Priority Directions of Digital Economy Development and Effectiveness of State Policy in the Informatization Field

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Abstract. In the given research the priority directions of the development of digital economy are considered as an integratively distributed technology and a digital platform for the transformation and development of structures aimed at the effectiveness of state policy in the field of informatization. As part of this study, the priority directions of the development of digital economy are considered as an integratively distributed technology and a digital platform for the transformation and development of structures with the aim of the effectiveness of government policy in the field of informatization. A critical assessment is made of the features of new technologies and the consequences of their introduction for organizations and enterprises of the real sector of the economy are considered. Based on the assessment, the authors substantiate the approach to the study of actual problems in accordance with the needs and goals of society within the framework of the transformational institutional paradigm caused by the transition to digital economy.

Keywords: Target indicators · National state program · Costs of digital economy

1 Introduction

According to some authors, the result of the socio-economic revolution taking place in the modern world is the construction of a post-industrial society in which information technologies, computerized systems, high production and innovative technologies play an important role [10]. According to Semenov "The spreading of digital technologies gives a reason to talk about the formation of new socio-economic relations, about the digital economy" [14]. Currently global economy does not expect a global breakthrough of technological innovations. However, it is impossible to deny the perspective transformations associated with the industrial revolution "Industry 4.0" which is based on the principles of digitizing of vertical processes within an enterprise and horizontal links between companies - manufacturers, customers, intermediaries, partners and other counterparties. Nowadays you can find a lot of research of Russian and foreign authors on technological breakthrough, solving of technological problems proposed for the reorganization of transaction processes and the exchange of information for private purposes. In this regard issues related to digital economy are studied. Many authors such as

S. I. Ashmarina et al. (Eds.): ISCDTE 2019, LNNS 84, pp. 39–46, 2020.
https://doi.org/10.1007/978-3-030-27015-5_5

Brynjolfsson and Kahin [3], Bukht and Heeks [4], and others [1, 2, 17] study the term "digitalization" and the patterns of development of digital economy. Haltiwanger and Jarmin [9], Moulton [11] and Sheehy [15] pay more attention to the questions of its measurement. At present there are practically no studies devoted to issues of state management of digitalization processes and identifying of strategic development directions. There are some studies of management that cover only certain areas or are limited by public regulation [5]. However, digital technologies are developing rapidly; digitalization covers all aspects of modern life. The level of development of society and the rate of economic growth are directly dependent on the nature and directions of development of digital economy. Therefore, planning and determining of the priority directions of development in the field of digitalization are the key tasks of the state. The development of programs and the assessment of the effectiveness of their implementation are the most important state decisions. This article is devoted to the questions mentioned above.

2 Methodology

The methodological basis of the research is the system approach, which allows considering digital economy as a holistic object, including a multitude of elements. The following research methods were used in the work: formal-logical (deduction, induction, justification, argumentation); abstract-logical (when setting goals, research tasks); empirical (observation and experimentation); economic-statistical, economic and mathematical. Data processing was performed using the Microsoft Office software package (Excel, Word).

3 Results

Let's have a look at the proposed sources of financing and their structure for the national program for the development of digital economy. Extra-budgetary funds will make a predominant share in financial sources in 2020. In other years the federal budget will become the key source of funding for the national program. Analysis of the distribution of financial resources for projects shows that the largest expenditures are planned for the projects "Information Infrastructure" and "Digital Technologies". This national project will be implemented within the framework of several state programs, including the State Program "Information Society". It is going to be implemented during the period from 2011 to 2020. The program has target development indicators. You can view them, comparing planned and actual indicators.

From Table 1 it can be seen that the actual values of most indicators do not reach the planned ones. Only one indicator value exceeds the planned value - the share of citizens using the mechanism of receiving state and municipal services in electronic form. The development of information society, information and telecommunication technologies is a key task in a digital economy. Let us gave a look at the sub-programs of the State Program "Information Society". The sub-programs "Information and Telecommunication Infrastructure of the Society and Services Provided on its Basis", "Information Environment", "Security in the Information Society" and "The

Table 1. Target development indicators of the state program "Information Economy" in 2014–2017

	2014		2015		2016		2017	
	Plan	In fact	Plan	In fact	Plan	In fact	Plan	In fact
The place of the Russian Federation in the international ranking of information technology development index	40	45	20	–	10	43	42	45
The share of citizens using the mechanism of receiving state and municipal services in electronic form, %	35	35,3	40	39.6	39,6	–	60	64,3
The share of the population that does not use the Internet for security reasons, %	–	–	7	0,4	5	0,5	–	–
The degree of differentiation of the subjects of the Russian Federation on the integral indicators of information development, units	2,3	2,3	2	–	2	–	1,9	–
The share of households with access to the Internet, %	–	–	75	66,7	90	70,7	83	76,3
The number of high-performance jobs engaged in the sphere of communications, thousand units	–	–	–	–	401,5	–	290,2	–

Source: compiled by the authors on the base of the Passport of the National Program "The Digital Economy of the Russian Federation", 2018) [12]

Information State" are directly related to the development of the digital economy of the country. Let us evaluate the degree of achievement of target indicators for these sub-programs. The implementation of the planned development indicators for sub-program 1 "Information and Telecommunication Infrastructure of the Society and Services Provided on its Basis" can be called satisfactory. In 2014, 2 of 7 indicators were not achieved, in 2015 - 2 of 8, in 2017 - 3 of 7, respectively. In 2016, none of the planned indicators for this sub-program was achieved. This can be viewed as a consequence of the crisis development of the economy in face of external challenges. The fulfillment of the planned development targets for sub-program 2 "Information Environment" is successful, because during the period of research only in 2015 one development target was not achieved. The fulfillment of development targets for sub-program 3 "Security in the Information Society" is extremely important as the pace of development of information, communication and computer technologies, and hence the development of the digital economy in the country will depend on the degree of user confidence. However, the level of development targets fulfillment is rather low. In 2015, 1 of 4 indicators was not fulfilled; in 2017, the only planned development target was not achieved. The analysis of the dynamics of the fulfillment of planned development targets for the sub-program "The Information State" shows an improvement in 2017 [6]. Only one planned target was not achieved (compared with 5 in 2014 and 11 in 2015). Let us assess the effectiveness and efficiency of the state program by calculating several indicators. The coefficient of implementation of the state program (K) activities

is defined as the number of completed activities to the total number of planned activities:

$$K = \frac{Mr}{Mn} \tag{1}$$

Mr – the number of completed activities,

Mn – the number of planned activities.

The results of the calculation of the indicator for the sub-programs are presented in Table 2.

Table 2. The degree of fulfillment of activities for the sub-programs of the state program "The Information Economy" in 2015–2017

Sub-programs	2015	2016	2017
Sub-program 1	0,71	0,75	0,57
Sub-program 2	1	0,92	1
Sub-program 3	1	0,75	0
Sub-program 4	0,8	0,69	0,9

Source: calculated by the authors on the basis of cumulative implementation of control figures [13]

The coefficient of fulfillment of the sub-programs activities shows the share of activities implemented in the total number of planned activities. As it can be seen from the table, during the analyzed period the average value of the indicator was 0.76. It means that about 76% of the planned activities were carried out. The integral evaluation of the program performance is estimated on the basis of the comparison of planned and factual development indicators and is calculated by the formula:

$$R = \frac{1}{N} \times \sum_{n=1}^{N} \frac{Xnf}{Xnp} \tag{2}$$

N – the number of indicators,

Xnf – factual value of the indicator,

Xnp – planned value of the indicator.

This value was 1.02 in 2014, 0.65 in 2015, 0.63 in 2016, and 1.13 in 2017. In 2014 and 2017 the factual values of the indicators on average slightly exceeded the planned ones. In 2015–2016 the level of program performance was significantly lower: on average, the factual values of the indicators amounted to 61% of the level of the planned indicators. The level of financial support of the program is calculated by the formula:

$$F = \frac{Ff}{Fp} \tag{3}$$

Ff – factual costs aimed at the implementation of the state program

Fp – planned costs aimed at the implementation of the state program.

The calculation of the level of financial support shows relatively low results. In 2014–2015, only 54.3% of the planned indicators were allocated for the implementation of the state program. In 2016 F = 0.067, that is, in fact, only 6.7% of financial resources were allocated from the planned level of expenditures. Only in 2017 the factual costs are the same as the planned ones (F = 1.13). Visually these ratios are presented in Fig. 1.

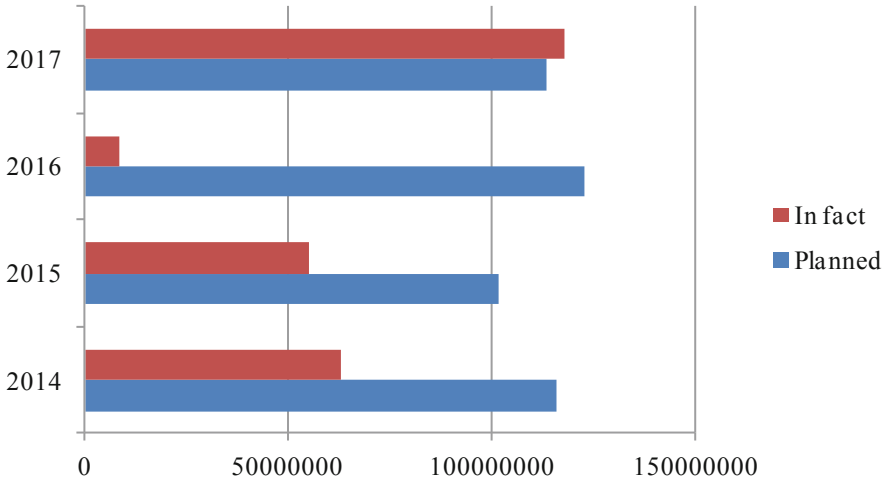

Fig. 1. Planned and factual budget allocations in 2014–2017. (Source: compiled by the authors on the basis of [13])

Evaluation of the effectiveness of the use of budget funds is calculated as the ratio of the coefficient of activities implementation to the level of financial support for the program

$$E = K/F \tag{4}$$

The calculation of this indicator reflects the high efficiency of the use of the budget allocations. In 2014, this indicator was 1.55, in 2015 - 1.29, in 2017 - 0.74. In 2017, the factual costs exceeded the planned value, but 5 out of 30 indicators were not achieved. The evaluation of the effectiveness of the implementation of the program is calculated by the formula:

$$Э = R \times E \tag{5}$$

This indicator can be estimated on the following scale:
$Э \geq 0.9$ – the program implementation efficiency is high,
$0.75 \leq Э < 0.9$ – the efficiency is medium,
$0.6 \leq Э < 0.75$ – the efficiency is satisfactory,
$Э < 0.6$ – the efficiency is unsatisfactory.

On the Basis of the calculation of this indicator we can make a conclusion that in 2014 the efficiency of the program was high and in 2015–2017 it was medium.

4 Discussion

Most of the research devoted to new information technologies, as a rule, focuses on great opportunities on the one hand, and technological problems on the other hand, but ignores features arising between these extreme points, such as implementation, compromises, limitations, materiality and aspects of control that may limit opportunities. As part of this study, we will consider the boundaries expanding the possibility of using digital technologies in order to increase the level of professional training in the field of digital technologies, as well as in the field of educational programs. In the first half of 2019 it is planned to adopt about 50 regulatory acts on the development of digital economy. The key focus is the development of the national program "The Digital Economy of the Russian Federation" [12]. The main objective of this study is to consider the directions of the development of digital economy as a system multifactorial process, reflecting, among other things, the effectiveness of state policy in the field of informatization. The main criterion is going to be the development of a mechanism based on the example of the so-called target indicators for the implementation of digital economy: the share of households and socially important infrastructure objects that can be connected to broadband Internet access. According to the World Bank report [16], information technologies cover all areas of human activity and the state and are becoming increasingly important in the development of the economy, improving of the national welfare and receiving of the so-called "digital dividends". The report defines digital economy as a paradigm of accelerating economic development with the help of digital technologies [16]. The existing approaches to understanding the phrase "digital economy" can be divided into two directions. If we consider the "classic" approach to "digital economy", then this is an economy based on digital technologies and representing the field of electronic goods and services. An "advanced" approach says that "digital economy" is economic production with the use of "digital technologies" [5]. Six projects will be implemented within the framework of the national program "Digital Economy of the Russian Federation": normative regulation of the digital environment, information structure, personnel for digital economy, information security, digital technologies and digital state administration. The implementation of each project is aimed at achieving a specific strategic task. These tasks include:

1. Creating a normative and legal environment for the functioning of digital economy: legal conditions for creating a digital environment of trust, the formation of electronic documents management and other measures aimed at legislative regulation of the digital economy.
2. Creating a global sustainable competitive infrastructure based on mainly domestic developments: creating advanced data transmission infrastructure between households, state administrative bodies and educational institutions; developing a new generation of mobile and satellite communications infrastructure and medicine, introducing digital technologies and platform solutions, etc.

3. Training and retraining of personnel, provision of competent human resources necessary for the development of the digital economy.
4. Providing information security in transmission, processing and storage of data by way of the preferential use of domestic developments.
5. The development of perspective digital technologies and the creation of digital platforms.
6. The use of digital technologies and platform solutions in the sphere of state management and state services provision.

5 Conclusion

The results of the research confirmed that the global modern economy is an information, net, intellectual and psychological economy with its inherent hypercompetitive technologies and methods of information, psychological, programmable and controlled influence on the consciousness, mind and will of people (producers and consumers) [7]. Within the frame of this research work it has been proved that the level of financial support shows relatively low results. Nevertheless, the implementation of the state program is an innovative fundamental technology that offers new ways to organize the recording of transactions, events, certificates and access rights. Based on the analysis of the emerging patterns of digital transformation of the world and national economies, it can be concluded that according to the results of the research of some authors [8] the recent large-scale processes of digital transformation, convergence and integration of information spaces, as well as the widespread introduction of the block chain technology in all spheres launch the process of "creative destruction" of the old world financial and economic system and the formation of the new global neural network hypercompetitive economy and its neuron network regulatory institutions.

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