

The Concept of "Digital Economy": Development in the Regions

L.V. Mayorova

Federal state budgetary educational institution of higher education "Vladimir state University named after Alexander Grigoryevich and Nikolay Grigoryevich Stoletovs"

lud9@mail.ru

Abstract— The article highlights the implementation of the concept of "digital economy" in the socio-economic relations of Russian society. Following the goal of creating a new technological basis for economic development and improving the quality of life of the population, the program under consideration has developed directions for the application of Russian information and communication technologies in the life and work of people at the governmental level. Digitalization of the economy is aimed at increasing labor productivity, production efficiency, stimulating economic growth, attracting investment in the production of innovative technologies, increasing the competitiveness of the Russian Federation in world markets, and ensuring its sustainable development. The work assesses the development trends of certain aspects of socio-economic activities that characterize the level of development of Internet technologies in the country. For this purpose, a number of indicators characterizing the information potential in the regional aspect have been selected: availability of access to the Internet, including its use by the population for obtaining state services, activity of using telecommunications networks by enterprises, the share of retail trade turnover through the Internet, the structure of costs IT- technologies. Negative factors and positive trends in the use of information and communication technologies, the effectiveness of their implementation in various federal districts of the Russian Federation are revealed.

Keywords— *digital economy, information and communication technologies, Internet resources*

1. INTRODUCTION

The term "digital economy" appeared at the end of the 20th century as applied to the production and sale of goods (services) using Internet technologies. In the arsenal of Russian economic research this notion has been developing since 2016 with Putin's Address to the Federal Assembly [1]. The National Research University "Higher School of Economics" is engaged in the evaluation of the information society since 2009 [9].

The concept of "digital economy" assumes the definition of the course for the further development of Russian society, taking into account the introduction of information and communication technologies.

2. PURPOSE AND OBJECTIVES OF THE DIGITAL ECONOMY

The main goal of digitalization of the social and economic sphere is to improve the quality of life of the population and the conditions for doing business [9]. As part of the development of the concept of "digital economy", a number of

strategic regulatory and legislative acts adopted up to 2024, 2030 [2], [3], in which the basic directions of development in this area are determined. They include: regulatory regulation, personnel and education, the formation of research competencies and technical facilities, information infrastructure and information security [9].

Also within the framework of the program "Digital Economy of the Russian Federation" [2] spheres of public life, designated as priorities are defined:

- increasing of accessibility and quality of medical services;
- developing of distance learning;
- improving of the credit service delivery system;
- creating of conditions for the development of distance work;
- ensuring the security of the infrastructure used to sell goods and services, protecting citizens from counterfeit and substandard products;
- ensuring the lawful use and protection of personal data;
- providing support to Russian enterprises for access to foreign markets for goods and services;
- developing of technologies for electronic interaction of citizens, organizations, state bodies.

Thus, in order to achieve the results noted in the legislative framework adopted by the government of the Russian Federation, the concept of "digital economy", it is necessary to integrate Internet technologies into economic relations.

3. ASSESSMENT OF THE INFORMATION POTENTIAL IN THE REGIONAL ASPECT

To assess the development of such a large-scale program in the regional aspect, on Rosstat's website [4] we will select a number of indicators characterizing the information potential of various federal districts (FD). The main benchmark of the achieved results of the concept of "digital economy" is the availability of information and communication technologies for users, so first we will study the dynamics of the number of active Internet subscribers (Table 1). The average growth rate for 2012 – 1st half of 2017 for the Russian Federation is 39%. The fastest rate (more than 50%) is the growing number of Internet users in the South and North-Caucasian Federal Districts. The largest share is observed in the Central Federal District (30%), the lowest - in the North-Caucasian and Far Eastern Federal Districts (2% and 4% respectively).

At the same time, the lowest rates of growth in the number of active users of the Internet (27%) are in the latter, organizations that have Internet sites (Table 2) account for about half of the total number, which is sufficient to carry out the electronic sale of goods and services. In 2016, their share

in the Russian Federation is 46% of all organizations. If you compare it with the number of organizations using the Internet, then the proportion of organizations that do not have a website is small - not more than 8%. At the same time, in the Siberian and Volga federal districts this share is 1%.

Table 1. The number of active fixed Internet access subscribers at the end of the period, thousand units

Indicators	2012	2013	2014	2015	2016	2017 (1 p/y)	Growth rate 2017/ 2012, %	Unit weight of FD, %
RF	21 111	24 115	25 044	26 944	27 493	29 376	139,2	100
Central FD	6 198	7 360	7 744	8 018	8 263	8 706	140,5	29,6
North-West FD	2 443	2 804	2 860	3 109	3 252	3 481	142,5	11,9
Southern FD	1 629	1 864	2 000	2 270	2 283	2 629	161,4	9,0
North-Caucasian FD	430	510	582	633	636	659	153,3	2,2
Volga FD	4 863	5 461	5 436	5 830	5 965	6 614	136,0	22,5
Ural FD	2 106	2 376	2 453	2 705	2 659	2 707	128,5	9,2
Siberian FD	2 603	2 880	3 038	3 334	3 426	3 517	135,1	12,0
Far East FD	839	860	909	978	1 009	1 063	126,7	3,6

Table 2. Proportion of organizations with a website on the Internet, in the total number of organizations, %

Indicators	2012	2013	2014	2015	2016	Change 2016/ 2012, pp.	The share of organizations that do not have a website among those using the Internet, 2016
RF	37,8	41,3	40,3	42,6	45,9	8,1	4,8
Central FD	41,3	44,4	43,6	47,1	50,8	9,5	7,2
North-West FD	43,8	46,6	46,0	47,4	50,4	6,6	8,2
Southern FD	32,7	37,	30,7	37,5	41,8	9,1	5,4
North-Caucasian FD	36,4	39,8	37,8	41,9	46,5	10,1	5,5
Volga FD	38,7	41,6	40,6	42,0	45,1	6,4	1,2
Ural FD	39,4	43,6	44,1	42,9	46,6	7,2	5,2
Siberian FD	32,5	36,6	37,3	38,8	40,6	8,1	1,2
Far East FD	32,0	35,9	36,9	38,5	42,6	10,6	6,5

During the analyzed period, the share of organizations with a website had a slight upward trend of 6-11 pp. The greatest growth was registered in the North-Caucasian and Far Eastern Federal Districts, which had low rates for 2012. In the Central and North-Western Federal Districts, the percentage of organizations with Internet sites is the largest - 50-51%. Information on sales through the Internet has been available since 2014. For the period of 2014-2016 in the total turnover of retail trade, they constitute an insignificant share - 1% in Russia as a whole and slightly more or less in the federal districts. At the same time, the largest share belongs to the Central and Siberian Federal Districts (1.6% and 1.4%, respectively). The share of the North-Caucasian Federal District is 0.1%. The dynamics, in the main, are positive, the increase is from 20 pp. up to 200 pp, but for small values this indicator is not significant.

In the structure of costs of Russian enterprises (Table 3), for IT-technology does not include the data on payment for communication services that are not related to information,

payment for training of employees-ICT users, other costs. The most significant items of expenditure in the RF as a whole are: the acquisition of software, computers and payment for services related to ICT (20-22%). Payment for Internet services to businesses is cheap and amounts to 6-12% of the total list of costs for the development of Internet technologies, which indicates the availability of Internet resources in the activities of economic entities. A negative fact is a small share of expenditures (no more than 16%) for the purchase of software in the regions except for the Central Federal District (28%). Excess of the share of costs for services rendered to organizations engaged in IT technologies compared to the acquisition of telecommunications equipment in most regions (except for the Southern, North-Caucasian and Far Eastern Federal Districts) indicates a lag in the development of information and communication technologies in enterprises of various industries in comparison with the sphere ICT.

Next, let us consider the availability of the Internet environment for individuals in the directions indicated in the

program for the development of the digital economy as a priority, namely the availability of information and

communication technologies and the receipt of state and municipal services in the electronic form.

Table 3. Structure of costs for information and communication technologies in 2016, %

Costs	for the acquisition of computing equipment	for the acquisition of telecommunication equipment	for the acquisition of software	for the access to the Internet	for the payment for services of third-party organizations and ICT specialists (except for communication and training services)
RF	20,0	11,6	22,4	5,5	20,3
Central FD	19,3	9,8	28,1	4,5	20,1
North-West FD	26,4	15,2	15,1	6,2	19,9
Southern FD	18,1	19,2	15,5	7,5	17,9
North-Caucasian FD	16,3	18,1	13,9	12,8	14,3
Volga FD	22,7	12,9	14,1	6,8	21,0
Ural FD	18,4	8,3	14,8	7,1	28,9
Siberian FD	15,2	15,9	14,7	6,5	16,0
Far East FD	20,0	19,9	10,6	9,0	15,4

Table 4. Proportion of households with access to the Internet, %

Indicators	2012	2013	2014	2015	2016	Amendment 2016/2012, pp.
RF	52,8	58,9	62,8	64,5	68,0	15,2
Central FD	54,5	59,5	65,8	66,9	71,8	17,3
North-West FD	62,9	70,0	72,7	73,2	72,8	9,9
Southern FD	48,3	56,1	57,2	62,4	67,7	19,4
North-Caucasian FD	32,3	37,2	42,0	51,9	55,4	23,1
Volga FD	52,2	58,7	63,2	63,9	65,6	13,4
Ural FD	59,7	63,9	67,2	67,1	70,0	10,3
Siberian FD	50,7	58,6	61,8	61,4	65,8	15,1
Far East FD	53,1	58,1	58,9	64,8	69,2	16,1

Both the "Strategy for the Development of the Information Society in the Russian Federation for 2017-2030" [9], and the program "Digital Economy of the Russian Federation" [9] are aimed at improving the population's ability to receive on-line services. Therefore, the main characteristic is the availability of access to the Internet (Table 4). For the year 2016, the proportion of people who have such an opportunity was about 70%, both in the Russian Federation and in the federal

districts. Only slightly more than half of the population of the North-Caucasian Federal District has access to the Internet, although it has the highest positive dynamics of 23 pp. In general, over the five analyzed years in Russia, the increase was 15 pp. Low growth rates (10 pp) are observed in the North-West and Ural federal districts, which have the highest shares of households with access to Internet resources.

Table 5. Proportion of citizens using the mechanism for obtaining state and municipal services in electronic form, %

Indicators	2014	2015	2016	Amendment 2016/2014, pp
RF	35,2	39,6	51,3	145,7
Central FD	37,6	47,9	56,3	149,7
North-West FD	31,9	39,3	43,7	137,0
Southern FD	25,1	37,2	48,4	192,8
North-Caucasian FD	16,9	19,6	45,5	269,2
Volga FD	38,1	42,6	55,3	145,1
Ural FD	47,1	35,2	53,1	112,7
Siberian FD	29,0	30,3	40,8	140,7
Far East FD	41,8	33,9	48,0	114,8

The proportion of citizens using the Internet for receiving government services (Table 5) is quite large - in Russia for 2016 it was 51%. The most popular services are in the Central (56%), Volga (55%), Ural (53%) federal districts. The least attractive are these

services in the Siberian (41%) and North-Western (44%) federal districts. In general, in three years (2014-2016), the receipt of public services with the help of Internet technologies has increased by 50%,

while the greatest increase is typical for the North-Caucasian Federal District (more than 2.5 times).

4. CONCLUSION

Thus, the analysis revealed the positive and negative aspects of the development of information and communication technologies in various regions of the country. Potential opportunities for the effectiveness of the work of employees using IT technologies are high: the cost of their education is only 0.5% for the last year in the total amount of costs for information and communication technologies. At the same time, sufficient accessibility of the above-mentioned technical means is observed: provision of computer equipment, use of global information networks by enterprises for 2016 is over 90%; costs for payment of Internet resources - no more than 5.5%. A negative factor is a small share of sales through the Internet in the total turnover of retail trade - 1%. This deterrent is the lack of more than half of the economic entities of a website on the Internet.

Demonstrative in the development of the digital economy is a fairly high share for 2016 (19-22%) and positive dynamics over the last 5 years of the cost of purchasing office equipment, software products and payment for third-party organizations and specialists in information and communication technologies. This indicates the development of information infrastructure in the country.

Having studied the availability of the Internet environment for individuals, it can be concluded that 68% of households in Russia have sufficient facilities and so do more than 70% of residents of the Central and North-Western Federal Districts. Also one of the main indicators of the concept is to bring the share of public and municipal services to the population in the electronic form to 70% by 2019. Given the fact that in 2016 this indicator was 51% in Russia, this result will be achieved.

In the regional context, the development of the digital economy has a positive trend. The main indicators are the Central and North-Western federal districts. The lagging behind in the development of information and communication technologies is the North-Caucasian Federal District, spending

the least amount of funds for their implementation, which, for example, is 70 times less than in the Central Federal District.

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