

# Risks and Advantages of the Digital Economy

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**Abstract.** The article is devoted to considering positive and negative aspects of the digital technology introduction in all economy spheres. The author notes that despite the acceleration of the workforce productivity the risks and threats that it contains should undoubtedly not be forgotten. Moreover, risks and threats in some cases exceed the positive effect of digital transformation. However, digital transformation is both an objective necessity and an inevitable consequence of the global changes taking place in all spheres of human life. The author also highlights the need of joint decisions of all international community members in digital technologies introduction in order to ensure the information security of the economy and society in general.

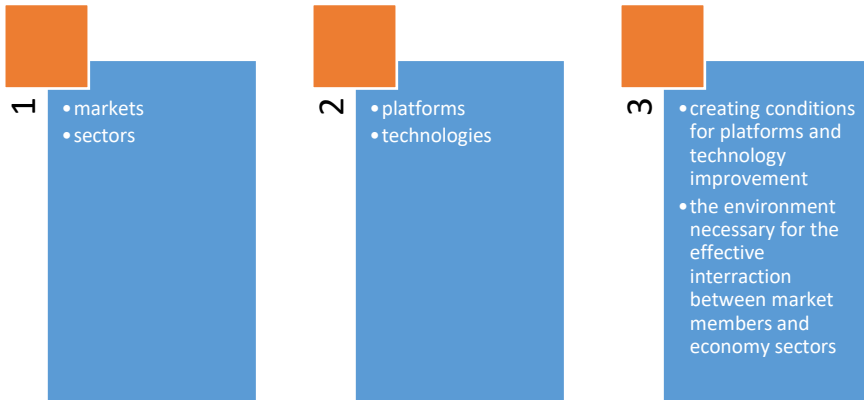
## 1 Introduction

The digital transformation of the economy and society is a complex and time-consuming process which is influenced by many factors: both the development of the ICT market and the readiness of society to accept future changes and the financial expenses of the state. It is also important whether the business environment is ready to withstand the introduction of modern advanced technologies. The Russian economy embarked on the path of digital transformation later than the economies of developed countries, so it is necessary to make great efforts to take root and take a worthy place in the digital space. It would be worth activating private representatives of the business community including the terms of public-private partnership due to this. The emphasis on the digital transformation of the economy at the state level in Russia came only after 2016. Russian President Vladimir Putin pointed the need to create the new online economy to improve the efficiency of economy sectors and improve the economy results in general in his speech to the Federal Assembly on December 1. The Digital Economy of the Russian Federation Program was approved in July in 2017. It determines the development of the country's digital economy for the period until 2024 [1,2]. The need to adopt this document was caused by the process of "digitalization" of the domestic economy as well as the desire to speed these processes and give them a certain order. The government must approve an operational plan once every three years with a regular update of the program measures list for the correct implementation of the digital economy development program. The program "Digital Economy of the Russian Federation" focuses on the point that data presented in digital form is the key factor in the digital economy production [2,3]. This data represents a new resource base and its analysis allows making more effective decisions in various industries as well as in sectors of the national economy.

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A mandatory "information space" has been formed taking the following into account: the needs of citizens and society in obtaining high-quality and reliable information and the "information structure" developing as Russian information and telecommunication technologies develop. Overall, a new technological basis for the socio-economic sphere is being formed due to the digital economy [2]. The digital economy model presented in the program includes three closely interacting layers that are presented in the Figure 1.



**Fig. 1.** The digital economy model levels

## 2 Materials and Methods

A systematic approach, an evolutionary approach and approaches to the theory of sustainable development are used in the study process. Methods of analysis and synthesis, grouping and comparing are used as methodical apparatus of the research point). Try to ensure that lines are no thinner than 0.25 point.

## 3 Results and Discussion

It is worth noting that the availability of appropriate technologies is necessary for the effective development of markets in digital economy. The program has two main directions in this sense. The first of them is the emergence of institutions for creating the digital economy development conditions: a system of legal regulation, personnel, education. The second direction is to configure the informational infrastructure and security. The main goal of the program stated in the document is the emergence of at least ten high-tech enterprises that have entered the global market and the creation of many research groups and new projects around them that will continue to develop the digital economy.

While the digital transformation creates opportunities in all industries many organizations and professionals struggle to understand what digital transformation entails and seek guidance on implementing digital transformation programs, especially large and complex ones. The recent studies have proposed directions and models to guide digital transformation and its steps as well as driving force, contributing factors and deterrents. Many of these proposals are based on the concept of dynamic capabilities as a theoretical framework and require additional research to further developing and/or improving existing models of digital transformation, especially to explore the way dynamic capabilities drive digital transformation.

It is also important to note that the digitalization of the economy and related economic trends create the risks of negative changes in its structure. This is also expressed in the fact that a large number of real jobs will be lost with automation and robotization of the production.

The process of forming a risk classification of the digital economy should be started with the classification of risks of the traditional economy (Figure 2).

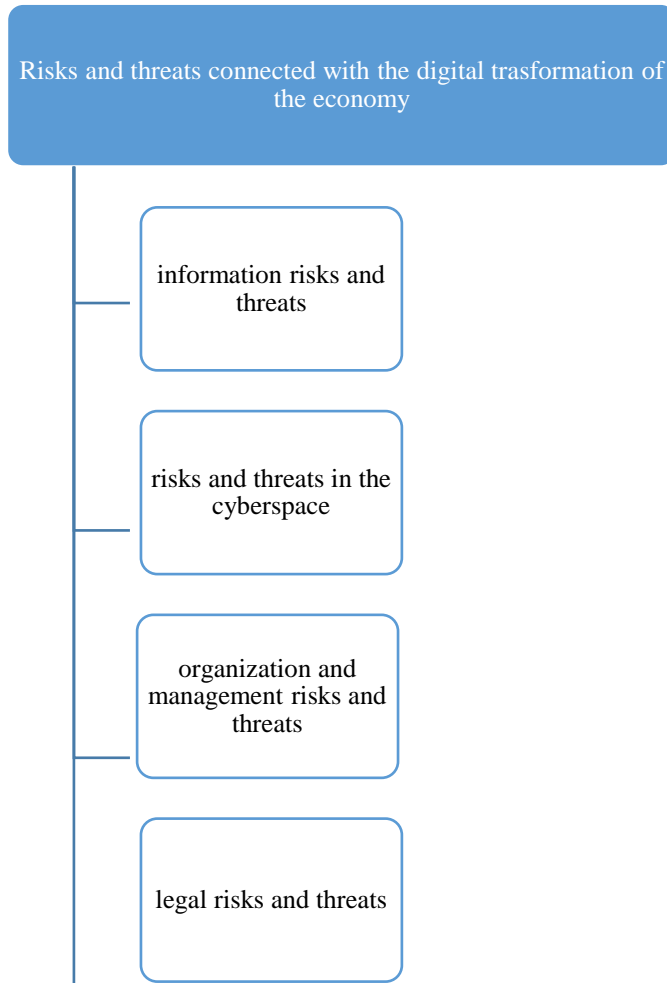
financial	production	operations	external environment
<ul style="list-style-type: none"><li>• investments</li><li>• credit</li><li>• to buy</li></ul>	<ul style="list-style-type: none"><li>• artificial</li><li>• innovator</li><li>• third parties' illegal actions</li></ul>	<ul style="list-style-type: none"><li>• commercial</li><li>• personal</li><li>• organizational</li></ul>	<ul style="list-style-type: none"><li>• industry</li><li>• country risk</li></ul>

**Fig. 2.** The traditional economy risks

The risks of implementing the principles of the digital economy should also be classified into different categories. It is worth noting that first of all, operational risks as well as the fact that extreme dependence on the Internet and network interference can restrain all life processes. It is also important to point that the development of the digital economy in terms of the development of robotics involves a reduction in jobs and there are numerous studies confirming that a large number of jobs are at the risk of extinction (from 20% to 40% in different sources). The development of robotics combined with the retirement age increase in the Russian Federation creates additional problems for employment since older citizens are not inclined to acquire new skills as it is known.

It is also relevant to pay attention to the information security issues in the context of society digitalization relative to this. The digitalization of modern society entails additional risks and dangers associated with the information systems functioning. The privacy and data protection issues come to the fore for organizations in connection with the intensification of fraudulent attacks and cyber threats in the current circumstances.

More particularly mentioning the threats and risks associated with the digitalization of all spheres and sectors of human life, it is worth emphasizing that the digital transformation process represents a transition from tangible assets to intangible (digital). In summary, the following classification of risks and threats associated with the digital transformation of the economy can be shown (Figure 3):



**Fig. 3.** Risks and threats associated with the digital transformation of the economy

Information risks and threats are risks of threats primarily related to the information usage and dissemination. Since information is one of the most important management resources, issues related to maintaining the integrity, reliability and reliability of its storage and usage are among the main ones in any organization’s activity. Information risks and threats depend on complex information systems that are influenced by factors divided into hidden and open. Hidden factors affecting information systems include information overload, human factors unintentionally caused by the actions of customers, suppliers or employees, problems with the information system operation.

Obvious factors affecting information systems are the control mechanism maturity level, the degree of automation and awareness of the organization itself, etc. The main source of information risks at the same time are information assets which include any information and data in digital form (digital models of business processes, digital services, digital content, databases, web resources, software, etc.).

The second group of risks is the risks and threats to information security in cyberspace. One of the most important characteristics of information is that it does not disappear while using it and this resource is not connected with the place, time and subject of creation [4]. Therefore, these information guidelines contribute to the fact that it becomes the target of

cyberattacks in order to achieve vulnerability and gain access to confidential information that will help the organization to receive direct financial losses, reduce business reputation, etc. in the future. Cyber risks in comparison with information threats and risks are the result of deliberate impact on information, digital data, the work of information resources and systems in the digital space [5]. Cyber risks can also be classified by the character into the following:

1. programs;
2. technics;
3. physical;
4. informational;
5. organizational.

Discussing each type of cyber risk more particularly, the first group, especially including software risks, is associated with the penetration of malicious programs that destroy and distort data into information systems and it can happen both deliberately and unintentionally.

Technic risks in cyberspace are risks associated with external impact on data transmission channels in order to exert influence associated with information distortion.

Physical risks in cyberspace are risks associated with the destruction and damage of information processing and storage as well as electronic access keys and authentication.

Informational cyber risks are ones associated with offense the exchange rules and dissemination of information, unauthorised access to digital information, illegal copying and dissemination of information, etc.

Organizational risks are risks associated with the organization activities inefficiency for protection of digital rights and digital information, insufficient effectiveness of methods and means of protecting information from unauthorized access and theft.

The scale of the digital transformation of the economy can be viewed both broadly and narrowly. Narrowly interpreting, only the level of digital technologies development is taken into account. BCG (The Boston Consulting Group) estimates that the global size of the digital sector is approximately 5% of global GDP. Considering the digital sector more specifically, especially the impact on all other areas of activity, its overall value will be much greater. A report by Huawei (PRC) and Oxford Economics (UK) estimated the total value of the digital economy at \$11.5 trillion or 15.5% of global GDP in 2016. According to the forecast, its volume will only increase in the future. The increase will be due to the industrial Internet and intelligent data processing methods. And the digital economy will have up to 24.3% of the world's GDP in 2025 [6].

The increase of public investment in research and development in the promising digital sector which is specific for many developed and developing countries should also be noted. The amount of venture capital where many developing countries invest digital technologies testifies to the increased interest in them which is fuelled by expectations of achieving a high commercial result. The clear leaders in this field are the US and China that are obviously outperforming all other countries in terms of digital venture capital investment. Considering the growing digital technologies influence on economic development, many countries are strengthening their own activities to develop appropriate acceleration strategies and programs, procedures and tools for their implementation. Such programmes cover the development of both the ICT sector itself and end-to-end digital technologies with their application across all sectors. According to the OECD, 32 of the 36 member countries of the organisation have national digital strategies.

The goals and objectives of the developed strategies and programs differ significantly since countries are at different stages of readiness for the digitalization of the economy. Some countries solve the problems of overcoming digital inequality and focus on infrastructure problems, development of ICT and the expansion of the network when the others focus on deepening the digitalization of all economy sectors finding ways to share the benefits of this process with more equitably. Moreover, the dynamism of digital transformation in the

economy and society requires constant adaptation of existing strategies and programs in this area and often the search for non-standard solutions.

It should be noted that the global nature of the economy digital transition requires an international format dialogue reaching consensus and developing appropriate international policies. The accepted leader in the digital economy formation - the United States - directly connects the success and prosperity of the country, economic growth and competitiveness with the growth of digital technologies. The active work on the development of information and communication technologies was begun at the end of the last century in the United States and nowadays many decisions are still made to support both the development of the ICT sector itself and the development and widespread accepting digital technologies. For instance, the country accepted the state program "Agenda of the Digital Economy" in order to promote free and open Internet technologies of a new generation, ensure network security and increase Internet access from households and private companies in 2015.

Currently, examples of technological modernization of the economy and related economic trends create risks of negative changes in its structure. It is mainly expressed in the fact that the result of the production automation will be the loss of a large number of real jobs (especially in large localities).

## 4 Conclusion

The obvious advantages of the digital transformation of the economy include the fact that not only existing business processes are modified and improved due to digital technology, but new business processes are created at the same time which reduces unemployment and improves product quality. It is doubtless that the introduction of digital technologies affects the level of competition massively motivating entrepreneurs to introduce modern digital technologies into production and sales [7,8].

The digital technology introduction also strengthens the connection between industries and between different sectors of business which also affects the quality of the products being created. The new Internet trade type has appeared due to the introduction of digital technologies, especially "e-commerce", that allows to reduce the costs of manufacturers and suppliers of products and it ultimately affects the demand for these products, i.e., the development of "e-commerce" is the main positive factor in the digital technology introduction.

In addition, this is a positive factor for both suppliers and manufacturers of products and for potential buyers [8,9,10].

Digital technologies also contribute to accelerate workforce productivity since the artificial intelligence technology introduction has led to the increased workforce productivity and increased profitability as a result according to numerous studies. Digital economy as well as traditional economy must be predictable and manageable to promote an effective economy growth. Therefore, the phased introduction of all legal, economic and political conditions for the effective digital technology introduction (not only in the financial area) remains the management issue. And it is obvious that digital technologies have entered all spheres of state life.

It is doubtless that the digital transformation of the state is the driving force of economic development as well as the fact that it greatly facilitates communication between the state and citizens but also causes threats at both macro and microeconomic levels. the country.

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