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## INFLUENCE OF DIGITAL TRANSFORMATION ON ECONOMIC SECURITY OF ENTERPRISES

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**Abstract.** *The article considers possible ways to reveal the impact of digital transformation on the economic security of companies. The analysis of theoretical and methodological approaches to the disclosure of the economic essence of economic security of the enterprise in a turbulent environment and digitalization of the economy has identified six vectors of modern scientific achievements on the economic security of the enterprise. The purpose of the study summarize theoretical studies of economic security, analyze and describe digital transformations, perform an assessment of the impact of digital transformations on the economic security of enterprises. It is determined that the development of the modern system of economic security of enterprises consists in its adaptation to application in the conditions of digital transformations. The theoretical basis of formation of the adapted system of economic safety of the enterprise is formed, the basic principles of adaptation are formulated; the main stages of adaptation are highlighted; a structured model of the adapted system of economic security of digital transformations of enterprises is developed.*

**Keywords:** *economic security, digital transformation, digital economy, levels of government.*

### Introduction

The economic activity of enterprises in real time is carried out in a transformational environment, characterized by reforms in the political, economic, social spheres of life and the formation of a new worldview on the development of economic systems and digitalization. At the same time, the enterprise, as an open system, suffers from the destructive impact of threats and risks of transformation processes, where a digital transformations have a lead role, which requires the creation of an effective mechanism of economic protection and its adaptation to functioning in conditions of significant change.

The need to improve the theoretical and methodological basis of the economic security of enterprises is also due to the disorder and inconsistency of reforms in the national economy, the weakness of industrial policy to protect domestic business from threats to the internal and external environment, European integration transformations and processes of world globalization and increasing competition.

Nowadays, many scientists discuss different aspects of the growth of economic security and its impact on the economic growth in their works. Economic security is a key concept in international economic relations. Nowadays the analysis of economic security concept became as urgent as it has never been earlier. There are a lot of approaches exist to covering analysis of the economic security. The process of economic security maintenance is carried out differently

in each period of the history. That is why, economists have been keeping an eye on measuring it. When analyze such scientists as Zolkover (2020), Bloom (2010), Bjørnskov & Foss (2016), Chandra (2015), Muntiiian (1999), Huber, Rehm, Schlesinger, and Valletta (2014), Ocepek (2010), Tamošiūnienė (2015) and others we can see that various aspects of the theory, methodology and practice of formation, functioning and maintenance of the economic security system are presented in the scientific works of the scientists. After analyzing the scientific works, economic security can be seen as a preparatory state of the economy to ensure decent living conditions and the development of social and economic stability and military and political potential of society and the country in order to eliminate internal and external risks.

Many scientific works are also devoted to the study of the problems of digital transformation processes and their destructive impact on economic security, among which the works of Schwertner (2017), Tiutiunyk (2021), Kevin Zhu (2006), Tay (2021), Ioan-Franc (2012), Osberg (2009), Sedkaoui (2019), Ivančić (2019), Yang (2022) stand out. The authors emphasized that the priority task of ensuring economic security, which is especially noticeable in the context of digital transformation and rapidly changing conditions of the modern global world is to predict the challenges and threats of universal digitalization. It is shown that in the conditions of the development of the digital economy, which include the presence of intellectual assets, an increase in the significance of data, a network organization of management, a wide the introduction of the Internet and the global nature of data exchange. To the main problems of economic The problems of "digital inequality", lack of own element base, changes in the labor market, industrial espionage, manipulation of personal data are attributed to security and others.

However, despite the wide range of scientific interests in these areas and the importance of their results, the actual problem of adapting the system of economic security of an enterprise, its mechanisms and technologies to work in a digital economy remains unresolved. The relevance of this study, its practical orientation and the insufficient level of proper theoretical and methodological support determined the choice of the topic, purpose and objectives of the study.

The purpose of the study summarize theoretical studies of economic security, analyze and describe digital transformations, perform an assessment of the impact of digital transformations on the economic security of enterprises

To achieve this goal, it is necessary to solve the following tasks:

1. to conduct a critical analysis of the scientific and theoretical foundations of the system of economic security of the enterprise, to clarify the content of its main definitions;
2. find out theoretical and methodological foundations for the development of an enterprise economic security system adapted for use in the context of digital transformations;
3. systematize the risks of digital transformations and determine methods for their assessment;
4. develop methodological foundations for improving the economic security of enterprises in the context of digital transformations;
5. substantiate proposals on the directions of adaptive development of the system of economic security of enterprises in the context of digital transformations.

The object of research is digital transformations and their influence on the economics security of enterprises

The subject of the research is the methodological foundations and tools for ensuring the economic security of enterprises in the context of digital transformations.

Research methodology. Theoretical and methodological basis of research are the fundamental provisions of modern economic theory, general and special methods, techniques and principles of knowledge in the field of economic security, including: morphological analysis, abstraction and logical awareness (to clarify the conceptual and categorical apparatus in economic security), system analysis and synthesis (to determine the relationships), monographic and review-analytical (for the study of scientific views and concepts, abstract-logical generalization - to form goals, objectives, justification of relevance and concepts, formulation of conclusions and proposals).

Theoretical and methodological developments and proposals are based on empirical and dialectical study of scientific works of leading domestic and foreign authors on the application and development of economic security.

### **Theoretical and methodological basis formation of the adapted system of economic security of enterprises**

Permanent changes and transformations in various environments influence over economic processes, highlighting the goals of ensuring a sustainable, secure economy and equalizing the impact on a number of multi-vector factors. Moreover, the urgent meetings need of economy, which is constantly transformed, is an immediate solution of the problems of continuous management improvement and rapid adaptation to current day management challengers. Modern market relations require a number of tasks. The management and assessment of economic security of the business structure are on the top of particular importance. Therefore, in order to have a clear understanding of efficiency in economic activity, it is necessary to study the economic category of "economic security of an enterprise."

Sustainable development of enterprises activity requires improvement of the economic security management system. Therefore, there is a need for a critical analysis of the scientific and theoretical basis of the system of economic security of business in order to clarify the content of its basic definitions. According ILO report (2004) economic security promotes happiness, and is beneficial for growth and social stability. In the human development report, "economic security" is one of the factors, which influence over human security. "Economic security" is provided as the basic income of each citizen from their own work as a contribution to society in this report (Human Development Report, (2020). In global point of view, economic security is a foundation of well-being. Economic security will ensure economic stability, which predictability enables people to plan and invest in their future and that of their children. They encourage innovation, reinforce social connections and build trust in others and in institutions.

Security and development of the economy are two main dimensions of the existence of humanity in common and modern communities in particular. The problems of the economy security is the field of researchers of number of the leading foreign and domestic scientists: Blank (2014), Schinasi (2014), Hough (2008), Kahler (2004), Kirchner (2013) Kenyon-Rouvinez (2017), Luciani (1988). However, the permanent digital transformation of the economy encourages entrepreneurs to constantly monitor changes in their areas of activity, the parameters of markets and competitors. Almost all researches on economic security to a greater or lesser extent provide an interpretation of this category. Every author's interpretations has the right to the existence, as it corresponds to the goals and objectives of a particular scientific study. But this does not solve the problem of the need to formulate a unified approach to awareness of economic security category.

The importance of the concept of economic security is also seen in the fact that researchers give it an important role in national security, as the economy is the driving force of planning, organizing and focusing on the best use of resources aimed to provide basic livelihoods and to the improvement of citizenship. National and international economic security has been studied in the same way as the security of the individual, because in today's globalized world there is no completely independent country Denoon (1986), Nemchenka (2018).

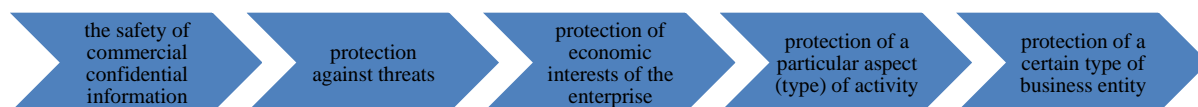
Analysis of scientific sources shows that there are several approaches to defining the definition of "economic security of the enterprise". To conduct a detailed analysis, there is a need to systematize of scientific approaches to this issue, provided by other scientists. It should be noted that each of the scientific views is based on the functional purpose of the system of economic security. The main functional tasks of economic security are (Sazonets (2015)):

- ensuring high level of the financial efficiency, financial stability and independence of the enterprise;
- ensuring technical independence and achieving high competitiveness of the technical potential of the facility;
- achieving a high level of staff qualification and its intellectual potential, proper efficiency of R&D;
- minimization of the destructive impact of the results of production and economic activities on the environment;
- high-quality legal protection of all aspects of the enterprise (organization) ;
- ensuring the protection of the information field, and achieving the required level of information support for the work of all departments of the enterprise and departments of the organization;
- effective organization of security of the enterprise' human resources, its capital, property and commercial interests.

A review of scientific publications for the period 2010-2021 such authors as Del Bo(2017), Graf (2020), Ritter (2013), Shulga (2011), Lyashenko (2012), Schinasi (2014), Bjørnskov (2016), Gromyko, O.I. (2016) Ianioglo (2016) Yang (2022) allowed to systematize chronologically the approaches of the economic security category. The review identifies several such approaches:

- 1) providing conditions for the safety of commercial confidential information;
- 2) as protection against the negative impact of the external environment;
- 3) as protection of economic interests of the enterprise;
- 4) as protection of a particular aspect (type) of activity;
- 5) as protection of a certain type of business entity;
- 6) as a complex of economic relations.

This systematization, in our opinion, gives an idea of economic security as a complex of relations to protect the enterprise, its interests and activities from disclosure of commercial confidential information and threats to the environment. The author shows how scientific interests regarding the objects of economic security have evolved over time (Figure 1):



**Figure 1. Evolution of approaches to the interpretation of the category "Economic security of the enterprise"**

*(Source: created by the author, based on the systematization of the previous research)*

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Analyzing the changes in approaches to interpretation, taking into account the chronology of Zachasova (2017), it is proposed to consider different types of approaches with the definition of the period of their appearance: resource (2002); capable (2003); procedural (2008); complex (2009); harmonization (2010); mixed (2010); system (2014).

The result of the review of the existing systematizations of scientific approaches to the definition of the category "economic security of the enterprise" is presented in the form of a matrix (Table 1) and allows highlighting four logically ordered groups of approaches, namely:

1) Economic security of the enterprise as a state of protection from threats to the internal and external business environment (activities) and corporate interests.

2) Economic security of the enterprise as a state of safety of commercial confidential information and property

3) Economic security of the enterprise as a state of use of corporate potential.

4) Economic security of the enterprise as its identification with the management system of the enterprise.

Now it possible to provide the following conclusions:

1) There are several approaches to defining the definition of "economic security of the enterprise" in scientific research which are used in the scientific literature based on the objectives of scientific research and the preferences of their authors.

2) We consider the most rational approach to the definition of this category based on the main function of the economic security system - protection against threats.

3) The definition of terminology is only the beginning of painstaking scientific work in the research areas of the economic security of the enterprise.

At the same time, the system of enterprise management should deal with the issues of ensuring the realization of economic interests.

Similarly, the system of economic security can not provide competitive advantages of the enterprise, but can protect them. As for protection against economic crimes, in the system of economic security of enterprises it should be considered as a component of protection against internal and external threats.

Thus, the system of economic security can not "replace" the management system of the enterprise, performing its functions. This understanding should be reflected in the interpretation of the category of "economic security of the enterprise".

As the analysis of the definition of "economic security of the enterprise" has shown, this definition becomes more complicated with each new research. Each next authors tries to add and bring elements of novelty in the interpretation of this category. On the one hand, it reveals in more detail the individual structural components of the category, which allows to expand the boundaries of the worldview of users. On the other hand, it complicates the perception of information about the essence of the category, because it contains too much information.

**Table 1. Matrix of systematization of approaches to the definition of the category "economic security of the enterprise"**

(Source: created by the author, based on the systematization of the previous research)

Scientific approach	Components									
	protection from threats	protection of corporate interests	protection from mercenary crimes	ensuring the safety of property	preservation of trade secrets	state of use of corporate resources	identification with the stability of the enterprise, ensuring stability and progressive development, the ability to reproduce	providing competitive advantages	harmonization of interests	measure of economic freedom
Economic security as a state of protection from threats to the internal and external business environment (activities) and corporate interests	+	+	+	+		+	+		+	
Economics security as a state of protection from threats to the internal and technical business environment (activities) and corporate interest			+					+	+	+
Economic security as a state of use of corporate potential				+			+		+	+
Economic security as an identification with the management system of the enterprise	+		+			+	+	+	+	+

In our opinion, the interpretation of the category should be concise, short-spoken and most certainly provide the main message to the user. That is why we propose in the interpretation of this category to separate the essence of security from the need to provide appropriate management functions.

We believe that the most significant content load is borne by such structural components that most accurately reflect the main task of the economic security of the enterprise: to protect the economic interests of the enterprise from threats of various sources.

Thus, the economic security of the enterprise - a state of protection from external and internal threats in the economic space of the enterprise, which are caused by reasons of different sources, which are connected to the realization of its economic corporate interests.

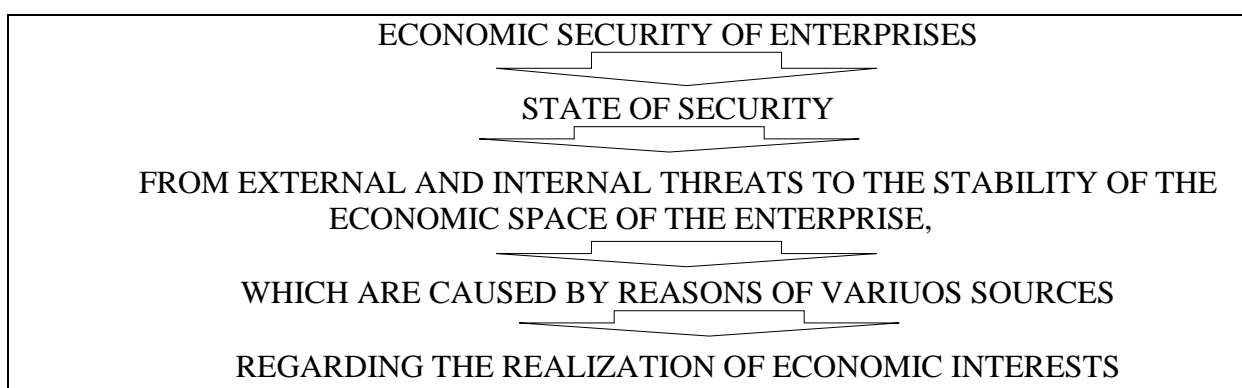
To clarify the content of the category "economic security of the enterprise", the model of conceptual structuring of this category was built (Figure 2).

The study of the organization and functioning of the economic security system is multi-vector, which significantly expands the knowledge of the processes of protection of the



economic system from threats and dangers of endogenous and exogenous environment, which negatively affect the financial condition of the enterprise, competitiveness and sustainable development. The choice of the vector of scientific preferences determines the structure and content of the theoretical basis of the study. The choice of scientific direction is formed according the degree of mastery of various areas of economic security and the relevance of the accentuated problem aspects of the selected vector of research. In such circumstances, it is important to study the range of scientific interests in the field of ensuring the safe operation of the country, its individual regions and enterprises.

Many fundamental works in the form of dissertations, monographs, scientific manuals and individual scientific and popular science articles and reports of foreign and domestic authors are devoted to the study of topical issues of organization, functioning, management, support and other aspects of economic security.



**Figure. 2. Basic model of conceptual structuring of the category "Economic security of the enterprise" Source: own development**

The modern market conditions industrial and non-industrial enterprises are operating under pressure from both pre-planned and unpredictable processes, which have both positive and negative impact on the economic system of the enterprise. In such conditions, there is a growing need for an effective mechanism for protection against the negative consequences of such processes. At the same time, the economic system of the enterprise is a reduced version of the economic system of the country as a whole, like each individual family, which presents a model of society.

According the researchers of Cable (1995), Tamošiūnienė (2015), Blank (2014), Pugach (2014), Osberg (2009), Tsevukh (2010), Franchuk (2010), Voynarenko (2008), the studying the theoretical foundations of the economic security system at the enterprise it is possible to provide an effective system of protection against threats and dangers, which can be partially implemented for more complex economic systems.

Thus, six vectors of modern scientific achievements on economic security of the enterprise are defined:

- 1) research of theoretical aspects of the system of economic security, systems of its provision and management at the level of enterprise;
- 2) research of economic security of the enterprise according separate functional components;
- 3) research of economic security of enterprises in various industries;
- 4) research of economic security in certain areas of activity;

- 5) research of economic security by certain types of enterprises;
- 6) research of economic security under different conditions of the economic environment of the enterprise

The relevance of the research of the security of the economic space of enterprises under the conditions of digital transformations is based on the general economic destabilizing factors, factors of industrial development and business security factors.

Thus general economic destabilizing factors are:

- 1) Lack of domestic or adapted to national conditions for example in Ukraine model of market transformation on a market basis (Radchenko (2014), Pogorelov (2017), Shulga, I.P. (2011), which provokes disorder and unsystematic changes in the economic and financial system and threatens the economic system and financial condition of the enterprise.

- 2) The processes of globalization and European integration accelerate the integration of Ukraine's economy and its enterprises into the world community, intensify foreign economic activity, and increase pressure from international corporations and the influence of world organizations (e.g. the International Financial Bank). Establishing new business relationships, mastering new rules of the business game act as a catalyst for increasing the probable riskiness of business projects.

- 3) The growth of competition in the food market and the challenges of food security require qualitative changes in the technology of cultivation and processing of agricultural raw materials, production, transformed quality management systems, inventory management and more. The introduction of technological innovations is a kind of challenge for the system of economic security.

- 4) Unavailability of industrial policy in country to protect the domestic food business from threats to the internal and external environment.

According to the results of research, the following conclusions can be made:

- research of economic security of the enterprise is multi-vector;
- globalization and European integration changes expand the range of scientific interests on the security of transformations of internal and external nature.

The development of the economic system of society in real time constantly provokes the creation of various transformational models. Institutions of property, investment and innovation development and foreign economic activity, the monetary system, the system of taxation and social insurance are subject to transformation. The external transformation processes that take place affect the economic system of the enterprise indirectly through changes in current legislation. Such changes can have a significant impact on the business of the enterprise and lead to transformations of its financial and economic system.

The economic system of a modern enterprise is an open system, the functioning of which is significantly affected by the transformation processes of endogenous and exogenous environment, leaving negative consequences, reducing business efficiency and justifying the growing need to protect corporate interests.

In our opinion, it is interesting for this study to define "transformation" as a process of "qualitative and quantitative transformations" in the economic system, "changes in its form and content, adequate to the historical stages of society" (Gromyko (2016)). We believe that considering these two categories, taking into account the nuances of business organization, you can create a comprehensive system in which the threats and risks of transformation processes are leveled with the tools of the economic security system.

The economy of the enterprise is necessarily affected by changes and transformations that occur at different levels of economic development of society: global, macro, meso and macro.



Conversely, the transformation of specific enterprises as a whole, through the impact of their results on the higher-level economic system, contributes to the creation of new institutions, reforms, namely causes the need for appropriate transformations, including legislation and institutional support. At the same time, the change in the worldview of business owners regarding the goals and basic concept of business contributes to the evolutionary transformation of corporate policy and directions of strategic approach to transformation processes and their provision. At its own discretion, transformations are carried out that contribute to the implementation of strategic plans of the enterprise to ensure its corporate interests. The driving force for "internal" transformations can also be crises in the enterprise itself, which are seen as "an opportunity for change" according Pgorlov (2017).

In its turn, the digital transformation of different levels of the economic system affects the economic (financial and economic) system of the country, industry, region, enterprise, respectively, and also necessitates transformations of this system. Analysis of research on the mutual influence of transformations and systems of economic security of different levels (Tkachuk (2019) allowed to build a flow chart. On the other hand, transformational processes can begin under the influence of market processes (inflation, fierce competition, the course of European integration, the global food supply problem, etc.) in accordance with the adopted corporate policy. For food companies, a market competition is a powerful impetus. On the way to ensuring a decent level of competitiveness, companies significantly change (transform) the concept of business, corporate policy, their strategy, transform technology and methodology.

Under such conditions, the company has a need to ensure the safety of such processes, namely the need to minimize the negative impact of these processes on the business of the enterprise and its financial condition. The system of economic security of the enterprise is a guarantor of the security of his business from the negative impact of threats.

The study shows that the economic security of enterprises is strongly influenced by:

- digital transformation processes that take place at higher levels of the economy;
- digital transformational transformations, which can be both internal, caused by the requirements of modern market economy, are evolutionary in nature, often initiated by the enterprise itself, and external, which are often forced on the enterprise, often have a revolutionary character;
- digital transformational transformations of different nature.

The processes of transformation that take place in the economic space of the enterprise carry with them certain risks and threats, namely are reflected in the level of economic security of the enterprise as a whole and complicate the system of its provision. In order to prevent the negative impact of probable threats, the current system of economic security of the enterprise can be used, which should be investigated and tested accordingly.

The study of the economic security management system at the enterprise in the scientific literature is proposed to be carried out in three aspects: "formation and operation of the economic security system, economic security activities, assessment of the achieved level of economic security" according Tay (2021).

In our opinion, it is necessary to study the system of economic security of the enterprise, given the capabilities of this system to provide the necessary level of security against potential threats, provided the operation of the business in a period of significant transformation. In view of this, the methodological approaches to the study of economic security, taking into account the impact of transformational transformations should be expanded by studying the characteristics of the transformations themselves.

The algorithm for creating a system of economic security of the enterprise in terms of transformational transformations involves the implementation of sequentially ordered steps: development of the concept, development and approval of corporate economic security policy; development of a system of economic security and its management

Thus, the object of the conceptual approach is the probability of achieving the maximum possible stability of the economic system of the enterprise in the presence of risks and threats of transformational transformations. The subjects of ensuring the security of enterprise transformations are the management of the enterprise, structural units for economic security.

Given the above, we believe that “the proposed concept of safety (security) of transformations of the enterprise is that t transformations can be considered safe if the existing system of economic security of the enterprise is able to predict, identify and assess potential threats and negative trends. these transformations, to provide the maximum possible protection against their influence, to develop and promptly implement measures to prevent and eliminate their consequences.

Since our approach is based on the assumption that the company already has a system of economic security, we consider it appropriate to take as a basis its system of support and methods and pay special attention to improving the methods of monitoring, diagnosis and testing of the system.

### **Methodological principles of diagnosis and assessments of economic security of the enterprise in conditions of digital transformation**

Digital transformations for a modern enterprise are significant, large-scale and profound changes. These changes are happening in the digital transformation environment of the enterprise under the influence of endogenous and exogenous factors and lead to significant transformations of type, form, content, functions and corporate policy. In a crisis economy, the most common digital transformations are forced ones, because such kind of economic transformations arise from changes in existing legislation.

Classification of modern enterprise’ transformations is a basis for formation of the effective mechanism of maintenance of the identification processes of threats of transformational processes, an estimation of negative influence of their consequences, formation of an investment portfolio of protection measures. Thus, the chosen topic of research is relevant for modern business, and its study will contribute to the development of economic security of the enterprise.

The beginning of the XXI century can be called "the Era of digital transformation". Many scientific articles, conference abstracts and monographs are devoted to the transformation processes, namely the problems of their organization, implementation, classification, etc. Thus, we can also include such scientists as Tiutunyk (2021), Yang (2022), and others to the number of scientists concerned with the transformation of economic systems.

To be in line with transformations’ research, we will have further study the scientific approaches to the classification of digital transformational processes of enterprises in the point of view of their impact on the economic security of the economic structure.

We will study the typology of digital transformations of the enterprise in terms of the functioning of enterprises in a certain transformational environment. Under the environment of digital transformations that affect the level of economic security of the enterprise, we understand the set of conditions for the functioning of the business entity (enterprise), which

are provided under the influence of threats and dangers of external and internal transformation processes.

External factors of influence for enterprises can be political, financial, economic, market and social. It is necessary to highlight the factors that arise in accordance with the processes of globalization and European integration, the problems of food security of non-European countries and its individual regions.

Internal factors are driven by corporate business goals, financial condition of the enterprise, requirements of technical, technological and resource provision of economic activity (production) and problems of ensuring a healthy socio-psychological climate.

In terms of the impact on the danger level and the depth of significant changes that arise from transformation processes, we propose to study the transformation and their impact on the economic security of the enterprise in two directions:

- exogenous transformation processes caused by external causes;

- endogenous transformation processes, arisen from internal causes. We propose to build a typology of transformations that affect the economic security of the enterprise, based on the following statements (postulates):

- 1) Transformation processes of an economic entity is being driven by the influence of external and internal factors and may be mandatory (compulsory) or carried out on the digital initiative of the enterprise.

- 2) Any digital transformations affect the level of economic security of the enterprise due to the risks and dangers that arise.

- 3) The impact of digital transformation processes on the safety of activities and business in general can be different in form, duration, cyclicity, degree and depth of impact, level of materiality and content. For the organization of an effective system of economic security at the enterprise the main role is played but by its consequences, but not by the content of transformations.

- 4) External digital transformations have an impact on the economic security of the enterprise directly or indirectly through having the need for internal transformation processes.

- 5) Each individual enterprise has an individual system of priority digital transformations of its economic system, which arise from specifics of the organization, operation and management of business.

- 6) The process of digital transformation of the growing economic system of an enterprise is constant, often cyclical, may change, but never ends.

It is necessary to choose classification features in view of usefulness for construction of effective adaptive system of economic security of digital transformations.

The following criteria can act as assessments for the effectiveness of an adaptive economic security system:

- 1) the ability to predict (forecast) digital transformation processes and their threats;

- 2) the ability to identify current threats in a timely manner;

- 3) the ability to assess the level of negative impact of digitalization (if any);

- 4) the ability to form an effective mechanism for ensuring the security of digital transformations;

- 5) the ability to promptly implement protection measures;

- 6) the ability to implement preventive measures.

Table. 2 provides priority features of the classification of digital transformations in view of their impact on the level of economic security of the enterprise, according to which]:

- the input information on digital transformations is determined in accordance with the criteria of efficiency of the system of economic security of digital transformations;
- the classification features of digital transformations are determined according to the composition of the basic characteristics

The selected criteria for the effectiveness of the economic security system in the conditions of digital transformations are based on the principle of adaptability. They include: the ability to predict (forecast) digital transformational processes and their threats; ability to identify current threats in a timely manner; ability to assess the level of negative impact; ability to form an effective mechanism for ensuring the security of transformations; ability to promptly implement protection measures; ability to implement preventive measures.

**Table 2. Priority features of classification of digital transformations in view of their influence on the level of economic security of the enterprise.**

*(Source: created by the author, based on the systematization of the previous research)*

Criteria for the effectiveness of the system of economic security of digital transformations	Basic characteristics of digital transformations	Classification features of digital transformations
1. Ability to predict (predict) digital transformation processes and their threats	The period and timing of the digital transformation Probability of its implementation	Probability of prediction Duration Cyclicality Nature of influence
2. Ability to identify current digital threats in a timely manner	Objects of digital transformation Priority directions of digital transformation processes The main features of transformations	Transformation objects due to the digitalization process Priority Duration Cycle The nature of the impact Initiatives
3. Ability to assess the level of negative impact	Consequences and types of negative impact of digital transformations	The results of the impact on business security
4. Ability to form an effective mechanism for ensuring the security of digital transformations	Objects of digital transformations The purpose of transformations	Objects of digital transformations The purpose of transformations
5. Ability to promptly implement protection measures	Types of economic danger Probable consequences of negative impact	Types of economic danger Consequences of negative impact
6. Ability to implement preventive measures	Motives of digital transformation processes and factors (reasons) that caused them	The purpose of implementation

Based on certain features, we propose to implement the classification of digital transformations of the enterprise, which contains 6 classification groups. These groups are the

basis for the formation of theoretical and methodological foundations of economic security of the enterprise: the content of priority digital transformations, the depth of impact on economic security, the duration of the digital transformation process, the probability of prediction, the cyclical nature, the types of economic hazards, the consequences of negative impact (Table 3).

As shown in Table. 3 the purpose of digital transformations of the modern enterprise can be various, namely:

- liquidation of consequences of crisis processes or events (losses) (liquidation digital transformation);
- ensuring a stable state (compensation);
- ensuring sustainable digital development (progressive, innovative);
- ensuring economic breakthrough (revolutionary).

In a crisis economy, the most common digital transformations are forced ones, as such economic transformations are due to changes in existing legislation.

To form a classification group of digital transformations by types and content, the well-known approach of four types of enterprise transformation is taken as a basis: "transforming from market mechanisms to domestic economic and vice versa (integration and disintegration), reform of rights (reorganization), regrouping of resources (restructuring), regrouping of processes (reengineering).

**Table 3. Classification of digital transformations that affect the economic security of the enterprise.**

*(Source: created by the author, based on the systematization of the previous research)*

Ref	Signs of classification	Types of digital transformations
1	For the purpose of digital transformations	- liquidation of consequences of crisis processes or events (losses) (liquidation transformation); - ensuring a stable state (compensatory); - ensuring sustainable development (progressive, innovative); - ensuring economic breakthrough (revolutionary);
2	By the nature of the impact	- under the influence of the external environment (exogenous transformation); - under the influence of the internal environment (endogenous transformation);
3	According to the priority of the direction of digital transformation	- priority; - regular (non-priority); - random;
4	According to the objects and content of priority digital transformations	- integration transformations; - transformation of the form of ownership of state property (privatization in the form of corporatization); - transformation of rights (reorganization); - transformation of resources (restructuring); - technology transformation (reengineering); - digital transformations;
5	The depth of the impact on economic security	- cardinal; - moderate; - significant; - insignificant;
6	The duration of the process of transformation	- current; - long-term;

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The following conceptual bases shows the author's vision of rationale of the enterprise of a choice of priority directions of digital transformations:

1. Possessing the prerequisite conditions for digital transformations. Such objective prerequisite conditions, in our opinion, are:

- consequences of world economic crises of the period of independence of non-European countries;

- reforming the economic management system of the number of the countries in order to build market relations – such as Ukraine's integration into international cooperation, focusing on cooperation with the European Union;

- the purpose and goals of economic development of the enterprise itself.

2. The existence of an objective reason for the implementation of digital transformations. We believe that the digital transformation of the enterprise may be caused by the need to:

- elimination of the consequences of crisis processes or events (losses);

- ensuring a stable condition;

- ensuring sustainable development;

- ensuring economic breakthrough;

- compliance with current legislation in other cases.

3. Availability of financial and resource potential, special institutions and tools for digital transformational processes. Transformations, which represent a qualitative change in the form and depth of structural elements of the system and the content of the system itself, require not only the need and desire to change something for the better. Nevertheless, they also need the real digital resource opportunity, manifested in the presence of appropriate production, human and financial potential, specific institutions (design bureaus, problem laboratories and business incubators) and relevant tools.

4. Theoretical consent of the owners of the enterprise to carry out the transformation. Any entrepreneur in accordance with the classical provisions of economic theory (A. Smith, J. Schumpeter), aims to generate income (in the modern sense - profit) and to achieve this goal is able to innovate and develop new technologies. These theoretical principles of entrepreneurial activity are inherent in modern industrial enterprise. Thus, business owners (entrepreneurs) should theoretically be ready for innovative changes, changes in outdated forms and methods of organization and management of basic economic processes, that is for transformations. However, such theoretical agreement occurs only in cases where the transformation contributes to the realization of the main goal of the enterprise (obtaining additional profits, strengthening the financial condition, increasing the level of competitiveness, etc.) and is not coercive in nature. There are cases of unforeseen force majeure (natural disaster, man-made accident, hostilities, economic crisis), when the owners of the enterprise agree to the transformation compulsorily. According to the above, in our opinion, we can highlight three types of the consent of business owners to carry out transformations. They can be voluntary, forced and compulsory. At the same time, events related to changes in economic policy at the state level are forced.

5. Ensuring economic security of digital transformational processes. Diagnosis of risks and threats that may be caused by digital transformations, assessment of the level of economic danger and development of measures to address, eliminate or prevent threats of such danger and eliminate their consequences.

Thus, we believe that digital transformations at the enterprise are carried out with the appropriate prerequisites and consent of the owners, due to objective reasons, the availability



of financial capacity and resource potential, special institutions and appropriate tools in the presence of economic security.

The growing enterprises are constantly changing. The organizational structure of production, business process management system, business technologies, scheme of communication with various contractors, etc. are changed or transformed. Even an enterprise that has slowed down or is in the process of liquidation, repeatedly feels the impact of the digital transformation processes, which take place in the national economy and society as a whole.

Such influence leads to both positive and negative consequences and brings with it threats to the safe operation of the enterprise.

Internal threats to the efficiency and economic security of the enterprise are related to the quality of the management system, timeliness and reliability of information for management decisions.

In our opinion, the portfolio of internal economic risks of the enterprise should include: property risk; personnel risk; corporate governance risk; information risk; innovation risk; commercial risk; financial risk; liability risk.

In our opinion, an important role should be given to the group of risks associated with the management system, because the competence of managers and the quality of their management decisions significantly affect the security of business processes and efficiency.

Undoubtedly, a special place is occupied by risks of financial and economic nature, which are the logical result of a set of the above-mentioned areas of risk. To this group we include the risks of reduced the level of profitability and loss-making, reduced solvency, increased likelihood of bankruptcy and liquidation of the enterprise.

An uncompetitive, financially unstable enterprise, which has no enough resources, does not implement innovative technologies of production and management, has very little chance to attract additional investment funds and realize corporate interests.

In this way, in the areas of economic risks, we can figure out the following groups of threats to the economic security of the enterprise:

- 1) threats to market risks;
- 2) threats to information and communication risks;
- 3) threats to resource and property risks;
- 4) threats to innovation and technological risks;
- 5) threats to financial and economic risks;
- 6) threats to investment risks

## Conclusions

According to the results of the researches of approaches to the definition of the categorical apparatus in the system of economic security, the concept of "economic security of the enterprise" has been clarified. The economic security of the enterprise in the conditions of digital transformations is considered as a state of protection from external and internal threats to the stability of the economic space of the enterprise, which are caused by transformational processes of different origin, in relation to its corporate interests.

It is determined that the development of the modern system of economic security of enterprises consists in its adaptation to application in the conditions of digital transformations. The theoretical basis of formation of the adapted system of economic safety of the enterprise is formed, the basic principles of adaptation are formulated; the main stages of adaptation are highlighted; a structured model of the adapted system of economic security of digital

transformations of enterprises is developed. The content of the category "adapted system of economic security of the enterprise" is formulated.

The main threats of priority digital transformations in view of the levels of economic interests and resource-functional determinants (constituent elements) of economic security of the enterprise are highlighted.

The constructive and destructive consequences of these threats to ensure the economic security of the enterprise are identified

According to the results of the study, the scientific understanding of the application of technologies in the system of economic security of a modern enterprise through the introduction of basic technologies has been expanded. The functional task of such technologies is to ensure the implementation of the main goal of the economic security of the enterprise, and support technologies, the functional task of which is to ensure the implementation of the tasks of basic technologies.

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