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ECONOMIC SECURITY IN THE CONDITIONS OF DIGITAL TRANSFORMATION

Due to the rapid development of digitalization, the scope and boundaries of the digital economy are expanding, socio-economic development is beginning to shift towards digitalization. In the modern realities of digitalization of social processes, all aspects of modern life are faced with digital transformation. This article discusses the problems of economic security caused by digitalization and ways to address the issue of ensuring economic security in a digital socio-economic reality.

Keywords: *digital economy, economic security, economic development*

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ЭКОНОМИЧЕСКАЯ БЕЗОПАСНОСТЬ В УСЛОВИЯХ ЦИФРОВОЙ ТРАНСФОРМАЦИИ

В связи со стремительным развитием цифровизации масштабы и границы цифровой экономики расширяются, социально-экономическое развитие начинает смещаться в сторону цифровизации. В современных реалиях цифровизации социальных процессов все стороны современной жизни сталкиваются с цифровой трансформацией. В данной статье обсуждаются проблемы экономической безопасности, вызванные цифровизацией, и направления решения вопроса обеспечения экономической безопасности в условиях цифровой социально-экономической реальности.

Ключевые слова: *цифровая экономика, экономическая безопасность, экономическое развитие*

The digital economy refers to a number of economic activities in which digital knowledge and information data are the main factors of production, modern information networks are important carriers, and information interaction technologies are effectively used as an important driving force to improve efficiency and optimize the economic structure [1]. The rapid development of the digital economy has made it a «new engine» for national economic growth [2], but it has also introduced new risks for national economic security.

Digital transformation means that people use modern information technologies to transform their business and transfer it from tangible assets to intangible digital assets as a way to automate and inform business processes and increase the efficiency of their business [3]. Digital transformation is fundamentally changing the methods of production and distribution in the traditional type of economy, while catalyzing the development of new business models based on digital technologies, transforming business into a new environment and having a profound impact on the national economy.

The level of development of digitalization today is one of the most important indicators of the economic and social well-being of the state. The assessment of the state of digital transformation is carried out using the following indices: World Digital Competitiveness (WDC), Networked Readiness Index (NRI), E-Government Development Index (EGDI), E-Participation Index (EPI), Global Innovation Index (GII) (Table 1).

Table 1

Assessing the state of digital transformation using indices

Indicators	Characteristic
WDC	A measure of the digital competitiveness of countries around the world, covering 63 economic centers, based on the extent to which countries are adopting and exploring digital technologies leading to changes in government practices, business models and society at large
NRI	Recommended by the World Economic Forum and the international business school INSEAD since 2002 as part of a special annual series of reports on the development of the information society in the countries of the world, The Global Information Technology Report. It is used as a means of analysis to build comparative ratings that reflect the level of development of the information society in different countries
EGDI	A comprehensive indicator that assesses the readiness and capabilities of national government structures in the development and use of computer technology to provide public services to citizens. The e-government survey is compiled every two years by the Department of Economic and Social Affairs
EPI	An indicator of the development of active communication services between citizens and the state. EPI is derived as a supplementary index to the United Nations E-Government Survey
GII	An important indicator of a country's overall innovation capacity, the measurement of indicators such as political environment, education, infrastructure and knowledge creation to assess the innovation performance of an economy

Source: [4].

Belarus, China, India, Russia, and the United Kingdom were selected for the analysis, as these countries differ in terms of development level, population size, and geographic location, and are therefore representative in the study (Table 2). These international indicators for assessing the state of

Table 2

Analysis of the dynamics of the state of the level of digitalization

Indicators		WDC	NRI	EGDI	EPI	GII
Belarus	2020	–	–	0.80840	0.75000	31.3
	2021	–	–	–	–	32.6
	2022	–	–	0.75800	0.43180	27.5
China	2020	84.105	58.44	0.79480	0.96430	53.3
	2021	84.431	65.62	–	–	54.8
	2022	86.42	68.83	0.81190	0.86360	55.3
Russia	2020	59.950	54.23	0.82440	0.86900	35.6
	2021	60.271	57.74	–	–	36.6
	2022	–	59.54	0.81620	0.60230	34.3
India	2020	54.836	41.57	0.59640	0.85710	35.6
	2021	55.126	49.74	–	–	36.4
	2022	63.93	51.19	0.58830	0.59090	36.6

Source: [5–8].

digital transformation allow analyzing the dynamics of the digital level in each country in terms of digital development, national innovation capacity, level of information society development, information technology in public services, business models, social development, etc., leading to conclusions that are universally applicable to each country.

According to the data situation of digital transformation indicators in the three years from 2020–2022, several countries have developed well in the world digital competitiveness and network readiness index, and the world digital competitiveness of each country is gradually improving. The improvement of world digital competitiveness means that with the development of digitalization in the past three years, countries or regions have a higher degree of digital economy capability and digital transformation, and have stronger digital innovation and competitiveness. The Network Readiness Index is the degree of digitalization and the maturity of digital environment of a country or region. When the Network Readiness Index improves, it means that the digital infrastructure and digital environment of the country or region have been improved, digital technologies have been more widely used and popularized, and the level of digital economy development has been improved.

Several countries show a declining trend in the e-Government Development Index and the e-Participation Index, two indicators that are assessed every two years, and this decrease, in the special context of the 2020–2022 period when the New Coronavirus epidemic is severe and the international situation is unstable, means that there are problems and challenges in the digital transformation and digital services of the government, which may lead to inefficient government services, a government and The digital divide between citizens widens, which may lead to a decrease in public trust in the government and questioning of the government's ability to govern. In the Global Innovation Index, several countries show progress and decline over the three years, which indicates that there are differences in the performance of each country in terms of innovation, which may be due to the differences in government policies, investment, and innovation ecosystem in each country.

Economic security in the digital economy is becoming increasingly important due to the fact that the flow of real assets is accompanied by various forms of digital media and channels and also because the nature of production and further social and economic relations is changing. Under these conditions, various abuses will emerge and manifest themselves in the economy, and the suppression of these abuses should be handled by experts in the field of economic security, which in our opinion will be increasingly in demand.

Bringing the digital economy into reality is always a complex process, affecting the main sectors of national development. It implies introduction of public services into digital technologies, digitization of real sectors of the economy, improvement of information infrastructure, development of human potential in the digital economy and, importantly, ensuring cybersecurity, which is defined as the state of protection of information infrastructure and information contained therein from external and internal threats. It is important to note that cybersecurity is an important factor in the development of the digital economy, and therefore a guarantee to ensure economic security. The continuous development and spread of digitalization have led to dramatic changes in the way people live and work, but it also brings with it a number of systemic risks that may have a negative impact on ecological security (Table 3).

Table 3

Systematization of economic security risks

1. DATA PRIVACY RISK
In a digital society where the scale and complexity of economic activity is increasing, personal data has become a critical asset. As more and more companies and individuals use the Internet and digital technologies to conduct business, this exposes economic security to more threats and risks, such as public networks and phishing, which threaten the security of personal data privacy. At the same time, data leakage and misuse have become major problems in the digital society, and some personal information, financial information, health information, etc. are used maliciously, which can cause great damage to individuals and society

Ending of the table 3

2. RISK OF INFORMATION SECURITY
With the widespread use of digital technology in business activities, data security and cyber security have become important concerns for businesses and individuals, and cyber fraud, viruses and Trojans, and online fraud are becoming increasingly common [9]. Information leakage or loss caused by these bad incidents may not only lead to financial losses for businesses or individuals, but may also cause credit problems and loss of trust from others, thus affecting reputation. What's more, information security risks can put national security at risk, leading to legal liability for businesses or individuals
3. THE TRADITIONAL ECONOMIC SYSTEM IS SUFFERING FROM IMPACT
The advent of the digital economy is forcing the traditional production chain and business model to face huge changes and transformations. It also poses new challenges to the security of the traditional economic system. For example, traditional enterprises need to adapt to the trend of the digital economy and strengthen network security and data protection in order to avoid risks such as network attacks and data leakage. And with the development of artificial intelligence technologies, more and more jobs will be replaced by robots and automated systems. This will lead to mass unemployment of the labor force, which will lead to social instability and economic inequality. In addition, AI can lead to problems such as economic monopolies and market failures
4. NEW REGULATORY AND LEGAL ISSUES
With the rapid development of the digital economy, the original legal system and regulatory approach may not be applicable to the digital economy market. Therefore, the regulatory system must also keep pace with the times and establish a new regulatory system according to the actual situation by virtue of the technological innovation brought by the development of digital technology. At the same time, the digital economy needs better data privacy laws, better cyber security laws, and better intellectual property laws to ensure the healthy development of the digital economy and the fairness, justice, and security of economic activities

Source: [8].

The solution to the problem of economic security can be considered from several angles (Table 4).

Table 4

Directions for solving problems of economic security in the context of digitalization

Direction	Economic interpretation
Developing digital talent and raising public awareness of information security	Acquisition of digital knowledge to cope with the changes brought about by digital transformation, joining new industries emerging from digital transformation, and encouraging the development of individual entrepreneurship and digital platforms
Support for research and development of advanced digital technologies	Advances in digital technology are the main driver of digital development. Digital technologies can be catalysts for change in government, business and institutions, providing the potential for productivity, innovation and human well-being. The application of technologies such as artificial intelligence, machine learning, advanced connectivity, quantum computing and edge computing (with distributed infrastructure) is the future of leading technologies [10]. It can be foreseen that in the digital age, the stronger digital technologies are at the disposal of the country, the more dominant the country will be in future development. The country must compete to vigorously develop technology, continuously improve and optimize the industrial structure, accelerate the pace of digital transformation of domestic industries, improve the competitiveness of goods and services in the international division of labor, and allow the country to occupy a larger share. in the discourse of the world market

Ending of the table 4

Direction	Economic interpretation
Strengthening regulation of the banking and financial sector	Improving data privacy, cybersecurity and intellectual property laws to ensure the healthy development of the digital economy. It is necessary to monitor the digital currency market and improve national regulation of new technologies such as blockchain for illegal profit-making to prevent investors from using digital technologies to destroy the financial market and people with bad intentions for money laundering and illegal fundraising
Strengthening the management of economic information security and the creation of a reliable network information security system	Providing a more secure network infrastructure, more secure methods of storing and transmitting data, and more secure payment and transaction systems to ensure business continuity. At the same time, in accordance with the needs of national economic information security, it is necessary to develop relevant national technical standards, policies and regulations, and strengthen the detection of information leaks and strengthen strict measures against them

Source: [7; 8].

The development of the digital economy has led to the digital transformation of industries, where people use information technology to transform their businesses in a way that changes the way production and distribution are done in traditional economies, giving great changes to the socio-economy and people's lives. By assessing the digital transformation of several representative countries through several indicators of world digital competitiveness, network readiness index, e-government development index, e-participation index and global innovation index, we found that with the development of digitalization, the digital economy capability and digital transformation of each country or region have been improved to different degrees. However, there are problems and challenges in digital transformation and digital services between governments and citizens due to international conflicts and the impact of worldwide diseases.

In addition, this paper analyzes the systemic risks of negative impact on ecological security and finds that data privacy risks, information security risks, traditional economic systems that are suffering from shocks, and new regulatory and legal issues are the current issues that the country needs to pay attention to. To this end, the directions for solving economic security issues in the digital context are proposed: cultivating digital talents and raising public awareness of information security; supporting the research and development of advanced digital technologies; strengthening the regulation of the banking and financial industries; and strengthening the management of economic information security and establishing a reliable network information security system.

References

1. G 20 Leaders. G 20 Digital Economy Development and Cooperation Initiative, 2016 [Electronic resource]. – Mode of access: http://www.g20chn.org/hywj/dncgwj/201609/t20160920_3474.html. – Date of access: 23.03.2023.

2. Digital Economy. Technological innovation and high-quality economic development: based on space and mediation effects [Electronic resource]. – Mode of access: https://www.mdpi.com/2071-1050/14/1/216. – Date of access: 23.03.2023.

3. *Li*, *Wenxuan*. The history of global digital transformation, trends and the path of China's advancement / Wenxuan Li // Economist. − 2022. – P. 36–47.

4. Innovative level of development of the sector of information and communication technologies in the Republic of Belarus [Electronic resource]. – Mode of access: https://www.nbrb.by/bv/articles/10441.pdf. – Date of access: 23.03.2023.

5. World Digital Competitiveness Ranking [Electronic resource]. – Mode of access: https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-digital-competitiveness-ranking/. – Date of access: 23.03.2023.

6. Network Readiness Index. [Electronic resource]. – Mode of access: https://networkreadinessindex.org/. – Date of access: 23.03.2023.

7. UN E-Government Survey. [Electronic resource]. – Mode of access: https://publicadministration.un.org/egovkb/en-us/. – Date of access: 23.03.2023.

8. Global Innovation Index [Electronic resource]. – Mode of access: https://www.globalinnovationindex.org/analysis-indicator. – Date of access: 23.03.2023.

9. *Yang*, *Hai.* Research on the role of information security protection in the development of digital economy / Hai Yang // Computer Knowledge and Technology. – 2022. – 18(23):21. – P. 22.

10. McKinsey Technology Trends Outlook 2022 [Electronic resource]. – Mode of access: https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-top-trends-in-tech. – Date of access: 23.03.2023.