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DIGITALIZATION OF THE PUBLIC ADMINISTRATION SYSTEM: MODERN EFFICIENCY METHODS

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Abstract

The authors consider the main digitalization directions of the state and municipal sphere on the example of individual projects. The main attention of researchers is focused on the review of existing implementation practices of digital technology in the field of public administration, patterns of transition from an e-government concept to a digital model of the state. The authors also try to evaluate modern methods of assessing the effectiveness of digital projects. States that have embarked on their digital government assessment strategies are faced with the problem of not being able to monitor progress due to the lack of global indicators and criteria. Emphasizing the need to analyze the economic indicators of digital projects costs, the authors of this article propose to calculate their effectiveness from the standpoint of minimizing costs and taking into account the level of the economic penetration of public digital services in various sectors of the economy. The proposed assessment methodology can be used at the regional and at the national level to assess the dynamics and the statistical performance of the implemented digital platforms and services, run a single database for ministries and agencies; the ranking of regions within the polyfactorial measurement; assessment of the level of public support for the policy of digitalization of public administration (the establishment of feedback "consumer digital services – state").

Keywords: Digitalization, digital economy, public administration, efficiency, evaluation methods.

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1. Introduction

The implementation of key tasks of the socio-economic development of the country is inextricably linked with the successful introduction of digital technologies in management, social and business processes. However, these seemingly obvious goals cannot be achieved outside the digitization of the public administration. As it was noted in the recommendations of the OECD Council on the development of digital government strategies, the phenomenon of digital transformation in the public administration is seen as a transition from "e-government" to "digital government" – the transition from the usage of technology for supporting processes in government authorities to the technology usage for creating results of the public administration. Under these conditions, it becomes possible to establish a full-fledged ecosystem consisting of public authorities, business structures, citizens and organizations, where the digital government acts as a link, ensuring interaction between these elements of the ecosystem (OECD, 2014).

In Russia, a lot of work is being done on the practical introduction and development of digital services and technologies in the public administration. The main measures for the public administration digitalization are formulated within the framework of the developed federal project "Digital public administration", included in the national project "Digital economy of the Russian Federation" (Government of the Russian Federation, 2018a).

In the explanation to the federal project it is noted that it is directed to the achievement of national purposes defined by the Decree of the President of the Russian Federation of May 7, 2018 № 204 "On the national goals and strategic objectives of the development of the Russian Federation for the period up to 2024" (Decree of the President of the Russian Federation № 204 (2018), and it has a direct impact on ensuring the accelerated introduction of digital technologies in the economy and social sphere through using digital technologies and platform solutions in the areas of public administration and public services, taking into account interests of the population and business entities, as well as providing a qualitative improvement in a number of indicators reflecting the growth of the national economy and the social sphere (Government of the Russian Federation, 2018a).

Within the framework of this federal project, two main directions are identified: the introduction of digital technologies and platform solutions in the spheres of public administration and public services, taking into account interests of the population and business entities, and the development and implementation of a national mechanism for the realization of coordinated policies of the states-members of the Eurasian Economic Union and their plans for the development of the digital economy.

However, having prescribed these tasks as priority areas of public administration digitalization, the developers have not defined parameters for assessing the completeness and effectiveness of processes. In this context, it seems appropriate to review results of this work regarding their completeness and timeliness.

2. Problem Statement

In the World Bank Report "Digital government 2020: Prospects for Russia", it is noted that Russia has made significant progress in implementing the concept of e-government, which means the provision of public and municipal services in electronic form in parallel with other channels. At the same time, among the key indicators of the project success are: creation of multifunctional centers and a single portal of public

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services; formation of a system of interdepartmental electronic interaction; development of basic state information resources (national databases); provision of common services (World Bank, 2016). By the end of 2018, the average daily number of users of public services portals in the Russian Federation was 1,150 million people (an increase of 3 times to the same period of 2017). Officially, 85 million users are registered on the portal of public services of the Russian Federation. In 2018, they ordered 1.3 billion services through apps and made 25.7 million payments worth 50 billion rubles (Government of the Russian Federation, 2018a).

For 6 years, the unified system of interdepartmental electronic interaction of authorities has become fully operational. In April 2018, the total number of transactions in it reached 20 billion per year. A project is being implemented to replace paper notifications with electronic ones, thanks to which citizens refuse to receive paper letters in favor of information in electronic form, while maintaining its legal significance. Among the positive measures, it is worth noting the prohibition for public authorities and local self-government to require citizens and legal entities to provide public services with documents and information that are at the disposal of other public authorities and local self-government (except for personal storage documents).

Since 2016, a similar prohibition has been established for the bodies of state control (supervision) in the organization and conduct of inspections. The state control (supervision) bodies have no right to demand from legal entities and entrepreneurs 188 documents, access to which can be obtained using the unified system of interdepartmental electronic interaction. As part of the interdepartmental information interaction development, since February 1, 2018, it has been possible to provide credit institutions with documents (information) that are at the disposal of the Ministry of Internal Affairs of Russia, Rosreestr (the Federal Registration Service), the Federal Tax Service of Russia, the Federal Service of Court Bailiffs of Russia, the Federal Antimonopoly Service of Russia, Rosstat (the Federal Service of State Statistics), the Pension Fund, the Federal Compulsory Health Insurance Fund. It reduces the burden on applicants. Now these agencies provide at the request of credit institutions about 20 documents and information in electronic form (Government of the Russian Federation, 2018b).

At the same time, attention is drawn to the extremely low level of usage of many electronic services, because of the lack of unity between the taken digitalization steps and existing administrative regulations and regulatory legal acts. The Russian Federation is currently going through a "transition" period from e-government (where, by the assessment of the public administration effectiveness, special attention is paid to the adaptation of public services to the needs of individual citizens and their groups), to the stage of the digital government formation (where the focus is on the quality of governance, openness, transparency, quality of interaction and trust in authorities) (OECD, 2017).However, it is worth noting that the leaders of building e-government (UK, Australia, South Korea and Singapore) have not managed to achieve full-scale digitalization and move to a digital government by default, implying a digital format of interaction, and the maximum departure from paper circulation.

Thus, in the above-mentioned World Bank Report, among others, the Government of the Russian Federation is recommended to ensure the transformation of administrative processes on the basis of the principle of "Digital by default". Many experts note that the Federal project draft "Digital public administration" does not adequately reflect this principle (Kosorukov, 2017). This principle is largely

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fundamental for reengineering administrative processes and providing public services through digital channels in order to derive the maximum efficiency and productivity from it. "Digital by default" means "digital in fact", without alternative, when it does not have a "paper" analogue. Today, the main requirement in building a digital government is to study possibilities for moving from paper documents to digital records in authoritative databases.

3. Research Questions

Of particular relevance in this aspect is the problem of data confidentiality and reliability of the processed information. In this context, the application of the technology of distributed data storage (blockchain) can be very useful. Its implementation will solve 2 key problems: the preservation of the history and authenticity of the submitted data and the identity data of all participants of a decentralized platform. A striking example of the successful implementation of blockchain in the administration system is the Exonum framework platform by Bitfury, which already ensures the successful operation of the Rosreestr system, the supply chain for the wheel pairs of cars of Russian Railways, the system of the distributed register of diplomas of Synergy University.

The creation of a national blockchain system will create a full-fledged platform for the digital government, consisting of trusted basic information resources, personal identifiers of citizens and government agencies. The basis of this initiative can be successfully existing basic components of the e-government infrastructure, such as the unified portal of public services and municipal services, the federal register of public services, the unified system of identification and authentication, the system of interdepartmental electronic interaction, the unified system of normative and reference information and the state information system on state and municipal payments.

4. Purpose of the Study

The purpose of this study is to analyze existing methods of the public administration system digitalization and assess the feasibility of their implementation on the example of individual technological projects. To achieve this goal, the authors assessed the state of the modern system of assessment of digitalization, taking into account current trends in evaluation activities, it allowed to identify key indicators of evaluation, and develop a theoretical and methodological model of digitalization of public administration.

5. Research Methods

The fundamental methods of this study are the descriptive method, methods of observation, interpretation, comparison and generalization. In addition, theoretical methods of analysis, synthesis, induction, deduction and classification were used. Using the methods of analogy and observation, the authors analyzed the main digitalization directions of the public administration and justified the feasibility of the reforms on the basis of statistical analysis techniques.

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6. Findings

Neither in Russia nor at the international level, there is no common understanding of digitalization criteria and parameters. However, the main purpose of digitalization projects implementation in the sphere of public administration is the rationalization and integration of working and production processes, effective management of data and information, the efficiency improvement of public services online, as well as expand of communication channels for engagement and empowerment of people's opportunities (United Nations, 2014).

The development of e-government is studied by building a framework, criteria and models of its development stages. An active study of e-government initiatives was conducted by Al-Khouri (2011), who found that, despite the large number of initiatives undertaken around the world, few of them have achieved results which they were originally intended to achieve.

Chu and Sun (2013) were among the first to address the issue of studying international e-government development ratings. Support should be given to their conclusion that the optimal goal of e-government is to achieve or create more public values that will bring a certain diversity of utility to many stakeholders as well as social justice.

Over the past 15 years, several framework ratings have been implemented to assess e-governance opportunities. Siskos, Askounis, and Psarras (2014) divide them into 3 groups depending on the subject conducting the digitalization level study: governmental (conducted by national or international organizations such as the UNO, EU), academic (conducted by researchers and universities) and independent (conducted by private companies or organizations).

It should be noted that among international organizations, the UNO is a leader in the number of conducted studies. Thus, since 2001, 10 studies have been conducted to assess the development of e-government in the world. Starting with the problem of the introduction of e-government (United Nations, 2001, 2003), the UNO came to the thesis about the need for the e-government development to support the transformation towards a sustainable and viable society (United Nations, 2018). There also annual calculations of the e-participation index; the e-government and digital economy readiness ranking of the economic intelligence group; Waseda digital government ranking, the World Economic Forum's Networked Readiness Index (NRI), and the ICT Development Index (IDI) by the United Nations International Telecommunication Union. The World Bank has developed indicators of public administration, and the OECD calculates the proportion of citizens using the Internet to send completed forms through government websites, reflecting the degree of digitalization in the sphere of public services (OECD, 2015).

Some of them are often cited and used as benchmarks to guide the discussion, as well as to assess governments' investments in e-government development. The main idea of these assessments is to first find criteria that reflect the e-government effectiveness and then create an assessment system for each of these criteria to convert data collected from disparate criteria into numbers that have the same basis for comparison. Each criterion is then assigned a weight of relative importance to produce a weighted sum reflecting each country's overall performance in relation to the e-government development. All countries are ranked based on a weighted sum.

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At the same time, different instruments use very different definitions and different methods of measuring the e-government development. In addition, there are also some differences in indicators and their weights from index to index depending on the importance of a particular indicator from the point of view of the organization that builds the model.

The UNO benchmark ranking, E-Government Index, is a numerical value that reflects the degree of the economic, social and democratic development of a particular analyzed country. The UNO E-Government Index is an average of three main indicators: Internet availability (measured by website analysis), telecommunications infrastructure (measured by end-users' IT equipment and its usage in the Internet), and human capital (measured by the human development index, index of access to information, and population density index).

While the comparative analysis of e-government is considered as valuable and there is support for ranking countries on the basis of their digital services, there is still disagreement among experts on the choice of priority methodologies and practices.

Among the common shortcomings of all ratings, Máchová and Lněnička (2015) highlight the lack of attention to national characteristics of countries, leaving the opinion of digital services users outside the research framework, inaccessibility of the rating methodology for a wide audience, non-reflection of the actual use of electronic public services by citizens and the growth of demand for them.

An in-depth study of the "acceptance" of the public administration digitalization by the population and the business community as the main "consumers" of digital services was conducted by the non-profit organization RAND in the framework of the project "Statistical Indicators Benchmarking the Information Society" (Graafland-Essers & Ettedgui, 2003). A similar conclusion was made by Vintar, Dečman, Kunstelj, and Berčič (2003).

According to experts, composite indices are easily and often misinterpreted by users because of the lack of transparency in relation to how they are generated and the resulting difficulty in truly understanding what they actually measure (OECD, 2015). In addition, if they are not properly signed, they can distort the public policy, as countries may be aiming at achieving a benchmark indicator rather than taking into account real local and national needs (Bannister, 2007). Therefore, to maximize the acceptability of results, ranking should be supported by accessible and refined indicators and indices, as well as transparent computational procedures to maximize their applicability by governments and the scientific community (Rorissa, Demissie, & Pardo, 2011).

Siskos et al. (2014) assessed and ranked individual EU member states on their progress in e-government based on a multi-criteria methodology consisting of eight criteria differing in four points of view: infrastructure, investment, digital processes and users' attitudes. However, taking into account current emerging ICT trends, such as cloud computing, open (big) data, participatory and collaborative tools, or social media, these indices need to be revised and updated and a new benchmark system should be proposed.

7. Conclusion

Analysis of the public administration effectiveness requires, on the one hand, a clear relationship between the activities of public servants and the performance of their work and, on the other hand, an equally clear justification of the amount of expenditure on public administration and the economic impact

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from the application of new services and technologies. Unresolved issues lead to inefficient use of resources, incomplete realization of opportunities for the socio-economic development of the country, lack of public confidence in the state institutions (World Bank, 2016).

In the world practice, there is no universal methodology for assessing the effectiveness of public administration and public service (Bartsits, Borschevsky, & Magomedov, 2018). In the foreign practice, platform solutions are often used to monitor and evaluate the effectiveness and efficiency of public authorities, especially in terms of monitoring and evaluating the quality of public services.

Thus, the UK government performance platform ("Predictive") presents the values of indicators characterizing the provision of public services. Each service is evaluated on the basis of four indicators: the average cost of the transaction; the proportion of applicants who successfully received a result of the service, the total number of citizens who applied for this service; the digitalization level. It is noteworthy that the same indicators are used to assess the provision of public services on the performance platform in Australia. In the United States, special software (USA Performance) is also used to assess the professional performance of federal public servants (Dobrolyubova, Yuzhakov, Efremov, Klochkova, Talapina, & Startsev, 2019; Graafland-Essers & Ettedgui, 2003).

It is much more reasonable and correct to assess the digitalization of the of public administration sector on the basis of key parameters of digital and e-government. The previously existing e-government model was proposed to be evaluated through an e-government Index consisting of three indicators: Internet availability, telecommunications infrastructure and human capital.

Unlike e-government, the new concept of a digital state has significantly expanded the boundaries of digitalization, as well as a list of evaluation criteria. The structure of digital government, according to the World Bank methodology, is represented by the following elements: a single portal; unified data for public sector shared usage; interdepartmental services for shared use; public infrastructure for sharing; improved sensor networks and analytics; cybersecurity and privacy.

A comprehensive analysis of these indicators in assessing the digital government effectiveness should be carried out simultaneously in three dimensions: technological, organizational (political) readiness and economic feasibility.

The proposed authors' assessment methodology is aimed at solving the following intermediate tasks:

- Assessment of what are technologically feasible digital solutions in the digital government system (the prevalence of broadband Internet, the number of actors with technological capabilities for online services, the number of online offices, the number and quality of documents within the main blocks of digital government (unified portal, unified data for sharing in the public sector; interagency services; public infrastructure; analytics; cyber security and privacy);
- Assessment of infrastructure readiness for digitalization of the public administration system (in this context, it is important to determine the maturity of the institutional environment and governance, the possibility of integrating principles and methods of digital government into the management and control system; at the same time, the study should be based on the analysis of regulatory and infrastructural barriers for the implementation of digital projects, as well as measures aimed at improving administrative processes);

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- Assessment of the subjective parameters of digitalization assumes the wide use of the proposed methods by end consumers, their satisfaction with the quality and speed of services provided, etc.;
- Assessment of the economic feasibility of the application of digital services in the public sector (if in relation to the private sector, the economic benefit is directly related to the income generation, the key parameter for the management system is to minimize the cost of providing public (municipal) services.

From this perspective, it seems appropriate to assess and measure the effectiveness of digital public administration on the example of the economy of expenditure.

The economic component in calculating the effectiveness of digital government can be calculated on the basis of two main criteria:

- Minimization of expenses due to refusal of offline services;
- The level of economic penetration of public digital services in various areas of business (minimizing business costs).

But this economic calculation should be evaluated in conjunction with criteria of technological feasibility of digital solutions in the digital government system, infrastructure readiness and social support for the digital government development, the methodology of which will be developed in the future. States that had already begun assessing their digital government strategies faced the challenge of monitoring the progress at the social, political and technological levels due because of the lack of global (worldwide) indicators and criteria.

Preliminary calculations in the framework of the above scheme allow us to identify the following trends of the public sector digitalization in Russia:

- The dynamics of the public sector digitalization meets the general trends of the European market with a lag of 1 year, which allows us to build forecasts of consumer activity on the basis of data from most Western European countries. At the same time, the low-cost Internet compared to Europe allows the Russian segment to significantly increase its performance and go beyond the European trend line in terms of the speed of the e-government market development;
- Positive factors of expanding the coverage of the population with remote services are: an increase in the number of consumers by including juvenile representatives in the number of users; an increase in the computer literacy of older age categories (the planned annual growth rate of +7%), the active spread of the Internet, the popularization of the remote service practices, etc.

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