



THE IMPACT OF THE DEVELOPMENT OF DIGITALIZATION AND THE INTERNET ON SOCIO-ECONOMIC PROCESSES IN THE RUSSIAN FEDERATION

O IMPACTO DO DESENVOLVIMENTO DA DIGITALIZAÇÃO E DA INTERNET NOS PROCESSOS SOCIOECONÔMICOS NA FEDERAÇÃO RUSSA

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ABSTRACT

Background: The current stage of development of society and civilization is characterized by the introduction of information technologies in various fields of activity and the digitalization of many processes. Objective: The purpose of the study is to identify the features of the formation of the digital economy in the Russian Federation during 2016-2019. Methods: The article analyzes the concepts of digital transformation, digitalization, digital economy. The main statistical indicators of the level of digitalization in the Russian Federation have been analyzed. Results: Conclusions about digitalization have been made. The following indicators have been analyzed: households with computers and Internet access; factors constraining the use of the Internet by the population; the population using the Internet to order goods and services; the population using the Internet to order popular goods and services; payment methods for goods and services ordered by the population via the Internet; reasons for the refusal of the population to use the Internet to order goods and services; the population interacting with public authorities and local self-government using the Internet; reasons for the refusal of the population to use the Internet to receive state and municipal services.



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Keywords: digital transformation, digitalization, digital economy, computers, Internet access; ordering goods and services via the Internet, public services via the Internet.

RESUMO

Antecedentes: O atual estágio de desenvolvimento da sociedade e da civilização é caracterizado pela introdução das tecnologias da informação em vários campos de atividade e pela digitalização de muitos processos. **Objetivo:** O objetivo do estudo é identificar as características da formação da economia digital na Federação Russa durante 2016-2019. **Métodos:** O artigo analisa os conceitos de transformação digital, digitalização e economia digital. Foram analisados os principais indicadores estatísticos do nível de digitalização na Federação Russa. **Resultados:** Foram feitas conclusões sobre a digitalização. Foram analisados os seguintes indicadores: domicílios com computador e acesso à Internet; fatores que restringem o uso da Internet pela população; a população que utiliza a Internet para encomendar bens e serviços; a população que utiliza a Internet para encomendar bens e serviços populares; formas de pagamento de bens e serviços encomendados pela população através da Internet; razões para a recusa da população em usar a Internet para encomendar bens e serviços; a população interagindo com autoridades públicas e governos autônomos locais usando a Internet; razões para a recusa da população em usar a Internet para receber serviços estaduais e municipais.

Palavras-chave: transformação digital, digitalização, economia digital, computadores, acesso à Internet; encomenda de bens e serviços através da Internet, serviços públicos através da Internet.

1 INTRODUCTION

Digital technologies are actively penetrating society and forming new social relations. Digitalization covers both commercial and state structures. This factor at the present stage is the basic one in the formation of competitive advantages. Technologies such as blockchain, the Internet of Things, artificial intelligence, augmented reality, Internet marketing, company websites and mobile applications for the sale of goods and services, CRM systems and much more have entered our everyday life.

The purpose of the study is to identify the features of the use of digital technologies for personal use, as well as for commercial orders and use by the population for state



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interaction in the Russian Federation, as well as to identify the reasons that negatively affect the digitalization of these processes in general.

2 LITERATURE REVIEW

The study of automation and digital transformation was laid down in the works of such scholars as N. Wiener, B. Gates, P. Drucker, J. Schumpeter, Don Tapscott, and others (Akarkin & Yasinovskaya, 2018; Dneprovskaya, 2020; Gribanov, 2019; Kamolov, 2020; Kosareva & Samarina, 2019).

The digital economy is revealed in the scientific works of leading Russian scholars such as E.N. Veduta, L.P. Goncharenko, S.Yu. Glazyev, A.I. Gretchenko, V.V. Ivanov, M.V. Kudina, V.I. Maevskiy, and G.G. Malinetskiy (Dneprovskaya, 2020; Gribanov, 2019; Kamolov, 2020).

Such concepts as digital transformation, digitalization, and digital economy do not yet have a stable and generally accepted definition. However, when analyzing these concepts, it is possible to consider several approaches that have already been formed by consulting companies and some researchers.

Let us start with the analysts of the Boston Consulting Group (BCG): "Digital transformation is the fullest use of the potential of digital technologies in all aspects of business". A brief but succinct definition of this process (Dneprovskaya, 2020; Garifullin & Zyabrikov, 2018; Gribanov, 2019; Kamolov, 2020; Kitova & Bruskin, 2018). Scholars at the Massachusetts Institute of Technology interpret this definition as follows: "The use of technology to radically increase productivity or the availability of resources for enterprises" (Dneprovskaya, 2020, p. 28; Garifullin & Zyabrikov, 2018; Gribanov, 2019; Kamolov, 2020). That is, the goal of digitalization is to increase labor productivity. D. Terrar, an analyst at Agile Elephant, believes that digital transformation is the process of an organization's transition to new ways of thinking and working based on the use of social, mobile and other digital technologies. This transformation includes changes in thinking,



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leadership style, innovation promotion system and adoption of new business models to improve the work of the organization's employees, its customers, suppliers and partners (Dneprovskaya, 2020, p. 56; Garifullin & Zyabrikov, 2018; Griбанov, 2019; Kamolov, 2020).

This definition affects not only the technical part of these transformations but also the ways of thinking and leadership style, as well as the business models of companies. World Bank Group, 2018 gives the following definition: the manifestation of qualitative, revolutionary changes, consisting not only in individual digital transformations but also in a fundamental change in the structure of the economy, in the transfer of value creation centers to the sphere of building digital resources and end-to-end digital processes (Abdrakhmanova et al., 2021, p. 12).

This definition touches upon an even deeper idea that the structure of the economy that has changed in recent decades, namely, an increase in the share of services, will be subject to even greater changes and digital technologies. Digital technologies will be the most profitable in comparison with traditional industries, which cannot but affect society as a whole. The problem of income differentiation will increase in society due to changes in the structure of industries and due to the formation of an uneven distribution of income.

Russian scholars, namely V. Ryzhkov formulate this way – the digital transformation of business is "a change in business thinking in the new conditions of the digital economy, the driver of which is the modern consumer and the changing culture of communications" (Dneprovskaya, 2020, p. 33; Garifullin & Zyabrikov, 2018; Griбанov, 2019; Kamolov, 2020). It also affects the sphere of new thinking and changes in communication with the consumer.

According to Yu.I. Griбанov: "Digitalization, in turn, is a process aimed at digitizing all information (and even material) resources (creating digital copies) and forming network platforms for interaction, to obtain a predictable and guaranteed result for any control action using automation tools" (p. 20).

Experts of the BCG noted that "digitalization is the use of online opportunities and innovative digital technologies by all participants of the economic system – from



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individuals to large companies and states" (Gribanov, 2019, p. 20). Thus, digitalization is a process of transition to a new technical level of development in society.

The digital economy is an economic activity in which the key factor of production is digital data, the processing of large volumes and the use of the results of analysis of which, in comparison with traditional forms of management, can significantly increase the efficiency of various types of production, technologies, equipment, storage, sale, delivery of goods and services. (Dneprovskaya, 2020, p. 26).

Thus, the digital economy involves the entire process of production and sale of goods and services in society (Cherkasova & Zainullina, 2021; Ishtiryakova & Zainullina, 2020; Mustafina, Kaigorodova, Alyakina, Velichko, & Zainullina, 2020).

3 MATERIALS AND METHODS

Methods of information accumulation, data collection, and processing were the main tools of research and work. Abstract logical and monographic research methods were used to describe theoretical approaches in the article. We also applied comparative and statistical methods of scientific cognition. Scientific works of scholars and specialists, materials of the Internet were used. In addition, statistical collections of Rosstat and analytical reports were used.

4 RESULTS AND DISCUSSION

The article analyzes the changes in statistical indicators of the use of digital tools in the Russian Federation over several years.

Table 1. Households with personal computers and Internet access (Laikam, 2017; Malkov et al., 2020; Sabelnikova et al., 2018, 2019)

Years	2014	2015	2016	2017	2018	2019



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Personal computers (as a percentage of the total number of households)	71.0	72.5	74.3	74.4	72.4	69.4
Internet access (as a percentage of the total number of households)	69.9	72.1	74.8	76.3	76.6	76.9

According to Table 1, from 2014 to 2019, the share of households with personal computers is growing from 2014 to 2017. This indicator reached its greatest value in 2017. This indicator is slightly decreasing by 2019. The indicator of Internet access is constantly increasing in the period under review from 69.9% to 76.9%. There is a fairly high level of equipment with computers and the Internet of the population of the country in the Russian Federation.

Table 2. Factors constraining the use of the Internet by the population (as a percentage of the total population who did not use the Internet or used it more than a year ago) (Laikam, 2017; Malkov et al., 2020; Sabelnikova et al., 2018, 2019)

Years	2014	2015	2016	2017	2018	2019
No need (unwillingness to use, no interest)	70.0	67.9	69.7	70.1	72.6	74.0
Lack of skills to work on the Internet	18.4	21.8	25.3	29.0	31.7	32.9
High connection costs	10.2	12.3	11.2	11.5	14.6	15.3
Lack of technical connectivity	4.5	5.1	4.5	4.1	4.8	4.8
Security considerations of these:	7.6	1.5	2.2	3.2	2.4	3.4
the desire to restrict children's access to unwanted information and programs	0.9	0.4	0.6	0.5	0.4	0.3
the desire to protect the computer from viruses and virus-bearing programs	0.3	0.1	0.2	0.2	0.1	0.1
unwillingness to disclose personal data on the Internet	1.3	1.1	1.5	2.7	2.0	3.1
Other reasons	6.9	9.3	9.1	9.7	8.1	7.4
Found it difficult to answer	2.8	3.9	3.3	3.4	1.7	1.9



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Next, we will analyze the main reasons why the Internet is not used in the Russian Federation. One of the main reasons is the unwillingness to use (approximately 70-74%), the next basic reason is a lack of skills (18-32.9%), the third most important problem is high connection costs (10.2-15.3%). Also, the reasons for not using the Internet were the lack of technical connectivity (4.5-4.8%); security considerations (7.6-3.4%). All of the above factors constraining the use of the Internet mainly relate to the older generation of the population. Since, according to statistics, the population aged 45 and above is 42.4% in Russia, it is not surprising that these reasons influenced the containment of the process. The active population who uses the Internet, aged 14-44 years – 39.8% (Federal State Statistics Service [ROSSTAT], 2021, p. 8).

Table 3. The population using the Internet to order goods and services, by type of terrain (Laikam, 2017; Malkov et al., 2020; Sabelnikova et al., 2018, 2019)

	As a percentage of the total population				
	2015	2016	2017	2018	2019
Total	19.6	23.1	29.1	34.7	35.7
Urban area	22.5	26.5	32.6	38.3	39.6
Rural area	10.6	12.9	18.4	23.7	23.8

Digital technologies increasingly make it possible to purchase goods and services via the Internet. As can be seen in Table 3, the share of the population using this opportunity is increasing rapidly – 19.6% in 2015 and 35.7% in 2019. If we compare the urban and rural populations, the growth rate in the city is much higher than in rural areas. This difference can be explained by the lack of technical connectivity of the Internet in rural areas and the underdevelopment of logistics of many companies in rural areas.

Table 4. Population using the Internet to order goods and services by gender and age groups (Laikam, 2017; Malkov et al., 2020; Sabelnikova et al., 2018, 2019)

	As a percentage of the total population				
	2015	2016	2017	2018	2019
Gender					
Men	17.6	20.6	26.1	32.1	33.5
Women	21.3	25.3	31.7	37.0	37.7
Age, years					
15-24	25.0	29.3	35.2	45.3	44.2



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25-34	31.4	36.3	46.1	53.1	53.7
35-44	23.8	28.2	37.1	43.7	45.1
45-54	14.9	19.1	25.7	31.9	34.5
55-64	7.5	8.7	12.5	16.1	18.2
65-74	2.3	3.0	3.9	5.6	7.1

If we analyze online orders by gender, we can see that men and women are increasing the pace of using the Internet for orders of goods and services and they are approximately equal in value. However, the proportion of women slightly exceeds the proportion of men. This is since, in society as a whole, the proportion of women exceeds the proportion of men.

We observe the following picture when analyzing the use of the Internet for ordering goods and services by age. From 2015 to 2019, the share of the population in all age categories is increasing. However, a large proportion of the population using online orders are aged 15 to 54 years. A small proportion aged 55-64, and the lowest proportion – 64-74 years.

Table 5. The population using the Internet to order popular goods and services (as a percentage of the total population using the Internet to order goods and services) (Laikam, 2017; Malkov et al., 2020; Sabelnikova et al., 2018, 2019)

	2015	2016	2017	2018	2019
Clothing, shoes, sporting goods	45.5	48.3	51.6	55.6	57.6
Financial services (banking services, money transfers, insurance services, transactions with stocks and other securities, etc.)	25.1	28.9	33.6	40.2	43.5
Household items (furniture, tableware, cutlery, bed linen, interior items, toys, etc.)	27.8	25.6	26.1	27.1	27.0
Telecommunication services (television, Internet access services, fixed and cellular communications, etc.)	14.9	17.6	21.1	24.5	26.9
Tickets for entertainment events (concerts, theater, sports competitions, etc.)	16.3	17.8	20.0	20.4	23.1



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Travel-related services (ticket purchase, hotel booking, transport rental, etc.)	16.7	17.5	17.3	18.5	19.9
Electronic equipment (household appliances, mobile phones, electric lamps, batteries, etc.)	14.8	13.9	14.6	16.8	18.8
Books, magazines, newspapers (including electronic ones)	10.6	11.9	10.9	12.7	15.2
Medical products	8.2	10.3	10.7	12.1	13.1
Computer equipment (personal computers and accessories to them, for example, keyboards, sound speakers, monitors, etc.)	8.6	8.7	10.4	11.9	14.1
Movies, music	11.5	10.7	9.8	11.2	11.3
Products for creativity and hobbies (paints, paper, thread, fabric, etc.)	11.1	8.5	9.8	10.5	11.5
Food and groceries	7.4	8.7	8.9	8.9	8.6
Video games and their updates	8.1	8.9	8.0	8.0	8.0
Software (including updates)	7.1	6.8	7.4	5.4	5.5

According to Table 5, the largest share of goods ordered via the Internet is occupied by clothing, shoes, sporting goods. Financial services on the Internet are growing very rapidly (from 25.1% in 2015 to 43.5% in 2019). Household items rank next in importance. For all types of goods, there is an increase in the proportion of the population using online orders. Only the software shows a decrease. Perhaps this is due to the peculiarities of technical support of programs and the user's fear of new programs.

Table 6. Payment methods for goods and services ordered by the public via the Internet (as a percentage of the total population using the Internet to order goods and services) (Laikam, 2017; Malkov et al., 2020; Sabelnikova et al., 2018, 2019)

	2015	2016	2017	2018	2019
Using a bank card	60.2	68.4	75.9	80.0	85.2
Cash upon delivery	38.3	36.7	33.9	35.5	36.3
Through a payment terminal or ATM	13.7	13.2	14.2	11.8	11.9
In Russian Post offices	13.5	12.7	13.6	11.0	10.3
Using a mobile phone (including via SMS)	7.1	7.6	10.2	9.9	10.6



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With the help of electronic money (WebMoney, Yandex. Money, etc.)	10.4	8.7	8.0	5.4	6.0
In bank branches	4.9	4.6	5.9	4.8	4.8
From the organization that distributes the product (service)	1.8	2.4	2.6	2.4	3.4
From the organization that produces the product (service)	1.3	1.8	1.5	1.7	2.1
Other ways	1.4	1.4	1.3	1.0	1.1

When analyzing payment methods for goods and services via the Internet, a bank card occupies a large share, and its growth rate increases significantly. Cash is still no less popular among the population and it occupies a strong position in the period under review. Popular means of payment are also – through a payment terminal or ATM; using a mobile phone; using electronic money (WebMoney, Yandex. Money, etc.).

Table 7. Reasons for the population's refusal to use the Internet to order goods and services (as a percentage of the total population that does not use the Internet to order goods and services) (Laikam, 2017; Malkov et al., 2020; Sabelnikova et al., 2018, 2019)

	2015	2016	2017	2018	2019
Preference for personal purchases	51.7	53.9	54.5	57.4	58.3
No need (unwillingness to use, no interest)	38.1	36.5	41.8	40.2	39.3
Lack of trust in this kind of purchases	16.8	19.0	17.8	18.7	19.6
Lack of skills to order goods and services via the Internet	4.3	4.7	5.8	5.4	5.5
unwillingness to disclose personal data on the Internet	5.1	5.6	4.9	5.0	6.4
Unwillingness to disclose payment card information on the Internet	4.2	4.5	4.7	4.8	6.2
Technical difficulties (for example, the Internet connection speed is insufficient to order goods, services, etc.)	1.0	0.8	0.9	0.8	0.7



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Online orders are a fairly convenient way to purchase goods, but this method is unlikely to completely replace the natural turnover. The main reasons for the population's refusal to use the Internet to order goods and services are – preference for personal purchases, unwillingness to use the Internet, lack of trust in such purchases. Thus, it can be concluded that online orders will exist as well as the usual ways of buying goods and services.

Next, let us consider how the Internet is used to interact with government authorities.

Table 8. The population interacting with public authorities and local self-government to receive services, through interaction (as a percentage of the total population) (Laikam, 2017; Malkov et al., 2020; Sabelnikova et al., 2018, 2019)

	Total				
	2015	2016	2017	2018	2019
Interacted – total	46.4	56.1	65.7	72.9	74.0
Via the Internet (using official websites and portals of state and municipal services)	18.4	28.8	42.3	54.5	57.5
Personal visit	21.2	22.5	24.0	21.5	21.8
In the multifunctional center for the provision of state and municipal services (MFC)	7.1	11.8	18.9	19.6	22.5
Did not interact	53.6	43.9	34.3	27.1	26.0

The population actively uses the Internet to interact with public authorities. As can be seen in Table 8, the share of the population increased from 18.4% in 2015 to 57.5% in 2019. The popularity of interaction with authorities through multifunctional centers has also increased (from 7.1% in 2015 to 22.5% in 2019). It is in this sector that the Internet has shown the greatest efficiency. Nevertheless, it is unlikely that it will be possible to completely transfer the interaction of the population and state bodies via the Internet since several reasons prevent this. This process is similar to the process of ordering via the



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Internet, and most likely there will be a so-called hybrid form of interaction – both via the Internet and personal visits to government agencies.

Table 9. Reasons for the population's refusal to use the Internet to receive state and municipal services (as a percentage of the total population that does not use the Internet to receive state and municipal services) (Laikam, 2017; Malkov et al., 2020; Sabelnikova et al., 2018, 2019)

	2015	2016	2017	2018	2019
Prefer a personal visit and personal contacts	60.1	69.6	60.9	58.7	57.1
Other people did it for the respondent	4.9	7.6	16.2	17.1	17.3
Insufficient skills or knowledge	10.3	9.7	14.3	17.1	17.2
Obtaining the necessary service required a personal visit and the provision of paper forms	18.4	10.7	13.5	16.1	17.8
There was no need to send official application forms	16.7	11.7	12.4	12.1	14.0
No immediate reaction (response)	2.4	2.1	2.5	2.5	2.2
There are concerns about the protection and security of personal data	2.6	1.7	2.3	2.2	2.5
The required service is not available on official websites and portals of state and municipal services	1.5	1.9	2.0	1.9	1.7
Problems with an electronic signature or other electronic identification methods required to receive the service	0.4	0.6	0.7	0.6	1.1

The main reasons for the population's refusal to use the Internet to receive state and municipal services are: the population prefers a personal visit and personal contacts, insufficient skills or knowledge of using the Internet and computers, the need for a personal visit, and the provision of paper forms, there was no need to send official application forms. In addition, the main obstacles are the security of personal data, the service is not available on official websites, problems with an electronic signature.



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5 CONCLUSION

Thus, digital transformation encompasses social and economic processes. As a result, such concepts as digital transformation, digitalization, and the digital economy appear, which need to be comprehended and formed. However, the above processes have already partially penetrated society and we have analyzed many statistical indicators in this article. As a result, it can be concluded that the coverage of the population by computers and the Internet occupies a large share in Russia and reaches an average of 72.33% and 74.43%, respectively, for 2014-2019. The main factors constraining the use of the Internet are unwillingness to use, lack of interest, and lack of skills to work on the Internet (on average, 70.71% and 25.51%, respectively, for 2014-2019). The population using the Internet to order goods and services averaged 28.44% in 2015-2019. A large share when ordering goods and services by the population via the Internet are – clothing, shoes, sporting goods (on average for 2015-2019 – 51.72%); financial services (on average for 2015-2019 – 34.26%); household items (on average for 2015-2019 – 26.72%). The most popular payment methods for goods and services ordered by the population via the Internet are: using a bank card (on average 73.94% for 2015-2019); cash upon delivery (on average 36.14% for 2015-2019); through a payment terminal or ATM (on average 12.96% for 2015-2019); in Russian Post offices (on average 12.22% for 2015-2019). The population interacting with public authorities and local self-government to receive services via the Internet is increasing and on average it amounted to 40.3% for 2015-2019. The basic reasons of the refusal of the population from using the Internet to receive state and municipal services appeared to prefer a personal visit (average 61.28% over 2015-2019); obtaining services required a personal visit and provide paper forms (the average of 15.3% for the period 2015-2019); lack of skill or knowledge (the average of 13.72% for the years 2015-2019). The processes of digital transformation are actively used, but many procedures need to be adjusted and refined for wider coverage of the population. In addition, it must be remembered that although digital transformation will occupy many niches, classical methods of interaction between the population and the



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process of buying and selling and interaction with government agencies will exist in society in parallel.

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