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**ECONOMIC SECURITY OF ENTERPRISES AMIDST DIGITAL  
TRANSFORMATION OF ECONOMY**

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**Abstract**

The article systematizes the main approaches to the system of economic security at different levels. The main indicators for assessing the state of the country's economic security are presented and grouped. The mentioned indicators require the introduction of additional indicators for the analysis, assessment and monitoring of the economic security of economic entities. The purpose of the study is to identify the risks of transforming enterprises to "Industry 4.0" and to develop measures for the economic security of enterprises. The article identifies the positive and negative aspects of the digital transformation of the economy, their impact on the level of economic security of enterprises. It has been proven that the Fourth Industrial Revolution is full adoption of automated digital production, which is controlled by intelligent systems in real time in constant interaction with the external environment, going beyond the boundaries of one enterprise, with the prospect of merging into a global industrial network. Based on a systematic approach, the risk factors of an enterprise in the context of digital transformation are divided into mega-, macro-, meso-, micro-level risks and internal risks of the enterprise. A generalized model of economic security of business entities in the context of digital transformation has been developed. The need to develop information and communication technologies determines new approaches to assessing economic security, competitiveness of enterprises, and the country's economy as a whole.

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## **1. Introduction**

In the past few decades, the volume of production, distribution and consumption of products on a global scale has been constantly growing. Such dynamics change slightly, which is associated with global processes and crises in the world economic system of individual countries. However, in general, economic growth is observed. The main crises of recent years include: the end of the 90s; the Asian financial crisis (1997–1998); the economic crisis “Black Thursday” in Russia (August 17, 1998); the mortgage crisis in the United States (August 2006), which subsequently affected the financial and economic situation in all countries of the world in 2008–2009; geopolitical situation in relation to Russia by Western countries in the form of sanctions and retaliatory measures of Russia since 2014; intensification of trade wars between countries and much more.

## **2. Problem Statement**

All these events require ensuring and increasing the level of protection of the country’s economic interests, which raises the issues of economic security of enterprises, regions and the country as a whole. Economic security issues are acquiring a new form being the conditions of traditional ways of relations between enterprises, consumers and the state, are shifting to a hybrid integration of offline and online formats; digital transformation is taking place. The use of ICT in the life of people, the activities of enterprises and public authorities strengthen the role of the economic security system in social development.

## **3. Research Questions**

The annual increase in digital economy’s share in GDP in the world by almost 18 % (in developed countries by 7 %) is an indicator of its significance. According to the forecasts of The Boston Consulting Group, by 2035 the volume of the digital economy may reach USD 16 trillion.

At the same time, there are certain risks and threats which digitalization brings to the economy and society. According to an analysis by Cybersecurity Ventures, by 2021 cybercrime could have cost USD 6 trillion (Morgan, 2020). It is assumed that in the future, in addition to computers and mobile devices, the Internet of things, enterprises in the field of transport and power plants will be subject to attacks. The limiting factor in the development of digitalization is the low financial literacy of the population, which increases the unwillingness of the population to use innovative products, as well as the underestimation of the risks when using this or that information product.

The following scientists studied the issues of the impact of digitalization on the economy and society: Berger et al. (2019), Lipsey and Lancaster (2004), Stiglitz (2003) and others. A number of theoretical and applied problems related to determining the impact of the economy’s digital transformation on the activities of enterprises, their consequences remain unresolved.

## **4. Purpose of the Study**

The purpose of the study is to determine the risks of transforming enterprises to “Industry 4.0”, to introduce measures for the economic security of enterprises.

## 5. Research Methods

The theoretical and methodological basis of this study is the official information of the Federal State Statistics Service, open public information of periodicals and scientific research in the field of economic security. When writing a scientific article, methods of analysis and synthesis, the method of comparing and grouping information, logical methods and abstract judgments were used.

## 6. Findings

The level of economic security of an enterprise depends on the security state of economic entities cooperating with it. The economic security of an enterprise is considered as a balanced state of its production and economic system, which provides the opportunity to achieve strategic development targets in the face of counteracting destabilizing environmental factors (Abubakarov & Dadaev, 2019).

The issues of economic security have been studied in the works of many scientists. The line of this concept content study also depends on the level of economic security. However, there are many different approaches to the definition of economic security. We consider it necessary to systematize the main approaches to defining “economic security”:

- i. ability to confront and prevent threats (to organize the system of economic security against threats; security of the country’s society from threats; security of interests of public authorities; security as sustainability of social development; economic security of the country);
- ii. being competitive and dynamic in social development; ability of economy and productive forces to ensure the sustainable development of the country; sustainable development of the economy and maintenance of a competitive environment;
- iii. prominent financial and economic stability and strategic development of enterprises, public authorities;
- iv. based on the analysis and evaluation of internal and external elements in the socio-economic and financial sphere; raw materials, food and energy industries; innovation-investment and digital sectors of the economy; various industries and spheres of foreign economic activity.

The presented approaches contribute to the systematizing research areas considering the definition of “economic security”, and to demonstrating the importance of economic security in the context of digital transformation of the economy.

In the context of significant changes and headwinds in the external environment, the role of economic security of enterprises, government bodies and a whole country is increasing. This intrinsically determined the formation of an integrated system for managing the risks of the national economy. In order to manage the risks of the state, the “Strategy of Economic Security of the Russian Federation for the period up to 2030” has been developed, and a “federal risk management system” is created to improve the quality and efficiency of public administration.

When assessing the state of economic security of the country, it is necessary to consider the following measures: the development of an information and statistical database on the external and internal environment of the national economy as well as theoretical and practical material in the field of applying the experience of digital transformation of enterprises; the development of a database on the main digital products of enterprises operating in the field of ICT; measures in the field of economic security and information security of society.

An integral element of the global socio-economic system functioning is the use of ICT. Electronic business development, online orders, public services provision, payment by bank transfer are becoming commonplace in the global socio-economic system, the life of citizens and society as a whole. Table 1 presents an analysis of e-commerce sales in the world in 2015–2020.

**Table 1.** Analysis of e-commerce sales in countries around the world in 2015–2020 (Tugba, 2020)

Years	Sales volume, USD billion	Deviation	
		Absolute, USD billion	Growth rate, %
2015	1,548	–	–
2016	1,859	311	120.1
2017	2,290	431	123.2
2018	2,774	484	121.1
2019	3,305	531	119.1
2020	3,914	609	118.4
Absolute deviation, in billion rubles	2,366	298	–
Growth rate, %	258.8	195.8	–

The volume of world sales through e-commerce is constantly growing. For 2015–2020 trade volumes have increased significantly. Specifically, since 2015, the increase in absolute terms amounted to 2,366 billion rubles compared to 2020, i.e. in practice, the volume of electronic world trade increased by 2.6 times. This testifies to the growing role of e-business in the globalization processes of the development of the world economy, the economies of the countries of the world.

A significant increase in the volume of electronic business in the context of the global pandemic was influenced by the overall indicators of exports of countries around the world. Table 2 provides statistics on export volumes of leading countries in 2020.

**Table 2.** Leading exporters of the world countries in 2020 (billion dollars) (Tugba, 2020)

No.	Countries	Export volume in 2020, USD billion	Export volume in 2020, USD billion	Deviation	
				Absolute, USD billion	Growth rate, %
1	China	2.641	2.723	82	103.1
2	USA	2.510	2.515	5	100.2
3	Germany	1.806	1.667	-139	92.3
4	Japan	919	889	-30	96.7
5	United Kingdom	892	741	-151	83.1
6	France	863	730	-133	84.6
7	Netherlands	750	720	-30	96
8	South Korea	654	613	-41	93.7
9	Hong Kong	649	602	-47	92.8

10	Singapore	646	599	-47	92.7
...					
17	Russia	481	378	-103	78.58

The Russian economy ranked 17 in export operations in 2020 in comparison with the leading countries. This was due to many restrictions in a pandemic around the world.

In the era of the fourth industrial revolution, it is interesting to analyze information about e-business in the context of the digital transformation of the economy. It should be noted that since 2017, ICT has been introduced in Russia at the legislative level, from the beginning it was presented in the form of the national project “Digital Economy”; currently the entire Russian society is undergoing a digital transformation.

Table 3 presents the analysis of the Russian e-commerce market for 2015–2020 and forecast values for 2021. Over the past years, online trading in the Russian market has been increasing. A significant increase in online commerce from 2019 to the present period of analysis should be noted. In 2019, online commerce in the domestic Russian market increased from RUB 1,446 billion to RUB 1,446 billion up to RUB 2,781 billion in 2020 and according to forecast values up to RUB 2,986 billion in 2021, which once again confirms the importance of the technologies of the fourth industrial revolution, and the importance of ICT.

The constant growth of domestic and cross-border trade growth in the field of Internet technology in the analyzed period is associated with many factors, one of which is the transformation of the domestic and Western countries characterized by the digital format of economic development. In Russia the process of ICT introduction in various industries and fields of activity, as well as in the generally accepted way of people’s life was rather slow. This was due to the high costs of business entities, poor infrastructure, etc. The presented negative points are not confined to this. However, at the same time, the possible effect of ICT introduction and adaptation in production activities exceed the traditional method of production by several times.

**Table 3.** Analysis of Russian e-commerce market for 2015–2020 and forecast values for 2021 (Tugba, 2020)

Year	Domestic trade, billion rubles	Share of domestic trade, %	Cross-border trade, billion rubles	Share of cross-border trade, %	Total e-commerce turnover	Deviation to total	
						Absolute, billion rubles	Growth rate, %
2015	540	71	220	29	760	47	106.6
2016	618	67	302	33	920	160	121
2017	666	64	374	36	1.040	120	113
2018	1.153	70	504	30	1.657	617	159.3
2019	1.446	71	586	29	2.032	375	122.6
2020	2.781	86	440	14	3.221	1.189	158.5
2021	3.226	86	519	14	3.745	524	116.3
Absolute deviation, in billion rubles	2.986	-	499	-	3.485	-	-
Growth rate, %	1.344.17	-	2.595	-	1.440.4	-	-

The introduction of these technologies has allowed many enterprises to become backbone in the region, country and leaders on the world stage. This naturally affects the economic security of enterprises. Currently, those enterprises that have implemented and adapted ICT into their business model have been able not only to be financially sustainable, but also have received a significant socio-economic effect. It should be noted that, as a rule, these were large enterprises, or projects of large and medium-sized organizations, as well as technology and information companies.

The assessment of Russia's economic security in accordance with the country's economic security strategy includes many activities. However, only 40 indicators are used, and they do not include many socially and economically significant factors, phenomena and conditions.

These circumstances require more detailed consideration and disclosure by the relevant public authorities to economic security. Pursuing this objective requires a clearer explanation and further development of the necessary groups of indicators, coefficients, indices, parameters, etc.

Within the framework of this study, it is proposed to supplement the introduced methodology with the following indicators and activities:

1. Quantitative indicators of offenses in the financial and economic sphere with their grouping according to the ranking of the significance of the indicators.
2. Indicators for conducting a comparative description of the state and conditions for the development of entrepreneurial activity in different territories of the country including the infrastructure component of the region.
3. Indicators of the competitiveness of regions and individual enterprises.
4. Quantitative and qualitative indicators of ICT development in the region.
5. Indicators of the organization of micro, small, medium and large businesses, reflecting the results of revenue and profit, the number of employees, etc.
6. Indicators enabling to analyze and evaluate the results of the business structures activities from changes in the regulatory documents of the territories and the country as a whole.
7. Indicators of social infrastructure, specifically, coefficient of renewal (departure) of the composition of the  $j^{\text{th}}$  social group; population migration indicators; vitality and life expectancy ratios; indicators of the involvement of the population in the socio-political activities of the region; library fund and public libraries online and offline; the number of theaters, museums and other institutions of cultural and leisure type to the population of the municipality, region and country as a whole.
8. Health indicators: the number of doctors, medical institutions, beds in hospital organizations and much more.

The Economic Security Strategy of Russia for the period up to 2030 reveals the strengthening of Russia's economic sovereignty, which is an expedient and rational task of the state in the current conditions. Russia is open to cooperation in various fields with other states, and not only in the economic one. In the works of Rodrik D., the trilemma of globalization is revealed; in addition to globalization, it includes national sovereignty and democracy. According to the author, only two components could be combined with each other: democracy and national sovereignty, which exist effectively only if globalization is contained; national sovereignty and globalization, then democracy becomes untenable; democracy and globalization, then there is no national sovereignty of the state (Lester, 2011). When

fulfilling the task “strengthening economic sovereignty”, it is necessary to provide appropriate explanations in the indicators of the instrumental approach and tasks for the relevant departments and services.

## 7. Conclusion

In the context of the digital transformation of the economy, for the purpose of economic security, it is necessary to provide for elements of information security and industrial import substitution of the digital sphere. This poses new challenges for enterprises and the country as a whole. Creation, formation and implementation of ICT products into the national economy allow gaining a competitive advantage and ensuring financial and economic results. Moreover, ICT contribute to increasing and ensuring the efficiency of business and government structures, in the life of people, individuals.

These proposals imply the use of a whole group of indicators of the quantitative and qualitative component. Groups of indicators are formed on the basis of well-known indicators contained in other regulatory and methodological documents. In particular, it is necessary to provide indicators for the development of the digital economy, digital transformation, as well as the tax service.

The system of economic security at different levels contains identical tasks and activities related to the protection of the object from risks and threats of the external and internal environment amidst competitive environment. It combines the goals of ensuring competitiveness and increasing the efficiency and productivity of economic entities; forms the socio-economic tasks of social development.

The risks of the fourth industrial revolution are new objective conditions for the activities of enterprises. According to a survey conducted by Allianz, digital transformation risks were among the top five most significant obstacles for business. In addition to information and economic risks, the reasons that slow down the transition of domestic enterprises to Industry 4.0 are the risks of professions reduction and job losses, the need for retraining personnel, lack of financial resources, and cybersecurity threats. The risks of digital transformation do not prevent companies from modernizing production. New ways of automatic control, increase in efficiency, saving resources provided by digital transformation outweigh the potential problems of its implementation. The massive use of ICT, active interaction of products, technologies and people will lead to an unprecedented individualization of production and consumption, cheaper production and logistics operations, marketing, and this will make small businesses competitive and introduce significant restrictions on the activities of large corporations that change slowly (Dadaev, 2019).

Economic security issues have recently been an urgent problem for the development of enterprises and the country as a whole. The trend of digital integration into the real world of society in many countries started with the beginning of the 4<sup>th</sup> industrial revolution. The combination of digital technologies with the country’s economic security system testifies to the concurrent ensuring of its competitiveness. Moreover, having an absolute advantage, some highly developed digital countries prefer to monopolize this sector, as well as influence the globalization processes of the world economy. This affects the search and creation of domestic analogues of digital video communication products, video conferencing, etc., as well as the need for information protection and economic security of enterprises and the national economy as a whole.

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