

**IMPACT OF DIGITALIZATION ON TRANSFORMATIONS IN THE  
MANAGEMENT OF PRODUCTION AND SOCIAL PROCESSES**

**IMPACTO DA DIGITALIZAÇÃO NAS TRANSFORMAÇÕES NA GESTÃO DA  
PRODUÇÃO E PROCESSOS SOCIAIS**

**IMPACTO DE LA DIGITALIZACIÓN EN LAS TRANSFORMACIONES EN LA  
GESTIÓN DE LOS PROCESOS PRODUCTIVOS Y SOCIALES**

Sergey Bank,  
MIREA-Russian Technological University Russia

Vladimir Sekerin  
Moscow Polytechnic University Russia

Lev Gurtskoy  
Rostov State Medical University Russia

Denis Bryzgalov  
Financial University under the government of the Russian Federation

Konstantin Zadornov  
Kosygin State University of Russia

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## Abstract

Currently, the following disagreement of expert opinions has developed: most scholars agree that the prerequisites for the current digitalization were the transformation of production management and social processes. The indisputable impact of digitalization on the transformation of the world economy and the relations existing in it must be assessed from two sides of consideration: as changes in the procedure of international exchange and as the course of development of the unity of the economies of the world countries. Modern research extensively examines and evaluates the impact of digitalization on corporate governance, isolated industries, the transformation of society, economy, and management in specific world states. According to experts, the current stage of digitalization will contribute to the increasing pace of information exchange. However, this probably will not significantly affect the scaling of commodity trade between countries. In addition to the above, digitalization can lead to the minimization of capital flows between states. However, it predetermines the introduction of advanced technologies that transform operating systems and, collectively, the economy of the world through the complete or partial replacement of human labor (advanced analysis, artificial intelligence, mobile gadgets, robots, communication devices, technological platforms).

**Keywords:** digital transformation of the economy, technological transformations, industrial revolutions, minimization of capital movement.

## Resumo

Atualmente, desenvolveu-se a seguinte discordância de opiniões de especialistas: a maioria dos estudiosos concorda que os pré-requisitos para a digitalização atual foram a transformação da gestão da produção e dos processos sociais. O impacto indiscutível da digitalização na transformação da economia mundial e das relações nela existentes deve ser avaliado sob dois aspectos: como mudanças no procedimento de intercâmbio internacional e como o curso de desenvolvimento da unidade das economias do mundo países. A pesquisa moderna examina e avalia extensivamente o impacto da digitalização na governança corporativa, indústrias isoladas, a transformação da sociedade, economia e gestão em estados mundiais específicos. Segundo especialistas, o atual estágio de digitalização contribuirá para o ritmo crescente de troca de informações. No entanto, isso provavelmente não afetará significativamente a escala do comércio de commodities entre os países. Além do exposto, a digitalização pode levar à minimização dos fluxos de capital entre os estados. No entanto, predetermina a introdução de tecnologias avançadas que transformam os sistemas operacionais e, coletivamente, a economia do mundo por meio da substituição total ou parcial do trabalho humano (análise avançada, inteligência artificial, gadgets móveis, robôs, dispositivos de comunicação, plataformas tecnológicas).

**Palavras-chave:** transformação digital da economia, transformações tecnológicas, revoluções industriais, minimização da movimentação de capitais.

## Resumen

Actualmente, se ha desarrollado el siguiente desacuerdo de opiniones de expertos: la mayoría de los académicos están de acuerdo en que los requisitos previos para la digitalización actual fueron la transformación de la gestión de la producción y los procesos sociales. El impacto

indiscutible de la digitalización en la transformación de la economía mundial y las relaciones existentes en ella debe ser valorado desde dos vertientes de consideración: como cambios en el procedimiento de intercambio internacional y como curso de desarrollo de la unidad de las economías del mundo. los países. La investigación moderna examina y evalúa exhaustivamente el impacto de la digitalización en el gobierno corporativo, las industrias aisladas, la transformación de la sociedad, la economía y la gestión en estados específicos del mundo. Según los expertos, la etapa actual de digitalización contribuirá al ritmo creciente del intercambio de información. Sin embargo, esto probablemente no afectará significativamente la escala del comercio de productos básicos entre países. Además de lo anterior, la digitalización puede conducir a la minimización de los flujos de capital entre estados. Sin embargo, predetermina la introducción de tecnologías avanzadas que transformen los sistemas operativos y, en conjunto, la economía del mundo a través de la sustitución total o parcial del trabajo humano (análisis avanzado, inteligencia artificial, dispositivos móviles, robots, dispositivos de comunicación, plataformas tecnológicas).

**Palabras clave:** transformación digital de la economía, transformaciones tecnológicas, revoluciones industriales, minimización del movimiento de capitales.

## 1. INTRODUCTION

Digitalization, with its inherent technological transformations (Tutida, Rossetto, Santos & Mazon, 2022) and its characteristic influence on the transformation of the economy and social space, is one of the most discussed phenomena causing controversy in scientific circles in Russia and abroad for over 10 years (Abdrakhmanova et al., 2021; Mandych & Bykova, 2021).

For example, the expert circle of the United States was asked to consider two stages of digitalization:

1. The 1980s – 2010s;
2. The 2010s – present (Soboleva & Kalmykov, 2019).

Modern analytical services equate the conceptual apparatus of digitalization with the leading technological process, which is a prerequisite for the industrial revolution. There are currently four such revolutions:

1. Marked by the launch of the steam engine and taking the range of 18-19th centuries.
2. Based on the start of conveyor-type production and dating back to the end of the 19th century.
3. Caused by the implementation of personal computers in practice and the first Internet developments since the 1980s.
4. Starting in 2016 and characterized by:
  - use of technologies exceptional for modernity to operate with significant amounts of data;
  - popularization of wireless data transmission method;
  - adaptation of artificial intelligence in the information processing system;
  - practical synthesis of physical, biological, and digital aspects of human life (Schwab, 2016).Several areas of the service sector are most susceptible to the impact of digital

transformation as reflected by economic realities (Figure 1).



**Figure 1.** Areas of the service sector that are most susceptible to the impact of digital transformation

Source: research data, 2022

A question is being formed that affects aspects of the activation and scaling of international relations in the economy, due to the course of the latest digitalization processes (Parakhina, Popovicheva & Bazarnova, 2018). Modern research extensively examines and evaluates the impact of digitalization (Furr, Ozcan & Eisenhardt, 2022) on corporate governance, isolated industries, the transformation of society, economy, and management in specific world states (Bank & Suglobov, 2014; Minaeva et al., 2019). Thus, it is necessary to study the consequences of the digital transformation of the economy concerning the opening opportunities and risks, as well as the current course of relations in the international economic arena.

## 2. Methods

The economy, considering it at the level of the world, acts as a system consisting of their components in the form of state economies included in the interaction on favorable terms for

each of the parties through the construction of economic relations between countries based on the fundamental provisions of the division of labor at the international level (Strelets, 2017).

The consequence of which is the synergy of the aggregate economy of the world. Economic relations taking place in the international arena consist of relevant trade operations concerning commodity values and services, technology exchange, capital and labor flows, financial and currency movements, all kinds of integrations at the level of unification of countries and their regions (Prokhorov, 2019).

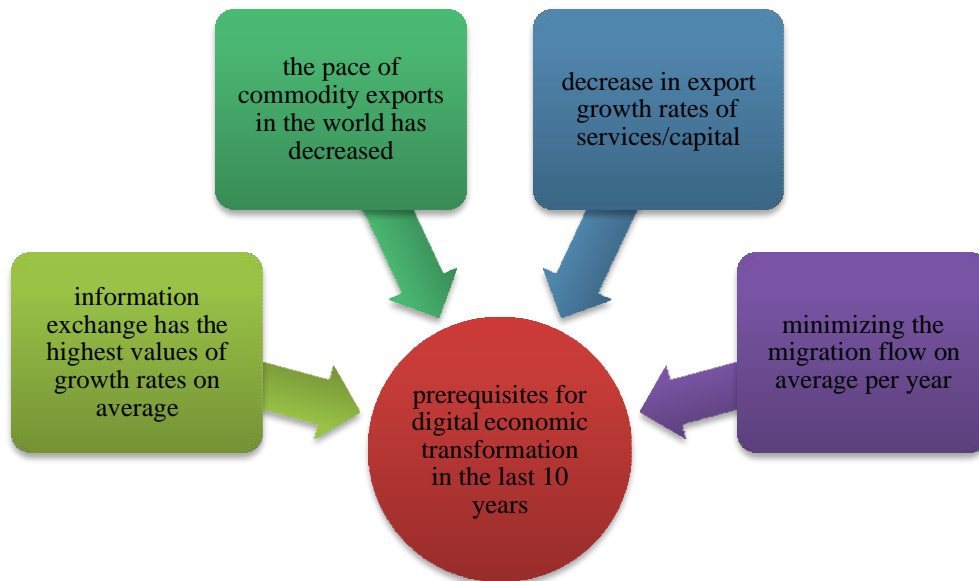
As the experience of the world has shown, the waves of industrial revolutions, of which there were three before the current extensive digitalization, predetermine the rapid activation of economic relations between countries. Economic globalization is traditionally taken as the peak of such relations, the effect of which is most clearly marked at the junction of the information and technological breakthrough of the 20th and 21st centuries (Soboleva & Kalmykov, 2019).

Therewith, the global financial crisis, the consequences of which several countries have not been able to resolve since 2008, has formed the ground for the formation of certain aspects of "economic encapsulation". In other words, the countries began to focus on the primary resolution of their issues, the realization of self-sufficiency, the constancy of development, the shift of political vectors to priority state directions.

According to experts, the current stage of digitalization will contribute to the increasing pace of information exchange. However, this probably will not significantly affect the scaling of commodity trade between countries. In addition to the above, digitalization can cause the minimization of capital flows between states (Tursunov, 2021).

However, it predetermines the introduction of advanced technologies that transform operating systems and, collectively, the economy of the world through the complete or partial replacement of human labor (advanced analysis, artificial intelligence, mobile gadgets, robots, communication devices, technological platforms) (Avdeeva & Erizko, 2018).

The world-famous consulting company McKinsey conducted a specially directed study more than 10 years ago, which predicted the prerequisites for the course of digital economic transformation for the future in 10 years (Official website McKinsey Global Institute (MGI), n.d.). As experience has shown over the past years, the company's forecasts have been implemented, and the digital transformation of the economic field was indeed due to several prerequisites described in the study (Figure 2).

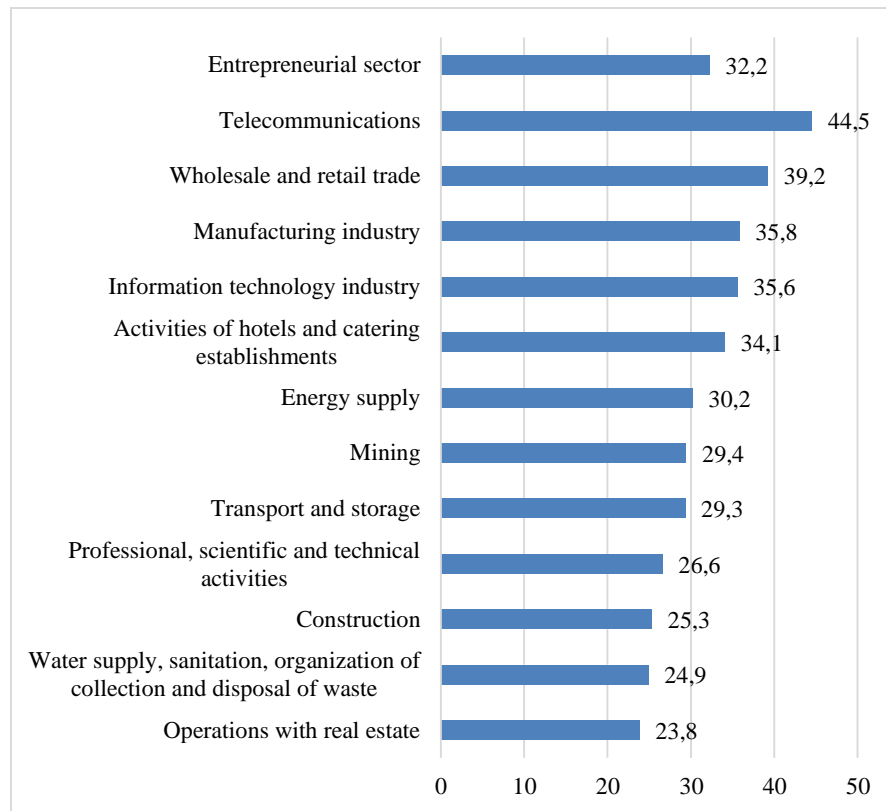


**Figure 2.** Prerequisites for the course of digital economic transformation over the past 10 years

Source: research data, 2022

Despite the hike in rates of the service exports associated with digital technological processes, digitalization is not only an activator of the increase in the international movement of services – the undeniable impact of the pandemic that began in 2020 and popularized the digital sector is also important.

According to the Federal State Statistics Service, there is the following spread of business digitalization index values in 2019 (Figure 3) (Federal State Statistics Service, n.d.).



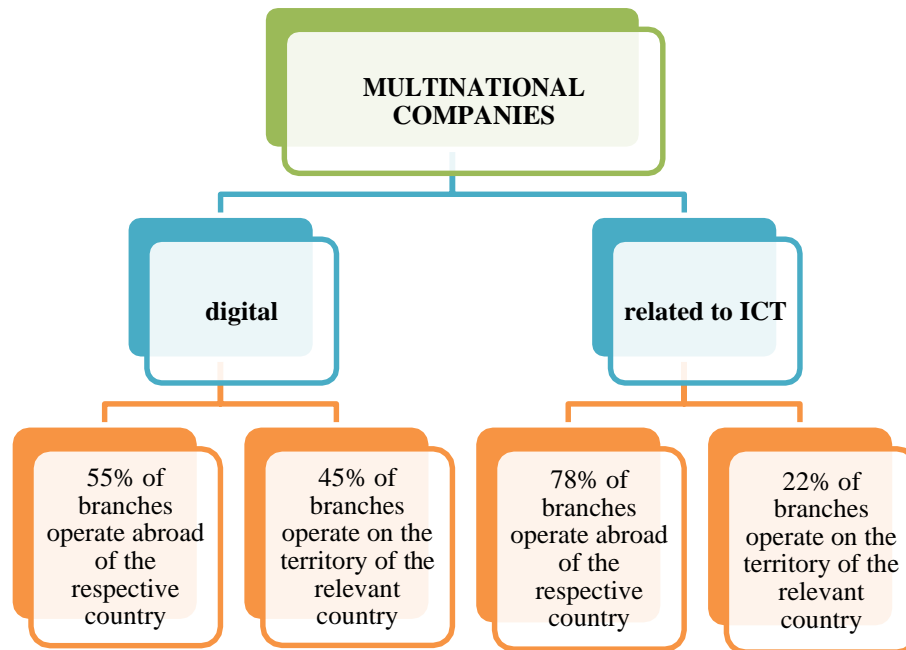
**Figure 3.** Business Digitalization Index by directions for 2019  
Source: research data, 2022

Digitalization of operations in the financial sector and commercial processes concerning securities is increasingly developing the connections of the financial markets of the countries of the world, as a result, more and more systemic risks are being formed. The digital technological base led to the emergence of the know-how for the global monetary and financial complex – cryptocurrency. To this day, such currencies do not cause widespread confidence (despite the breakthrough), most of the figures in the financial segment do not even advertise, fearing censure that they have them in their investment portfolios (Koshevenko, 2018).

### 3. RESULTS AND DISCUSSION

The expert staff of the UN Conference on Trade and Development presented a special report on the impact of the digital transformation of the economic space on the flow of international investment flows. It is a statistical fact that every year there is a quantitative increase in new multinational companies and the scaling of activities already operating in the

market. Defining these companies by directions, the following structure of the spread of their branches in percentages was presented (Figure 4) (Soboleva, Kalmykov, 2019).



**Figure 4.** The structure of the spread of branches of multinational companies by direction in percentages

Source: research data, 2022

Thus, it can be concluded that the digital transformation of the economy does not affect the scaling of the assets of international entrepreneurship.

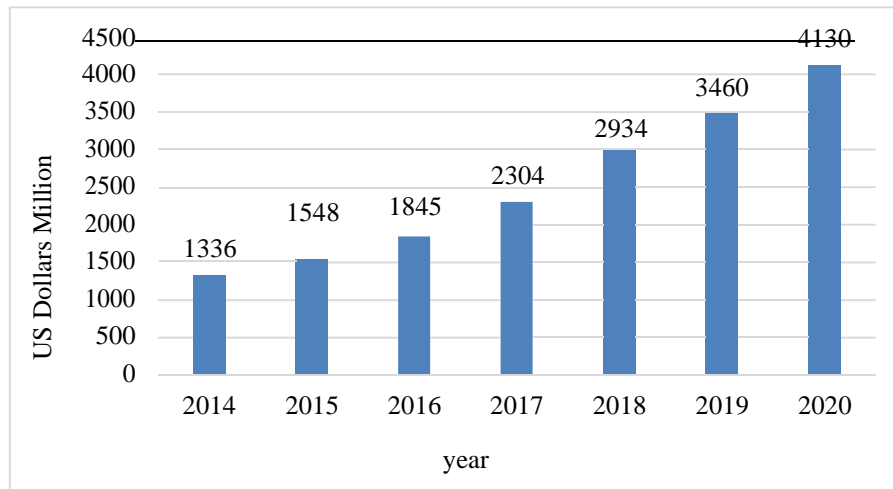
The trends of retail trade distribution are a reflection of the reduction in investments in established business areas (Kononkova, 2020). According to US experts, the retail environment was affected by the challenges arising in four waves:

1. The beginning of the 2000s. The emergence of online stores that began to sell books/disks/computer components.
2. The middle of the 2000s. Increasing the assortment range at online retail outlets (clothing/shoes/equipment).
3. The beginning of the 2010s. The formation of large online platforms (Amazon/eBay, etc.), in which the expanded product range competes rightfully with global offline networks. The absorption of some trading entities by others, both in online and offline formats, is characteristic.



4. Originates in the minimization of traditional outlets and the popularization of the opening of points of delivery of orders/goods (Soboleva, Kalmykov, 2019).

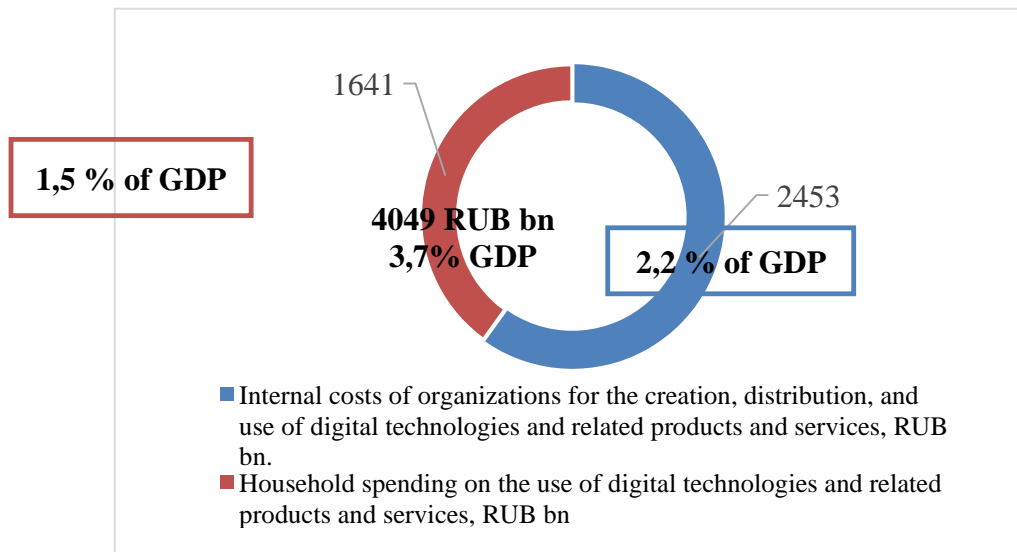
Figure 5 shows the annual changes in the global e-commerce market for 2014-2020 in millions of dollars (Dynamics of the global e-Commerce market, 2020).



**Figure 5.** Changes in the global e-commerce market for 2014-2020 in millions of dollars.  
Source: research data, 2022

Based on the presented dynamics, the development of this world market reflects the high rates of implementation from period to period.

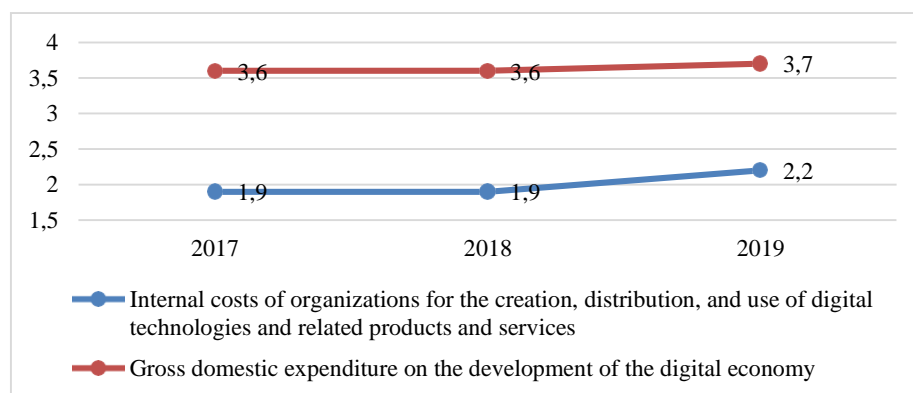
As the statistical data on the volume of the digital economy in GDP, estimated by the expert staff, show, the fact is noted that Russia is not among the leaders who effectively and progressively transform the economy through the components of digitalization (Figure 6) (Federal State Statistics Service, n.d.).



**Figure 6.** The structure of expenditures of Russian economic entities in the field of digital technologies in % of GDP for 2019

Source: research data, 2022

If we consider the dynamics of gross domestic expenditures in the development of the digital economic field, including related corporate costs, then there are only minor positive percentage deviations for the range of 2017-2019 (Figure 7) (Federal State Statistics Service, n.d.).



**Figure 7.** Cost groups for the development of the digital economy in Russia in % of GDP for 2017-2019

Source: research data, 2022

This confirms the popular opinion of researchers that improving aspects and branches of the digital economy is far from one of Russia's priority goals concerning state development and strengthening economic relations with the countries of the world.

However, as noted in scientific circles, Russia has significant opportunities for the full realization of digital potential and increasing the pace of relevant processes. Russia ranks high in the ranking of the availability of services such as the use of cellular communications and broadband Internet (Starodubtseva & Markova, 2018).

At the same time, there are difficulties with the advanced directions of the 4th Industrial Revolution (the only colossal breakthrough was the improvement of e-commerce and trade in goods/services due to the circumstances caused by the 2020 pandemic). No fewer problems affect the areas of personnel retraining and scaling of research structures (Zhilina, 2018).

#### **4. CONCLUSION**

Having assessed the prerequisites, the state, and trends of digital economic transformation and having established the opportunities and risks arising from it, it is possible to summarize that:

- digitalization in the new spectrum of the 4th industrial Revolution does not catalyze the exchange procedures between the countries of the world in the space of the real economy;
- the latest stage of digital transformation will lead to the transformation of the competition structure of several high-tech economic entities (in particular, subjects of trade via the Internet, ICT, communications);
- scaling and consolidation of some of the latest digital technology tools will increase international communications of specialists in narrow areas in the fields of healthcare, education, science;
- digital transformation and the technologies associated with it will cause unique challenges to classical economic sectors (the importance of re-profiling, modification of business strategies).

The popularization of robotics, the practical implementation of artificial intelligence form a significant part of the population's feelings of apathy and distrust of the ongoing transformation. Research results from the McKinsey Global Institute were presented as proof of this point of view:

1. People note that they are positive about the transformation of the segments of health care, the educational sector, improving social activity, and attention to the public.

2. At the same time, people are alarmed by the subsequent growth of unemployment, the decline in the quality of living conditions, the minimization of trust in society due to the prevalence of virtual communication over the physical one.

To all intents and purposes, digitalization will change the course of development of state institutions along the vector of increasing transparency, while traditional criteria of economic transformation (excluding its virtual field) will set the tone for the prospects of improving the global economic space.

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