Digital technologies in ensuring local government in the Russian Federation

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Abstract. The introduction of digital technology in the process of local self-government is an urgent task for modern Russia. The article assesses the conditions for the introduction of digital technologies at the municipal level of management, identifies barriers to the spread of innovative methods for making managerial decisions, including everyday issues of people's lives. Based on the statistical analysis, the authors of the article identified the subjects of the Russian Federation with a developed digital management system and, conversely, with the absence of such. It is shown that when using digital technologies the costs of the management process are reduced, bureaucratic delays in the preparation of the necessary documents for the population are eliminated, the opportunities for members of society to make managerial decisions are realized. The following were identified as the main barriers to innovation in local self-government: lack of IT-technology specialists, financial constraints, institutional imperfections and disagreements of management structures. In the leading regions, digital technologies adopted appropriate programs, created scientific potential. In outsider regions, financial constraints are the main obstacle to the introduction of digital technology. The creation of e-governments in municipalities will allow for an effective dialogue between authorities, business and the public.

Keywords: state and municipal government, e-government, network community, municipalities, institutional barriers

1. Introduction

Local self-government is a level of power, the main purpose of which is to develop solutions to promote the socio-economic development of lower-level regions. Modern digital technologies have several advantages in ensuring local self-government: in comparison with traditional approaches, this is flexibility, the absence of bureaucratic barriers, democracy, and efficiency [1, 2, 3]. Despite the indicated advantages, as well as the adoption of programs to promote digital technologies in management at the federal and regional levels (The concept of creating a spatial data infrastructure [4], the national project «Digital Economy» [5], the federal project «Digital Government» [6] etc.), the use of innovative management methods remains negligible. Information, along with land, labour and capital) becomes an important factor in socio-economic development based on the development of optimal management decisions and their implementation in practice.

The use of digital technologies in the system of state and municipal administration is devoted to the work of many researchers in various fields of scientific knowledge. The following key areas can be noted in the study of this issue: analysis of the implementation conditions and identification of barriers...
in the use of e-government [7, 8, 9, 10]; assessment of the role of geographic information technologies in the adoption and monitoring of managerial decisions [11, 12, 13, 14]; identifying areas for increasing the effectiveness of the dialogue between authorities, business and society [15, 16, 17, 18]. The presented review of works on the use of digital technologies most often correlates with the state level of decision-making [8, 16, 17, 18], and only in rare cases relates to the level of municipalities [18].

Based on the foregoing, the purpose of this study is to assess the role of digital technology in supporting the activities of local government. To achieve this goal, the authors needed to solve the following tasks: to analyze the conditions for the introduction of e-government at different levels of decision-making, primarily local government; identify barriers to the spread of digital technology and identify ways to address them; identify regional differences in the implementation of digital technologies; show the ways of using state, regional and municipal portals and sites in making managerial decisions, including everyday issues of the life of the population.

2. Methods
The specificity of this study is the need for the simultaneous analysis of both the features of the functioning of local self-government and the promotion of digital technologies at different levels of government. The authors used two main groups of methods: the first group is associated with the analysis of literary sources on the theory and methodology of using electronic government in state and municipal management; the second group involves the use of statistical methods to assess the involvement of digital technologies in the activities of municipalities. The main sources of information were statistical materials on assessing the performance of local authorities published on the portal "Database of municipalities", as well as sites of municipalities and departments (ministries) of the federal and regional levels.

The selected methods and materials made it possible to identify barriers in the promotion of digital technologies and introduce institutional restrictions. This determined the possibility of considering the impact of the network (virtual) community on the living conditions of society and management processes, as well as generating new knowledge in the management decision-making system. Using the information of the Innovation Center «Skolkovo» and the Ministry of Economic Development of the Russian Federation [19, 20], the authors selected five leading regions (excluding St. Petersburg and Moscow) and five outsider regions in the development of the Digital Economy, which made it possible to show differences in promoting the idea of e-government, including through the economy. Among the leaders are the Republic of Tatarstan and the Republic of Bashkortostan, Tyumen, Novosibirsk and Voronezh regions; Among outsider regions are the Republic of Karelia, Trans-Baikal Territory, Kostroma, Kurgan and Pskov Regions. Such differentiation of the regions-subjects of the Russian Federation reflects various opportunities in promoting new knowledge. This circumstance was the basis of the study. In addition to the place of the regions in the ranking for the promotion of the digital economy, the following indicators were taken into account: budget expenditures of municipal districts and urban districts, the number of services provided on portals, and the occupancy rate of municipal websites.

3. Results and Discussion
3.1. Local government in public administration
Municipalities are the subject of research in many social sciences. The most relevant in the study of local self-government are two of the following areas. Firstly, it is the optimization of the municipal structure, based on socio-economic trends and the capabilities of management entities. In Russian conditions, this aspect is one of the most problematic, due to the fact that the loss of state administrative status often leads to increased destructive processes and polarization of space, especially in the settlement system. Secondly, this is a change in the social formation and reform of the 90s and zero years, which necessitated the search for mechanisms for managing the development
of the territory, especially with regard to the activities of new institutions - such as strategic spatial planning, local government, financial and budgetary processes.

Local governments are the smallest unit of state and municipal government, proceeding from the interests of the local population. In the process of implementing market relations, many problems arose, which is associated with borrowing foreign experience without taking into account the peculiarities of Russia, where the “scope” between municipalities by territory, population, and the economy is significant [21]. In most municipalities, there is a low resource base and fiscal dependence, combined with a low civic initiative and hope for higher authorities in resolving local issues [22]. In the course of the work, it became apparent that the effective functioning of municipalities can only be solved by decentralizing the fundamental principles of local self-government, one of which is the principle of innovation based on the use of digital technologies.

3.2. The role of digital technology in local government

Digital technologies in management are aimed at increasing the efficiency of interaction between government, business and the public. In domestic conditions, the inefficiency of certain power structures is one of the problems that hinder the spread of digital technology [1, 13]. The authors draw attention to such shortcomings in the management of the development of the territory, such as the stereotyped decisions made, increased bureaucratization, an increase in the share of expenditures on the state and municipal apparatus, and a low level of fulfilment of official obligations.

The use of digital technologies in municipal management can ensure efficiency in several areas:
1. Reducing management costs and, accordingly, minimizing paperwork.
2. Reduction of time for bureaucratic delays and preparation of necessary documents for the population when using platforms in solving significant issues (in particular in organizing the portal «Gosuslugi»).
3. Realization of the possibility of attracting the population to discuss key issues of socio-economic development (including through social networking service) - such as the development of public transport, the preparation of urban planning documents and the improvement of the territory.

Success in the implementation of these areas guarantees the provision of benefits for each person [16]. This circumstance must be taken into account when making management decisions.

3.3. Barriers to promoting digital technology at the municipal level

In the dissemination of digital technologies at the municipal level, all kinds of barriers arise, the elimination of which should be directed at the activities of government bodies, business and the population themselves. Let's pay attention to the most significant of them.

Low number of IT-technology specialists in municipalities. Currently only 10% of municipalities meet the requirements of modern informatization, including the display of information about their activities. On the one hand, this is explained by the lack of financial capabilities, including the maintenance of websites and portals; on the other hand, a lack of attention to the publicity of decisions made in the management system, to the communicative nature of local authorities with the population.

In this regard, it is necessary to point to the weak information content of the websites of municipalities, to the insufficient organization of dialogue between the authorities, the population and business.

The development of digital technologies requires the implementation of relevant technical standards. In Russia, there are such standards, but they are characterized by shortcomings that reduce the effectiveness of management. For example, 3G coverage is absent not only in a large territory of Siberia and the Far East of Russia but also within the European part of Russia; this is especially true for 4G [23].

Financial constraints. A key problem of the entire municipal system is chronic underfunding. At the same time, the state and municipal apparatus are growing inexorably: in comparison with the Soviet period, the number of officials has almost doubled.
Institutional barriers and disagreements of management structures. These circumstances lead to the fact that the servicing of IT projects is often carried out by people who do not have sufficient competence but are close to the authorities.

All of these barriers and limitations have significant regional differences: successful regions seek to lower barriers and increase the efficiency of resources used, while outsiders, not being able to change the situation, give up and worsen the situation even more.

3.4. Assessment of digital technology usage levels
The above-mentioned regions differ both in the level of socio-economic development and in the generation of new knowledge based on the advancement of digital technologies (Table 1).

Table 1. Indicators of the development of digital technologies in some constituent entities of the Russian Federation, 2016

| Name of subjects of the Russian Federation | Place in the rating of IC «Skolkovo» | The number of municipal districts and urban districts in the subject of the Russian Federation | Budget expenditures for informatization, thousand rubles per 100 thousand population | Budget expenses for the maintenance of municipal workers (per 1 resident) |
|------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Leading regions                          |                                      |                                                                                               |                                                                                |                                                                                |
| Republic of Tatarstan                    | 2                                    | 45                                              | 333,35                                                                         | 1417,6                                                                         |
| Republic of Bashkortostan                | 8                                    | 63                                              | 34,74                                                                          | 1607,8                                                                         |
| Tyumen region                           | 5                                    | 26                                              | 440,14                                                                         | 2141,9                                                                         |
| Novosibirsk region                      | 10                                   | 35                                              | 426,26                                                                         | 3078,0                                                                         |
| Voronezh region                         | 20                                   | 34                                              | 189,33                                                                         | 1492,7                                                                         |
| Regions - outsiders                     |                                      |                                                 |                                                                                |                                                                                |
| Republic of Karelia                      | 63                                   | 18                                              | 43,72                                                                          | 1750,2                                                                         |
| Zabaykalsky Krai                         | 75                                   | 35                                              | 6,17                                                                           | 2334,1                                                                         |
| Pskov region                            | 76                                   | 26                                              | 110,71                                                                         | 1447,5                                                                         |
| Kurgan region                           | 74                                   | 26                                              | 114,97                                                                         | 1353,7                                                                         |
| Kostroma region                         | 65                                   | 29                                              | 19,31                                                                          | 1830,9                                                                         |
The main difference between leading regions and outsider regions is the speed of innovation. In the first group of regions, considerable attention is paid to e-government. In many regions, programs have been adopted to introduce digital technologies into the management process, and significant scientific potential has been created in the use of information technologies. The second group of regions also shows a desire for innovation, but they lack financial resources, as a result of which the gap in innovation potential is not narrowing, but growing.

A common problem for regions of both levels is the poor participation of citizens in the promotion of innovative technologies. Almost all sites in municipalities have the opportunity to file an appeal in electronic form, but, nevertheless, the number of such appeals does not exceed 10-15% of the total number of applications. Particular attention should be paid to the lack of the opportunity to speak out on key issues of the socio-economic development of territories, which often leads to a confrontation between the population and the authorities, and creates conflict situations.

The main direction in the development of e-government at the municipal level is to increase the level of communication between government, business and the public. This issue is especially relevant for those territories where the quality of life of the population is low. Here, the opinions of the local population cannot be discarded, as is often the case now. The backstage in making decisions on the most significant issues leads to the natural discontent of a significant part of society; in connection with which it is necessary to increase the representation of municipalities in social networks, including in matters of discussion of the main problems, as young people actively use them in everyday life. Neglecting this platform for communication with the entire population is unacceptable.

4. Conclusions

During the study, the following conclusions were obtained:

1. The issues of improving local self-government are attracting the attention of both Russian and foreign researchers. The predominant part of them draws attention to the need to develop effective management decisions related to the use of land, labor and capital. To successfully solve this problem, one should involve GIS technologies, monitor the implementation of decisions made, and ensure a dialogue between government, business and the public. The greatest effect can be achieved when advancing in the field of digital technology management.

2. In the constituent entities of the Russian Federation, unequal experience has been gained in introducing digital technologies into the local government system. Two types of regions are clearly distinguished: leaders and outsiders. The first type is the regions with a high share of the resource economy and industrial production in gross regional product, the second type is the regions with low levels of natural resource and human potential. It is possible to eliminate this discrepancy with the participation of government agencies and businesses in the process of implementing digital technologies in the underdeveloped regions of the Russian Federation.

3. The main barriers to the introduction of digital technologies in the processes of local self-government are: a) the absence of IT-technology specialists in many municipalities; b) an increase in the number of people employed in the apparatus of municipalities; c) staffing municipalities with people who do not have sufficient competence, but are close to regional and local VIPs; d) poor participation of public structures and residents of municipalities in the promotion of innovative technologies in the discussion of key issues of territorial development management.

4. A successful dialogue between local authorities and society is possible with the organization and expansion of social networks, sites and portals, which also requires an increase in the level of knowledge of digital technologies, the participation of legal entities and individuals in the implementation of these technologies in management practice.

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