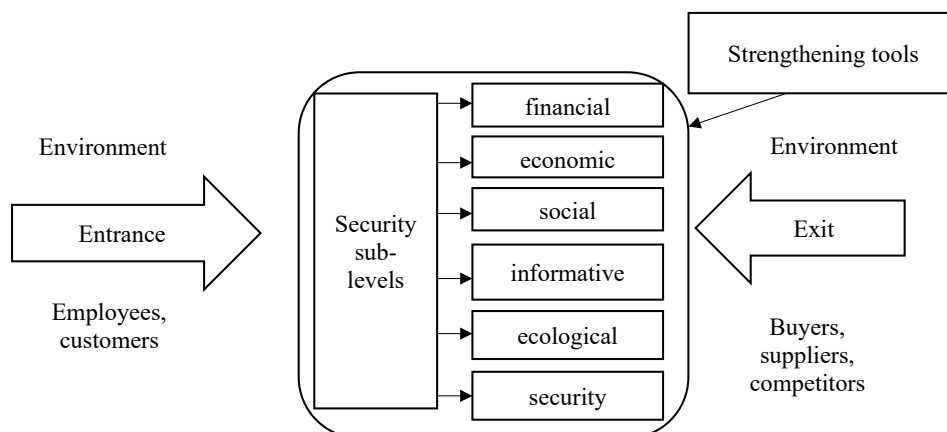


Figure 2. Economic security management system in the context of digital transformation

Source: compiled by the authors

system of economic security of enterprises lies in its adaptation to the use in the context of digital transformations. The theoretical foundations for the formation of an adapted system of economic security of enterprise are formed, the basic principles of adaptation are formulated; the main stages of adaptation are allocated; a structured model of the adapted system of economic security of digital transformations of enterprises is developed (Polupanova, Khadzhynova, & Zaneta, 2022).

4. Conclusions

The article analyses the economic security of enterprises in the context of global challenges. The impact of the war on the country's economy as a whole is underestimated and has far-reaching consequences at both the macro and micro levels. It has been determined that at the beginning of the Russia's full-scale invasion on the territory of Ukraine, there was a significant reduction in the main economic indicators of enterprises compared to the previous year. The analysis showed that the volume of products (goods, services) sold in 2022 decreased by 3,8 million UAH compared to the previous year, but remained at the level of the years of the covid pandemic, which were also characterised

by a deterioration in the activities of most business entities due to completely closed ports and an unregulated logistics system. At the same time, the number of business entities decreased by 223 thousand units but during the pandemic, their number only increased. It was determined that the acute shortage of personnel begins in 2022 with a significant reduction of employed workers by 1,4 million persons. It was emphasised that over the past ten years, the number of employed workers has fluctuated around 8 thousand people and has not decreased, and in 2022 this figure reached 7,5 thousand people.

The economic security management system developed, which is based on security sub-levels and has a comprehensive operating system, taking into account the external environment (customers, competitors, suppliers, etc.). The proposed system for managing economic security in the context of digital transformation is based on the specifics of the sublevels of security – financial, economic, social, information, environmental and security. It is emphasized that the main element of the improved economic security management system is to take into account the reinforcing instruments, such as risk insurance, forecasting, modelling, etc.

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