

Systemization of Factors Affecting Public Administration Efficiency Through the Use of ICT

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Abstract — The article studies the factors affecting the public administration specifics in the federal subjects of the RF with reference to and critical review of the publications on information society challenges and the practical experience in information support of regional socio-economic development. The system of the factors is used to characterize the most common issues of integration and application of information & communication technologies (hereinafter ICT). It is justified here that transition to information society will enhance the role of statistics data in the solving of public administration issues in the federal subjects of Russia. The article shows that anxiety, uncertainty and lack of proper qualification are the primary reasons for inefficient ICT use by public officers. The results obtained contribute to the research into information support as a means of socio-economic development management in the federal subjects of Russia. An attempt is made to link the ICT use specifics as part of administrative activity with the need to improve the analytical indicator definition and use methods for the purposes of public administration, with due account taken of the changing information needs of society. The authors see their studies prospectively used in a systematic analysis of the holistic understanding of how the best international practice can be applied to resolving the pressing issues raised by the program 'Digital Economy of the Russian Federation'.

Keywords — *information & communication technologies, information society, statistical data, factors, public administration efficiency*

I. INTRODUCTION

The performance of public authorities in the federal subjects of Russia largely depends on the quality and timeliness of available information. In late 20th century, information & communication technologies became a key element in the collection, concentration and processing of information and, naturally, began to be perceived as an integral and continuously improved component of organizational structure and administrative practices. Actually, ICT improvement was equated to public administration efficiency improvement.

Advanced countries view information society as a real opportunity to accelerate the national and economic development. Each country has its own strategy to become an information society. European experts identify four major factors determining the information society development conditions: current state of the national infrastructure; level of integration of related industries; actual needs of society; and actual level of competition [6, p. 92-93].

Digital economy objectives in Russia were updated in 2016, when President Putin in his address to the Federal Assembly spoke about the need for domestic R&D developments and digital solutions in order to make the country more effective economically and socially [1]. The President suggested a large-scale development strategy for the new industry, the 'digital economy', to be created and integrated by Russian companies and R&D institutions.

The global experience shows that the competitiveness of a national economy directly depends on the development of information technologies; per the World Economic Forum, the Global Competitiveness Index (GCI) of national economies is closely related to the ICT Development Index. Thus, the GCI calculation methodology, in describing the Ninth pillar (technological availability), notes that the economy adopts existing technologies to increase the productivity of its industries, with special emphasis on its ability to fully use ICT in daily operations and production processes to increase efficiency and ensure competitiveness through innovation [10]. Review of recent publications shows that ICT have become today's key technologies. The systemization we suggest for the factors affecting the public administration efficiency in the federal subjects of Russia through the use of ICT is the first step to achieve the goal, and the results are parts of the ongoing public administration improvement dynamics study.

II. MATERIALS AND METHODS (MODEL)

The analysis of recent years' publications demonstrates that information and communication technologies are the key technologies of the time. The systemization we are suggesting for the factors affecting public administration effectiveness in the federal subjects of Russia through the use of information and communication technologies is the first step to achieve the goal, and the results obtained are part of the ongoing research into the administrative activity improvement dynamics. This study uses both scientific (specific) methods, such as review of ICT development status in Russia, and the synthesis method consisting in systemization of the factors that affect public administration effectiveness through the use of information and communication technologies.

III. RESULTS AND DISCUSSION

IT industry is a most dynamic one both in Russia and globally. It is rapidly integrating into all areas of human activity and becoming a major influence on the social sector, economy, and the image and status of our country in the world community. ICT advancement breeds increasingly promising prospects. This in turn calls for a systemized evaluation of the national ICT potential and the objectives and trends of its growth. Principal ways to implement the new approach are set forth by the program 'Digital Economy of the Russian Federation' brought to effect by Russian Government in 2017. The program's main objective is to create in the RF a digital economy where the digital data would be an important constituent of economic and social growth. The program envisages five basic directions of Russian digital economy progress for the period ending 2024. These basic directions are regulatory control, personnel and education, R&D competencies and technical expertise, information infrastructure and information security [2].

The impact of digital transformation on our economy and lives is already extensive and growing yet, but many aspects of the change have not been sufficiently explored.

It should be noted that the transition to information society boosts the role of statistical data in addressing the public administration issues in the federal subjects of Russia. A modern information society is believed to follow a number of trends, namely: enhancement of information volume, including statistical data; creation of a global information space; emergence of fundamentally new approaches to the use of modern ICT in the economy; growing professional qualification of employees due to modern education systems.

Today, new communication technologies, including the Internet, have a huge impact on the development of society, facilitate data acquisition, make information search more time-efficient, save material resources, and improve inter-personal communication. Both legal entities and individuals can retrieve diverse information from a multitude of sources, run electronic businesses and enjoy online public and other services [4, p.31].

Official statistical data, a primary source of official socio-economic information nationwide and regionally, plays a significant role in today's information society. Availability of

transparent and fair statistics is of key importance for legislative and executive authorities that make managerial decisions for federal subjects of Russia.

We therefore insist on discussing how the positive effects of digitalization can be maximized for improved administration of Russian federal subjects' economies.

Subject to systemization are the major factors that ensure efficient public administration of socio-economic development in Russian federal subjects through the use of ICT and statistical data.

The factor systematization should take two approaches.

Approach I – improvement of communication technologies:

- 1.1 Taking ICT integration to the top level;
- 1.2 Creation of technical infrastructure;
- 1.3 Regulatory framework for ICT development and use;
- 1.4 Comparing ICT integration in different regions.

Approach II – improvement of information technologies:

- 2.1 Rational collection and use of information resources;
- 2.2 Impact of "supralinguistic" factors;
- 2.3 Information security and economic security;
- 2.4 Perception of statistical data;
- 2.5 Inter-agency information exchange;
- 2.6 Advanced training of public officers;
- 2.7 Barriers.

Creation of efficient public administration system in regions shall be done in three steps. At the first step, potential opportunities for a broader ICT integration are provided by building the technical infrastructure, promoting markets of ICT products and services, and laying the legal foundation for ICT development and use. At the second step, ICT extensively enter all industries and the social and public life. Consequently, the third step should see the informatization parameters reaching some critical values where ICT becomes a significant impact on the efficiency and structural transformation of economy, new sources of welfare emerge, the role of information and new technologies in the development of democracy and civil society becomes assessable, and the social inequality dwindles.

The first approach is sufficiently disclosed in many studies [4, 9, 10].

Therefore, we would like to discuss the main provision of Approach II, improvement of information technologies.

- 2.1 Rational collection and use of information resources

Digital economy imposes new requirements on official statistics. Both scientists and practitioners note that the main shortcoming of traditional statistical data processing methods that the introduction of new digital technologies is to address consists in the low speed of data processing, large data storage

systems, impossibility of processing unstructured data, etc. Moreover, the measurement of the digital economy and its contribution to economic growth becomes a priority.

At present, official statistics is being transferred to a renovated technological basis through the creation of a federal data management system. The program 'Digital Economy of the Russian Federation' envisages some Information Infrastructure measures (approved by Russian Government on 17 December 2017), for instance, using joint efforts of Russian Federal State Statistics Service and Russian Ministry of Economic Development to establish a single digital analytical platform for the provision of statistical and administrative data (hereinafter the Platform). The Platform, a component of digital economy's information infrastructure, shall: ensure that data are submitted once to all levels of government and to local governments, including on-line data submission; enable the formation and use of analytical indicators for the purposes of public administration in accordance with the changing information needs; make electronic form of official statistics available for the users; integrate accounting, statistical and tax reporting; allow the use of diverse operational data, including administrative and alternative sources of information, to manage business processes [8].

Today, the GOING DIGITAL (Making the transformation work for growth and well-being) project launched by the Organization for Economic Cooperation and Development (OECD) in January 2017 is the international practice capable of helping address the issues raised by the Program 'Digital Economy of the Russian Federation.'

2.2 Impact of "supralinguistic" factors

It's not always clear what information is needed or where and how it can be found. There are some "supralinguistic" (per D. I. Blumenau) [5] factors that complicate communication exchange, for example, between the information users being experts in regional socio-economic development and the information originators being experts in statistical data acquisition, processing and delivery.

2.3 Information security and economic security

For proper governmental control over social and economic processes, the regions should be provided with a qualitatively new ICT-based governmental control system complying with applicable information security and economic security requirements. Another condition to help information society evolve is the public confidence in safe use of information.

2.4 Perception of statistical data

The statistical data perception factor takes into account such influences as: underestimation of the statistical data role in administrative activities; lack of skills necessary to work with statistical data sources, "consciousness barriers" (per Engelbert) meaning that "a person seeks only what they believe existent and what they need" [5].

2.5 Inter-agency information exchange

Information exchange between territorial agencies of federal ministries and departments is restricted by law

("restrictions on information dissemination", "commercial secret", "right of information holder", etc.), as well as some technical issues.

2.6 Advanced training of public officers

Undoubtedly, solving new tasks requires properly qualified experts, which calls for more advanced training programs. For instance, the Cross-Regional Resources Center, Saint-Petersburg, together with the Blockchain Academy have been implementing the Russia Digitalization Challenges project that addresses the digital economy legal regulation issues with reference to the national and international digitalization experience, introduces the blockchain technology, seeks to enhance digital security and solve a number of other problems. A key component of success in creating a digital economy and improving the efficiency of regional development management is the training of interdisciplinary experts with good knowledge of statistics, ICT and data science.

2.7 Barriers

2.7.1 Physical barrier:

Consists in physical access to ICT (availability or unavailability of PC and the Internet access);

2.7.2 Skills barrier:

Consists in lack of elementary experience in digital technologies;

2.7.3 Knowledge barrier:

Consists in the increasing knowledge gap between advanced ICT users and their less knowledgeable colleagues.

2.7.4 Mental barrier:

Consists in users' lack of interest in or fear of using advanced technologies.

Researchers also point to another impediment to proper use of ICT consisting in inability to select, process and apply information from multiple sources [7, p.87].

IV. CONCLUSION

Therefore, information & communication technologies are major information elements of public administration. The time has equated the use of ICT to the efficiency of public administration. Information society building approaches nationwide and regionally are determined by social and economic specifics and the technological capabilities. Digital economy is posing new requirements to official statistics as an essential source of socio-economic information on the country and its regions. A key component of success in creating a digital economy and improving the efficiency of regional development management is advanced training of public officers. Proper implementation of information & communication technologies contributes to establishing a qualitatively new public administration system and raising living standards.

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