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The role of digitalisation in the economy development of small innovative enterprises

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Abstract

The article presents an analysis of the role of digitalization of the system of economic relations as a factor in the development of small innovative enterprises. Particular attention is paid to issues of participation in digitalization of ineffective Russian participants in the system of economic relations at the level of municipalities. The foreign experience of the participation of municipalities in digitalization programs is examined, and a study is made of the correspondence of domestic experience to foreign advanced solutions. The reserves of growth of the Russian economy due to the institutionalization of municipalities as drivers of its growth are identified. The directions of using the digital environment for the integration of self-government bodies into processes and relations occurring within the framework of the innovation economy model are determined. Based on the results of the study, an IT toolkit was proposed to increase the economic efficiency of interaction between local authorities and other institutional participants in economic relations in Russia.

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1. Introduction

Relevance. The digitalization of the national economy is a priority for the development of the Russian economy. The country has two state targeted programs that regulate the spending of budget funds for the digitalization of the national economy and determine its priorities until 2030. Along with this, these programs do not provide for the interaction of the federal center with a number of institutional entities of the Russian economy. One of these entities is the municipal level of self-government.

Objective: to determine the directions of economically and socially effective participation of local authorities in the development processes of the Russian innovation economy by increasing the use of digital infrastructure and information and communication technologies in their activities.

To identify solutions in the field of intensification of the use of IT technologies for these purposes, the following tasks were solved:

• assessment of the potential for participation of local governments in digitalization based on the study of data on countries leading in the digital economy;

• study of the current situation in the Russian economy of local authorities as a potential participant in the processes of its digitalization;

• development of proposals in the field of adapting foreign experience to the peculiarities of the functioning of local authorities in Russia;

• identification of tools to enhance the participation of local authorities in the formation of the digital economy in Russia. Relevance. The digitalization of the national economy is a priority for the development of the Russian economy. The country has two state targeted programs that regulate the spending of budget funds for the digitalization of the national economy and determine its priorities until 2030. Along with this, these programs do not provide for the interaction of the federal center with a number of institutional entities of the Russian economy. One of these entities is the municipal level of self-government.

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2. General assessment of the development of the potential of the digital economy: analysis of foreign experience and Russian practice

Digital Economy 2010 - 2019 has become an important component of the national economies of developed countries. In the United States, this area of economic relations exceeds in terms of percentage of GDP such sectors of the national economy as wholesale and retail trade (see Figure 1)

Further development of the digital economy will presumably be accompanied by a significant increase in the share of the digital economy in countries' GDP and the parallel convergence of the real and digital sectors based on the

comprehensive digitalization of the economy. Significant growth potential of the digital economy is determined by higher added value in the products of its production, as shown in Figure 2.

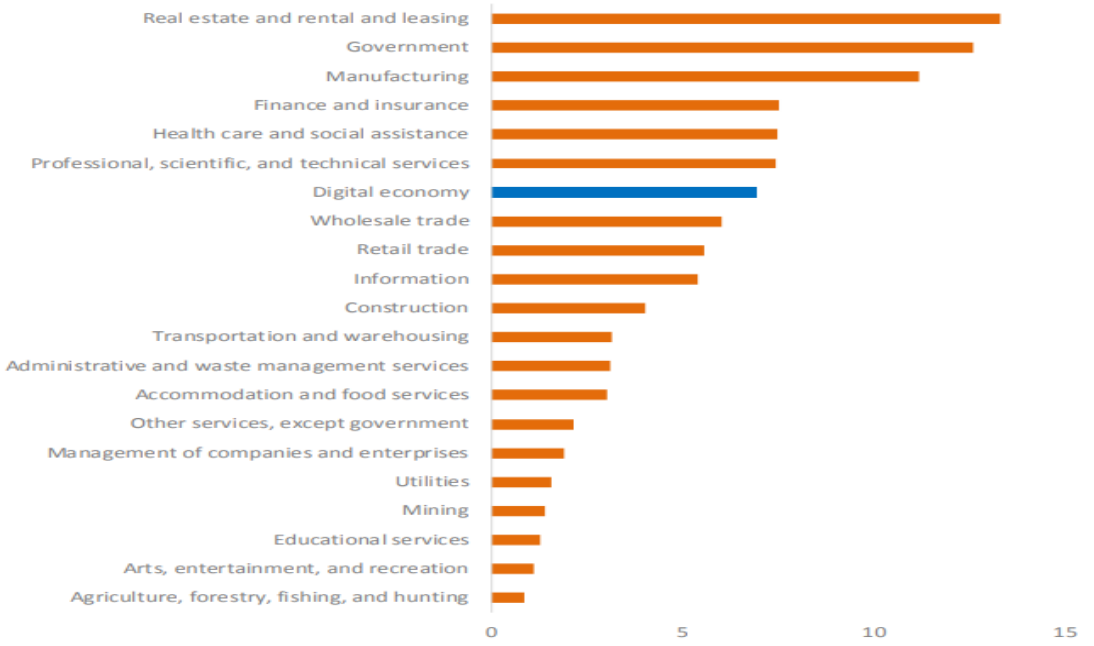

Fig 1. Structure of U.S. economy, % GDP [5]

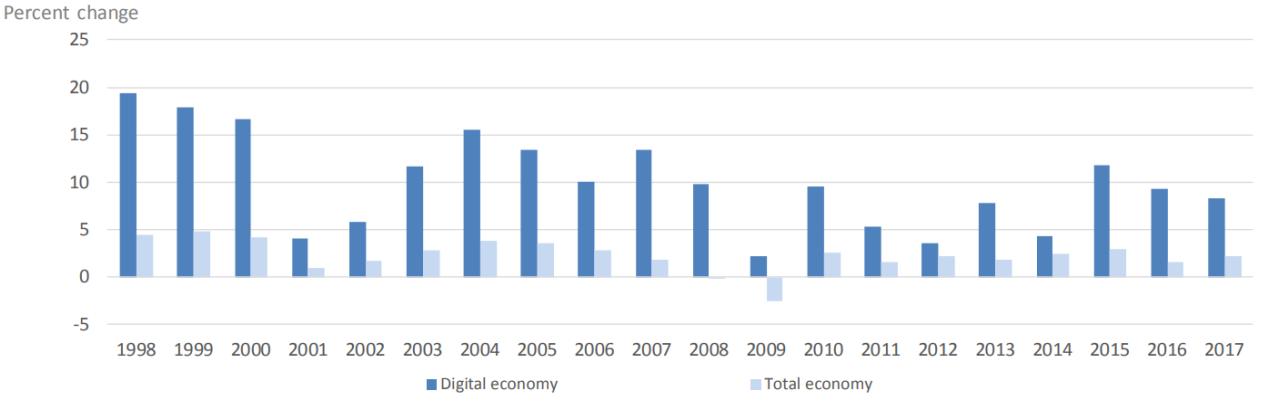

Fig. 2. Value added increase in digital economy and domestic product in US, % [5]

A study of the structure of participants in the innovation economy indicates the predominance of representatives of small innovative enterprises among firms that generate ideas. There is a close correlation between the increase in the share of the number of small innovative companies and the share of small innovative businesses in the total number of innovative enterprises (this calculation was made taking into account the start-ups acquired by large businesses in the first years of their existence). The study of the tools of interaction between the development of small innovative business and digitalization allows us to draw the following conclusions:

- Digitalization reduces the importance of discriminatory barriers that reduce the economic efficiency of small innovative companies compared to large ones. An example is the possibility of a more rational design of the logistics system in the context of the digitalization of the economy, as well as the possibility of direct interaction with the client via the Internet [4].

- Digitalization increases the importance and economic efficiency of the deep division of labor, which has traditionally been a strength of small innovative enterprises that use the model of outsourcing interaction with the external environment.

3. The model of using digitalization in the system of state support of small innovative enterprises

Ensuring the sustainable development of the national innovation system requires the support of innovative initiatives of small business in the early stages of its existence. Small innovative business, in turn, is able to supply the national economy with innovative solutions on a regular basis and prevent the growth of crisis phenomena.
When designing a national support system for small innovative enterprises, the company faces three problems, the solution of which directly depends on the intensity of use of IT technologies.
Problem 1. Organization of interaction between the state and small innovative business in time, providing the optimal level of support and timely compensation to the state budget of previously spent funds from tax fees.
Problem 2. Ensuring maximum involvement in the system of state support of small innovative business on an ongoing basis. In particular, this concerns the involvement of the local level of self-government, which has traditionally been ineffective in Russia.
Problem 3. Ensuring maximum awareness of small innovative enterprises and the opportunities provided to him, which, at the same time, should exclude the possibility of abuse on his part and discrimination of other participants in economic relations.
Consider the Finnish experience in using digitalization to solve these problems. Figure 3 shows a diagram of the Finnish model of organizing Finnish interaction within the framework of the state system for supporting small innovative business.

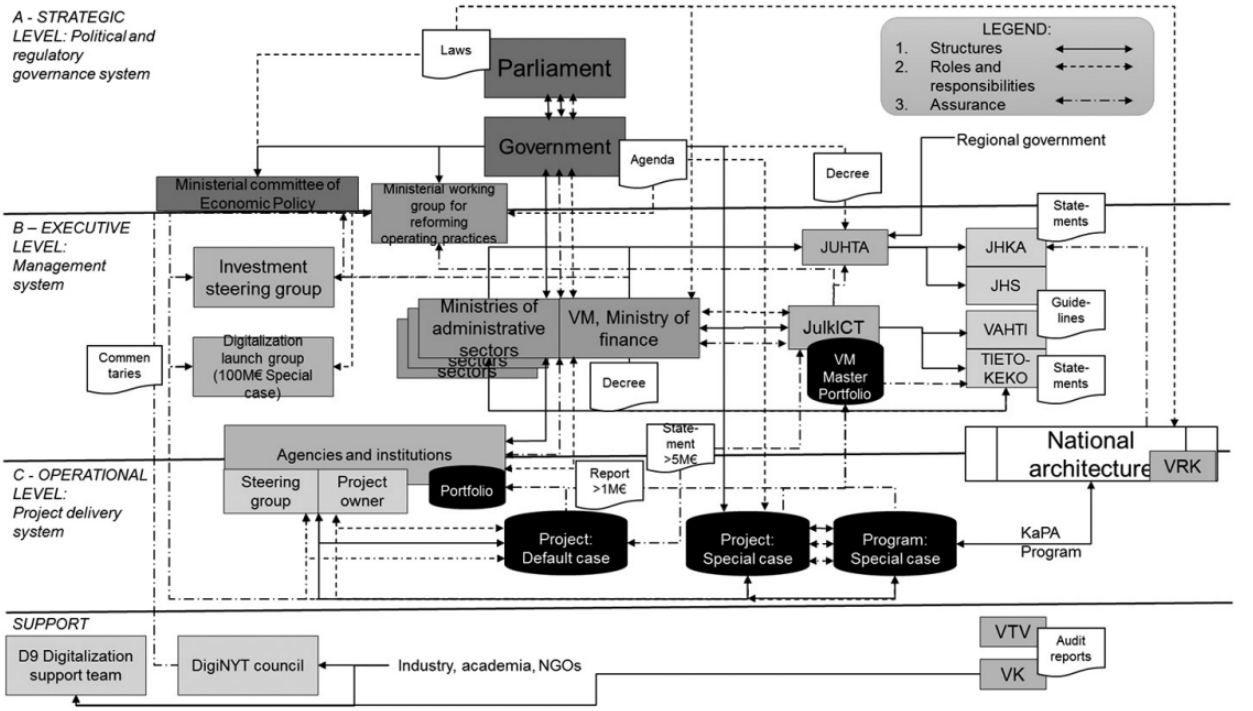

Fig. 3. The Finnish model of organizing digitalization processes of the state support system for small innovative businesses [8].

The Finnish model of state support was chosen as the object of study, since its use contributed to solving problems typical of the current stage of development of the Russian economy. First of all, we are talking about the need for financial support for innovation. It was small business in Finland that was at the forefront of many innovative solutions

that provided Nokia with global leadership. The Finnish digitalization model is also interesting in terms of providing institutional support for small innovative enterprises in the framework of import substitution policy [1].

In general, the project "Digital Government", implemented in Russia, largely takes into account the Finnish experience. At the same time, there are no elements in the Russian analogue of the Finnish project that ensure interaction between municipal government bodies and small innovative enterprises (they are highlighted in black in Figure 3).

Thus, domestic small innovative enterprises are not considered when analyzing business requests as a separate institutional entity representing their own interests together with the municipalities in which they are located. The inability to systematize and classify requests for small innovative enterprises on a territorial basis makes it difficult to plan their support in the format of an address approach to each of the clusters of small innovative enterprises. The solution to the problem is seen in a broader online interaction between small business and the federal center. Such interaction can be mediated through municipalities.

4. Development of areas of state support for small innovative enterprises, taking into account the potential of IT technologies

A feature of the development of small innovative businesses is shorter than the average market life cycles of its organizational structures and products. In addition, small innovative business companies are more free to choose potential partners than their larger colleagues. The flip side of such freedom is the need to interact more closely with the environment, including in the form of abandonment of earlier projects in favor of large competitors.

The weak institutionalization of small innovative business in Russia is compounded by the weakness of the municipal level of government. In accordance with foreign, in particular Finnish, experience, the accumulation of small business inquiries is carried out precisely at the municipal level. Then these requests are aggregated and considered in terms of the formation of a national support model.

At the third stage of the organization of state support for small innovative businesses, interaction with municipalities is again carried out. A special toolkit is formed for each cluster of municipalities, taking into account the particular needs of their small innovative enterprises.

The considered mechanism seems justified from the point of view of the optimal allocation of state support resources. Indeed, with the general list of problems facing small innovative enterprises, there are significant differences between the specific form of such problems for different municipalities.

We define digital technologies, the use of which in the system of state support of small innovative enterprises will contribute to increasing economic support at the municipal level.

1. Tighter standards for the online presence of municipal government in the digital environment will help reduce the time costs of small innovative enterprises in interacting with government. Such a decrease is interesting from the point of view of the possibilities of involving the scientific potential of the regions, primarily regional universities and research institutes, in the innovative economy.

Consider the structure of the obstacles to the development of small innovative businesses in table 1.

Table 1 - Obstacles to the development of small innovative business in Russia

Obstacle	Description of the problem	Foreign experience solving problems
Lack of funding	Private and public spending to support innovation in Russia in the amount of 1% of GDP versus 3-4% of GDP abroad [10]	China. Engage in global outsourcing chain Scandinavian countries. Providing leadership in certain areas of the innovation market [6]. Belarus, Kazakhstan. Actualization and commercialization of Soviet innovation potential.
High entrepreneurial risks	More than 70% of small innovative enterprises in Russia go bankrupt before their products enter the market [10]	USA. Development of insurance and risk hedging systems [3]. France. State support of small innovative enterprises through the creation of business incubators Japan. Scaling, using the economies of scale [2].
Inefficiency of the development	Low quality of the workforce, especially among young	Germany. Centralization of state support Singapore, Japan. Cluster approach the formation of

infrastructure of small innovative enterprises	professionals, a high level of monopolization of the market [10]	"growth points" of an innovative economy

2. Wider use of expert systems in assessing the needs of small innovative enterprises. Given the weak presence of municipalities in the system of innovative relations, expert clustering can become an alternative to municipal clustering.

3. Formation of an inter-regional database of innovative proposals of small innovative enterprises. The creation of such a database containing information about the creators of the innovative solution, including contact details, will reduce the risk of the innovator falling out of the system of innovative relations even in the event of the ruin of a small innovative enterprise.

Table 2 presents the author's suggestions on the use of IT technologies to ensure the development of small innovative enterprises in Russia.

Table 2 - Directions for the use of IT solutions in the system of state support of small innovative business

Direction of support for small innovative enterprises	Proposed IT solutions
1. Participation in the global outsourcing chain	The development of electronic profiles
2. Leadership in selected areas of the innovation market	Development of online tender systems
3. Actualization and commercialization of Soviet innovation potential	Digitization of scientific and educational products
4. Development of insurance and risk hedging systems	Adaptation of reporting of small innovative enterprises to the requirements of expert systems
5. State support of small innovative enterprises through the creation of business incubators	Activization of the process of informatization in the regions

5. Conclusions

Thus, the use of IT technologies in the processes of state support of small innovative businesses will ensure more effective interaction with them at the municipal level and will contribute to the commercialization of national innovative potential. Digitalization processes lead to lower transaction costs, which provides equalization of market conditions for small innovative enterprises. The most promising direction of using IT technologies in the state support system for small innovative enterprises is the development of the infrastructure of inter-territorial and inter-industry communications.

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