

Review Paper

# Preparation of Theoretical and Practical Recommendations for the Transformation of the Economic Security System of Enterprises during the Digitization Process

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## ABSTRACT

The article proves that information security is one of the most critical aspects of the economic security of an enterprise, and it is necessary to emphasize that reducing the problem of financial security of an enterprise to the protection of trade secrets is an overly simplified solution to this problem. Such a narrow understanding of economic security only considers part of the spectrum of environmental impact as the main source of danger to the enterprise's activities. According to this view, the economic security of an enterprise is conditioned by the influence of the external environment, which in a market economy is constantly changing, never remaining stable or unchanged. The cluster systemic approach and modeling methodology outlined in the article, as well as the tools for analyzing and diagnosing the enterprise's condition, allow for a sufficiently complete study of the complex factors threatening the economic security of an enterprise and for a meaningful and purposeful organization and implementation of the necessary indicator monitoring, which will allow for systematic research and analysis of the dynamically changing socio-economic and conduct a feasibility study of management decisions. The study develops and implements a modern concept of enterprise security in the digital economy. The development of a set of organizational tools that ensure the transformation of economic security of enterprises in the process of digital transformation is presented. The modeling of the economic security system of an enterprise in the digital economy is proposed. The study develops and implements a modern concept of enterprise security in the digital economy. The development of a set of organizational tools that ensure the transformation of economic security of enterprises in the process of digital transformation is presented. The modeling of the economic security system of an enterprise in the digital economy is proposed. The European Social Fund funded this research under the No. 09.3.3-LMT-K-712-23-0211 "Transformation of the economic security system of enterprises in the process of digitalization" measure.

## HIGHLIGHTS

- The study develops and implements a modern concept of enterprise security in the digital economy.
- The modeling of the economic security system of an enterprise in the digital economy is proposed.

**Keywords:** economic security, digital economy, enterprise, digital transformation, organizational tools

In today's unstable global economy, business entities are forced to adapt to political and socio-economic instability conditions and search for adequate solutions to the most challenging problems and ways to reduce threats to their functioning. Furthermore, high moral and physical depreciation of fixed assets, lack of financial resources, and

severance of cooperative ties put most enterprises in the real sector of the economy in a difficult financial

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situation. As a result, the problem of creating and implementing economic security systems capable of creating conditions for reducing the level of threats to the activities of enterprises arises, which is becoming one of the most essential tasks of science and practice.

The economic security of an enterprise is a complex concept that includes a set of factors related not so much to the internal state of the enterprise itself as to the impact of the environment and its entities with which the enterprise is interconnected.

This article aims to model measures to ensure an integrated system of economic security for enterprises in the context of digital transformation.

The research goals include the following:

1. Development and implementation of a modern concept of enterprise security in the digital economy.
2. Development of a set of organizational tools that ensure the transformation of enterprises' economic security in the digital transformation process.
3. Modeling the economic security system of an enterprise in the digital economy.

## LITERATURE REVIEW

There are two main approaches to defining the essence of the concept of economic security of an enterprise. According to the first approach, the economic security of an enterprise can be viewed as a hypothetical absence of danger and the possibility of any threats to its functioning (Shlykov, 1999; Tambovtsev, 2009; Sokolenko, 2019; Razdina, 1998); Baranovsky, 1999; Belokurov, 2017; Blank, 2005; Varnalii, 2009; Ekonomichna entsyklopediia, 2000), etc.

The second approach to the definition considers the economic security of an enterprise as its absolute protection from danger, i.e., the ability to maintain its own independence and realize its interests despite the presence of unfavorable factors (Stachowiak, 2012; Vasylytsiv, 2008; Grunin, 2002; Dovbnia, 2008; Yevdokimova, 2005; Zubok, 2002; Ivaniuta, 2009; Kamlyk, 2005; Kovalev, 1998; Ortynsky, V.L., 2009), etc.

Thus, scholars define the economic security of an enterprise as the protection of its scientific, technical,

technological, production, and human resources potential from direct (active) or indirect (passive) economic threats, for example, related to ineffective scientific and industrial policy of the state or the formation of an unfavorable external environment, and the ability to reproduce it. Within this approach to defining this category, it should be noted that the state of enterprise security is dynamic. The internal threats to enterprise security are no less dangerous than external ones, and the system of economic security of an enterprise is closely linked to the system of ensuring the economic security of the state (Kozachenko, 2003; Kryvoviaziuk, 2013; Kuzenko, 2004; Loginov, 1999; Marushchak, 2005; Marchuk, 2003), etc.

There are various classifications of threats to the economic security of an enterprise concerning the subject of the threat. They can be external and internal (Oleynikova, 1997), (Bandurka, 2003; Shkarlet, 2007), etc. The influence of the external environment causes external threats:

- ◆ political and economic instability;
- ◆ consumers' increasing demands on the quality of the company's products while reducing consumption;
- ◆ changes in the structure of the market for goods and services,
- ◆ changes in financing conditions and complications in the process of attracting credit resources;
- ◆ disruption of economic ties between enterprises that make up a single technological chain;
- ◆ an imbalance between production, procurement, and processing industries;
- ◆ low level of resource-saving;
- ◆ aggravation of global environmental problems, etc.

The state of the enterprise causes internal threats. At the same time, internal factors can strengthen and weaken the effect of external threats and vice versa. Internal threats to the economic security of an enterprise include:

- ◆ increase in production costs as a result of the inefficient organization of production and management processes;

- ♦ significant management costs due to the lack of optimization of budget management systems, management accounting policies, financial planning, and financial analysis at the enterprise;
- ♦ slow response and adjustment of production and management processes in the event of changes in environmental requirements, etc.

When talking about the digitalization of the economy, many people try to define this phenomenon first. However, experience has shown this is challenging, as the usual definition needs to cover this phenomenon. Therefore, examining the fundamental changes in traditional business management models is vital to avoid making mistakes and jumping straight to the results of digital business transformation. E-commerce business administration students' awareness of the role of digital marketing (Bazuhair, N.A.S. 2023) and an in-depth historical and bibliographic review of the state and future directions of modern digital payments (Kesavan, V. & Srinivasan, K.S. 2023).

Today, digital technologies and their widespread use have created the potential for entirely new business models. However, the majority of organizations are either at the initial stage of the digital transformation process or have yet to decide to form a digital business model that will allow them to reap the real benefits of digital technologies. Given the tremendous pace of global digitalization, adapting the best digital transformation practices is imperative to improve the Russian economy as soon as possible. Based on this, let us consider the process of researching new and adapting existing management models.

The threats can be indirect, act under additional conditions, and manifest themselves directly by causing negative changes. Threats to the economic security of an enterprise depend on the source. They are divided into objective and subjective. Objective threats arise without the enterprise's or its employees' participation and will and do not depend on management decisions. They include the state of the financial situation, scientific discoveries, force majeure, etc. Subjective threats are caused by intentional or unintentional actions of people, various prosecutors, and organizations, including state and international competitors. That is why

their prevention is related mainly to the impact on economic actors.

In turn, sources of threats to economic security can be external and internal. External sources of threats include:

- ♦ market situation;
- ♦ changes in demand, exchange rates, a product line of loan costs, and increased competition;
- ♦ unfair competition and other illegal actions of third parties directed against the company;
- ♦ threats to the company's reputation for financial, political, religious, and other reasons emanating from public authorities and organizations;
- ♦ industrial disasters, accidents;
- ♦ terrorist acts and natural disasters.
- ♦ Internal sources of threats include:
  - ♦ personnel actions;
  - ♦ imperfection or absence of a control mechanism for the enterprise.

## MATERIALS AND METHODS

The study uses general scientific methods, namely comparative, analytical, comparative, inductive, deductive, and the approach of definitions.

## RESULTS AND DISCUSSION

At this stage, other countries have different levels of digital technology implementation. In the mid-1980s, Chris Freeman recommended the concept of innovation systems. Based on this discovery, some countries have invented original, distinctive national innovation systems (NIS). Moreover, in those countries where these systems have proved to be significantly more effective, the process of introducing breakthrough technologies has been manifested. Today, many countries are trying to borrow this experience, based on some elements of the currently known NIS models, which contribute to the growth of productivity in production and management and the achievement of economic growth.

It is known that our country's scientific stock of knowledge in management is at the initial stages of development. In fact, because of this, the domestic experience of the management process has remained unnoticed in the debate on the development of

management by the world community. However, many economic studies have demonstrated four key models of effective governance: Japanese, American, European, and Arabic.

However, creating one universal management model is out of the question - each organization will have to develop a new version of itself, form its own unique image of the future (its place in the digital economy) and find a unique way to it. Instead, to model an adaptive enterprise model, we can present a roadmap for transitioning from a traditional enterprise to a digital one similar to many enterprises.

Carrying out the organization's digital transformation is crucial when digitizing and fundamentally reengineering business processes to move to the digital business format. After all, the main goals of digital transformation are to increase the speed of decision-making, increase the variability of processes, and reduce the number of employees involved in the process (decision-making and value chains). Sociality, mobility, analytics, and digital technologies are platforms for building a digital organization.

For clarity, let us depict an adaptive model of an enterprise that includes production stages (from idea, development, design, and procurement to manufacturing) and related financial activities, human resources, logistics, operation, support, partner networks, subcontractors, etc., as well as vectors of risk information flow to responsibility centers through dynamic programming using a coordinate system (a digital enterprise platform that covers all enterprise processes) and graph theory. The adapted digital enterprise management system's multi-vector state graph reflects how a particular indicator's state triggers the self-service system. First, information enters the system, where information processing by the enterprise's responsibility centers (employees, according to job descriptions) is calculated and controlled by breaking down the management task into several simple ones.

Thus, the entire organization's staff is entrusted with the solution of the firm's overall task as a division of responsibilities. All these processes take place based on a digital platform – a set of digital data, models (logic and algorithms), and tools (methods

and means), informationally and technologically integrated into a single automated functional system necessary for specialized management of a targeted subject area with a system of interaction between the involved entities. At the same time, all information about operational processes and process performance is available in real-time in the integrated network of a digital organization - a self-service system. That is, instead of automating the work of customer service personnel, it is possible to develop self-service systems, minimizing the number of intermediaries between the client and the final service or product. Therefore, it is valuable that the client can easily manage its sizeable corporate network, improve it and introduce new services. Understanding and assessing an enterprise's economic security level requires knowing the factors that determine it. Factors of economic security of an enterprise are a set of conditions that affect security parameters. There are external and internal factors. External factors can be divided into three subgroups:

- ♦ **Macroeconomic:** the stage of development of the country's economy, stability of economic legislation, inflation, currency parity, purchasing power of the population, state of the financial system, government policy (antitrust, investment, tax, innovation, foreign economic, and pricing);
- ♦ **Market:** consumer and production demand, price levels for raw materials and finished products, competition dynamics in the region and the industry where competitors are entering, market capacity, and counterparties' solvency;
- ♦ **Others:** the pace of scientific and technological progress, demographic trends, crime rates, natural and climatic factors, etc.

The set of internal factors of economic security can be divided into the following groups:

- ♦ **Financial:** structure and liquidity of assets, capital structure, equity, profitability, need for investment projects, dividend policy;
- ♦ **Production:** use of current and fixed assets, condition and structure of fixed assets, quality control system, cost structure;

- ♦ Personnel specialized management structure, staff motivation, remuneration parameters, differences in development strategy, staff qualifications, and structure; level of rationalization activity of the event;
- ♦ **Environmental:** introduction of new technologies; implementation of environmental protection measures.

An enterprise's economic security level depends on how effectively its management can prevent the emergence of internal and external threats and eliminate the harmful effects of specific harmful components of the external and internal environment.

The main goal of managing the economic security of an enterprise is to ensure its sustainable and efficient functioning in the current environment, creating the potential for development and growth in the future. The main functional objectives of enterprise economic security management include the following:

- ♦ formation of the necessary corporate resources (capital, personnel, rights, information, technology);
- ♦ strategic and tactical planning of the company's financial and economic activities;
- ♦ tactical mapping of economic security by its functional components;
- ♦ conducting a functional analysis of the level of economic security.

Fulfilling each listed goal of the enterprise's economic security is essential for achieving its primary purpose. In addition, each functional objective of economic security has its own structure of sub-objectives, determined by the operational feasibility and nature of the enterprise's operation.

The main tasks of the enterprise economic security system include:

- ♦ protecting the legitimate rights and interests of the company and its employees;
- ♦ collecting, analyzing, evaluating data, and forecasting the company's development;
- ♦ preventing the penetration of economic intelligence structures of competitors, organized

crime, and individuals into the company with illegal intent;

- ♦ ensuring the safety of material assets and information constituting the company's trade secrets;
- ♦ collecting the necessary information to develop the most optimal management decisions on the strategy and tactics of the company's economic activities;
- ♦ physical and technical security of buildings, structures, territory, and vehicles.

An enterprise, as the leading economic link of the state's national economy, must, during the planned period, stably provide its consumers with products, profit, income, salaries of personnel and staff, standard working conditions, and the possibility of professional growth and acceptable risk.

In this regard, a large and complex task arises, namely, the creation of a cluster system of economic security of the enterprise, which would ensure stability, sustainability, profitability, and most importantly, the economic security of the production functioning of the enterprise.

At present, one of the most effective approaches and methods is developing and applying a cluster management system for interconnected and interacting various homogeneous and heterogeneous enterprises to produce and sell competitive products above the market.

The main functions of the enterprise's production and economic activity should be determined to design a cluster system for ensuring its economic security.

When considering a cluster as a complex system and defining cluster management subsystems, one should consider the horizontal and vertical objectives below the existing firms and organizations. Then it is necessary to identify the linkages that produce spin-offs or services.

Ensuring economic security was seen primarily as information security. The problem of economic security of an enterprise in this context was proposed to be solved based on the premise that the reliability of the entire information security system is determined by the level of security of its weakest link, which is considered to be the organization's personnel.

Ensuring the economic security of the enterprise was built in the form of a two-level information security system. The first level provided for the preservation of secrets by the organization's security service, and the second level provided for the formation of a psychological atmosphere of "vigilance and responsibility" and the organization's personnel with the help of so-called coordinators appointed from the middle management and enjoying authority among employees.

## CONCLUSION

Recognizing that information security is one of the critical aspects of the economic security of an enterprise, it should be noted that reducing the problem of economic security of an enterprise to the protection of trade secrets is an overly simplified solution to this problem. Moreover, such a narrow understanding of economic security only considers part of the spectrum of environmental impact as the primary source of danger to the enterprise.

A little later, a different approach to the interpretation of the concept of economic security of an enterprise was used. The sharp decline in production in the country's early years, and most importantly, the change in the state's economic functions, which was no longer the principal investor and consumer of products, forced a much broader review of the problem of economic security of enterprises.

According to this view, the economic security of an enterprise is conditioned by the influence of the external environment, which in a market economy is constantly changing and never remains stable or unchanged. Therefore, from the standpoint of environmental influence and protection of enterprises from its negative impact, the content of an enterprise's economic security category is considered, including in the few publications of domestic economists so far.

The cluster system approach and modeling methodology described above, as well as the tools for analyzing and diagnosing the state of an enterprise, allow for a sufficiently complete study of the complex factors that threaten the economic security of an enterprise, meaningful and purposeful organization, and implementation of the necessary indicator monitoring, which will allow for systematic research and analysis of the dynamically

changing socio-economic environment and conduct a feasibility study of management decisions.

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