

# Digital transformation of public administration as a factor of regional competitiveness increasing

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**Abstract.** Digitalization of public administration became the one of the important modern factors in the formation of competitive advantages of the regions. The increasing of the area competitiveness largely depends on the quality and timeliness of public decisions. At the same time, digitalization of public administration besets a number of challenges at the regional level. They include the digital inequality due to irregular access to broadband Internet access, the high labor costs of data collection, low efficiency of data distribution. Also they include the psychological inability of some officials and citizens themselves to provide and access government services in digital form. Nevertheless, today digitalization is the most promising way to most effectively provide public services to citizens and businesses. Its implementation requires public administration authorities to understand the digital transformation trends, its stages, objectives, and legal and financial solutions. This study aims to analyze the processes of digitalization of public administration in the Yaroslavl region, identify the provision of these processes by the adopted legislative decisions and assess their implementation. Digitalization is a new stage of building an information society, contributing to the realization of the constitutional right of citizens to freely seek, receive, transmit, produce and disseminate information in any lawful way. Information resources of public authorities, local self-government bodies, organizations, and public associations are formed to achieve this goal. Digitalization is designed to provide a new level of quality and efficiency in different subject areas. The effects of digitalization (digital transformation) have a major impact on the development of the regional economy. The digital transformation of the region as a whole, and regional public administration in particular, should strengthen the economic and social components of the competitiveness of the territory. The mechanism of this process is the intensification of state-society interaction in electronic form by achieving «digital maturity» of the economy and social sphere, i.e. the use of domestic digital solutions to solve economic and social problems. It is shown that in the Yaroslavl region consistently and systematically solve the problems of digital transformation, providing competitive development of the territory.

**Keywords:** digitalization of regional management processes, digital transformation of public administration, legal and financial support of digital transformation processes.

**JEL codes:** G38, H70, H83, R58

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## Introduction

Digitalization is the use of digital tools. At the beginning of the XXI century, technological progress gave rise to a new stage of evolution. It is associated with new tools in the form of information and communication and digital technologies, with a completely different way of social interaction, the emergence of homo digital – digital man (Vasilenko & Meshcheryakova, 2021).

Digitalization of regional management processes is the one of the important modern conditions for the formation of competitive advantages of areas. Modern level of public administration technical equipment largely determines the quality and timeliness of decisions taken.

Undoubtedly, the digitalization of public administration entails many positive social and economic effects. It affects the competitiveness of the region in terms of:

- 1) Reducing the number of officials. The most of the services performed by the people will process automatically. It will reduce the cost of the state apparatus maintaining;
- 2) Reducing corruption. The digitalization increases the transparency of public administration;
- 3) Increasing the convenience of public services for citizens. It also will increase the public satisfaction with the quality of government services, etc.

At the same time, especially at the regional level, digitalization of public administration is challenged with:

- the digital divide due to the uneven access to broadband Internet access, as well as insufficient financial support for the purchase of appropriate technology (Alexandrova, 2019);
- the high labor costs on collecting and posting data with low efficiency of their use. The information posted in the public domain is not always in use (Rajkhлина, 2021);
- the psychological unpreparedness of some officials and citizens to provide and receive public services in digital form. The low digital skills level (digital behavior) (Pogozhina et al., 2020).

Nevertheless, digitalization is the most productive interaction between authorities, citizens, and businesses through the digital environment. It is relevant due to the significant expansion of functions performed by the public authorities (Patrusheva & Rajkhлина, 2021), the increasing complexity of the regional economy attracting investment practice in order to increase the competitiveness of the area (Rajkhлина et al., 2020). In accordance with these trends, the state system is reorganized and operated with digital tools. This process is also called «digital transformation».

### **Methods**

The concept of «digitalization» does not have an unique definition. It is a scientific and technical phenomenon (Patrusheva et al., 2021). There is an opinion that the term can be interpreted as «the process of introducing information and communication and digital technologies into the citizens, organizations and public authorities activities, the result of which is a fundamental change in the practice of obtaining, processing, and sharing information» (Kabytov & Starodubova, 2020). These technologies are «artificial intelligence,» «big data,» «robotics,» «sensorics», etc.

The digital transformation of public administration is a series of systemic transformations. It aims to reach a qualitatively new level of the public services efficiency through the use of digital technologies (Rajkhлина, 2019). Thus, digital transformation is defined by experts as the sum of the effects resulting from digitalization.

The management of the digital transformation processes requires the understanding of public authorities representatives the fact that these processes must be decomposed into several components, each of which has its own importance for regional development. The Presidential Decree of 21.07.2020 No. 474 considers the digital transformation as the national development goal until 2030, and identified several of its components (Figure 1).

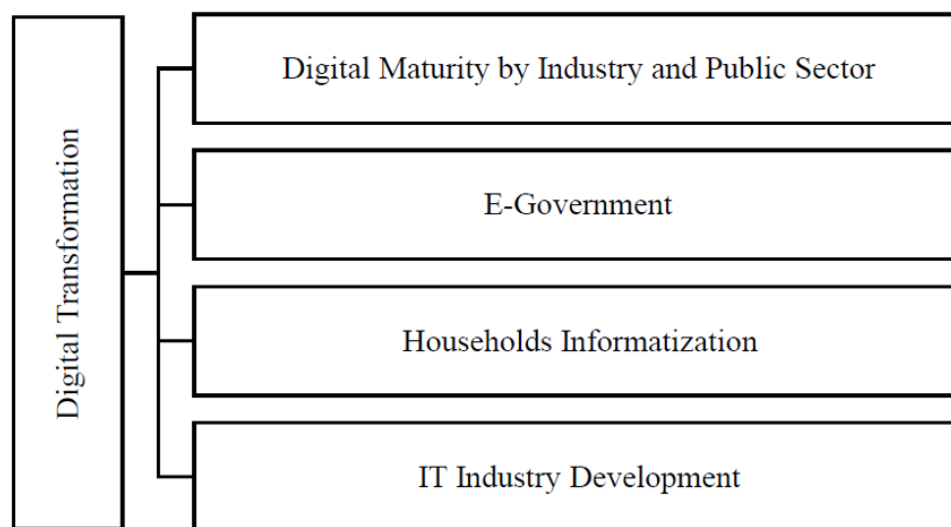
In accordance with Decree, the objectives of the regional are:

1. Approaching «digital maturity» or the infill of individual sectors of the regional economy and public administration with embraced digital technologies.
2. Increase the number of available digital services.
3. Expand the digital infrastructure for Internet access throughout the region.
4. Attract investment in regional IT projects and purchase domestic IT solutions.

The government supports these objectives achieving by special budget funding as a part of the projects implementation. For example, the structure of the national programme «Digital Economy of the Russian Federation» (National projects) is presented in Table 1.

The Russian Federation Ministry of Digital Development, Communications and Mass Media provides the functions related to digitalization and digital transformation of the public administration. It also coordinates the relevant work in the regions through the project offices established specifically for this purpose. All executive authorities of the Russian Federation regions have those who responsible for the digital

transformation. This study analyzes the achievements of the Yaroslavl region in this area.



**Figure 1.** Components of Digital Transformation as the national development goal of the Russian Federation

Source: composed by the authors and based on the requirements of Presidential Decree No. 474 of 21 July 2020 «On the National Development Goals of the Russian Federation for the period until 2030».

**Table 1** – Funding for the national programme «Digital Economy» until 2024 inclusive

Federal project	Funding, million rubles
Information infrastructure	772,401
Digital technologies	451,809
Digital Public Administration	235,705
Personnel for the Digital Economy	143,088
Cybersecurity	30,204
Regulation of the digital environment	1697

Source: composed by authors based on the passport of the national programme «Digital Economy».

## Results

There are several important decisions on digitalization and digital transformation of public administration in the Yaroslavl region. They can be systematized according to the objectives of digital transformation.

The first objective – to approach the «digital maturity» of the individual sectors of the regional economy and public administration – approved in March 2020. The state programme «Information Society» in the Yaroslavl region in 2020-2024 includes a regional special-purpose programme «Digital Economy» (Resolution № 227-r). It includes a regional project «Digital Public Administration». The project passport contains 18 proprietary technologies on the implementation of digital technologies and platform solutions (Passport). But, funding of 9.8 million rubles from the regional budget was allocated only for 2019.

The state programme «Development of public administration system in Yaroslavl region» for 2021-2025 (Resolution № 76-r) contains the issues of increasing the transparency of the public administration through ICT. The total financing of its subprogramme «Development of State Civil and Municipal Service in the Yaroslavl region» amounts to 36.91 million rubles. These funds will be used for:

- providing an automated assessment of personnel;
- updating data on the region in the Unified Information System for the Management of Personnel of the Civil Service of the Russian Federation;
- development of electronic training courses, manuals for state civil servants, and other tasks.

In August 2021, the Governor of the region approved the Strategy for Digital Transformation of the

Economy, Social Sphere, and Public Administration of the Yaroslavl region (Strategy, 2021). It provides the following projects under the Public Administration section:

- 1) Conversion of mass socially important state and municipal services into the digital form;
- 2) Feedback platform;
- 3) Digitalization of magistrate courts;
- 4) Digital transformation of control (supervisory) activity;
- 5) Creation of a digital “Gostech” platform;
- 6) Development of electronic document management systems for the region’s state authorities and local authorities of the region’s municipalities.

Decree of the Government of the region from 28.12.2021 No. 990-p adopted a programme of digital transformation of the Yaroslavl region for 2022-2024 (Decree No. 990-p). The Decree, as well as the Strategy, considers the objective of digital transformation as the achievement of the «digital maturity» of the main sectors. They include the economy, social sphere, and public administration in order to provide quality public services to the population and businesses, form a quality and safe environment for life and development, ensure accessibility and quality of education, health and social support. The Programme formulates the following objectives for the digital transformation of public administration in the Yaroslavl region until 2024:

- increasing social services available in digital form up to 95%;
- achieving «digital maturity» in key sectors of the economy, social sphere, healthcare, and education, as well as public administration – up to 32%;
- increase the share of the Yaroslavl region households with Internet access up to 79.6%;
- achieve the share of the design construction documentation in digital form up to 10%;
- increase the share of regional social safety net mechanisms. The application of these mechanisms allows to the Yaroslavl region citizens to submit on the portal of public services up to 100%;
- increase the attendance rate of the Golden Ring 2.0 digital platform up to 65,000 visitors;
- achieve the share of the Yaroslavl region large and medium-sized enterprises with digital passports on the platform of the state information system of industry up to 85%.

The second objective – to increase the number of services available in digital form – was implemented in the Yaroslavl region in the project «E-government». 85 socially important services in the Yaroslavl region converted into digital form and presented on the Unified Portal of Public Services (UPPS). Totally 123 regional services are available in digital form on the UPPS. The Unified System of Identification and Authentication (USIA) – the Federal SIS – allows citizens to use a single login and password on various portals and sites to obtain public and municipal services in digital form – 811,129 citizens with a confirmed account and a certain location – Yaroslavl region («E-government», 2023) were registered.

All executive authorities of the Yaroslavl region and local authorities of municipalities in the region are connected to the system of interdepartmental electronic interaction (SIEI). The Department of Informatization and Communications of the Yaroslavl region (DIC, 2023) is responsible for the implementation of these projects and for the publication of all related materials. As for the objective of the infrastructural capacity expanding to Internet access to citizens throughout the region, it is successfully achieved (Table 2).

**Table 2** – The number of mobile broadband Internet access of subscribers per 100 people

Period	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
RF	47.8	52.6	59.8	64.5	68.1	71.1	79.9	86.2	96.4	99.6	107.5
CFD	52.8	57.9	64.8	73.5	79.2	83	92.1	97.4	109.5	110.7	120.2
YR	51.6	52.9	60.5	66.5	69.1	68.5	73.9	78.5	97.2	107.7	116.9

*Source: composed by authors. Based on «Selective Federal statistical observation on the use of information technologies and information and telecommunication networks by the population of the RF»*

The Federal State Statistics Service data the expanding of the availability of high quality Internet service in the region. The highest level of expand was in 2019 compared to 2018. At the same period the number of subscribers to mobile broadband Internet access per 100 people in the Yaroslavl region (YR) was slightly

higher than the average for the Russian Federation (RF), but remains below the Central Federal District (CFD).

As a part of the fourth objective of digital transformation – to attract investment into regional IT-projects and acquire domestic IT-solutions – the Ministry of Digital Development of Russia recommends to the Russian Federation regions be guided by the National Strategy for Artificial Intelligence until 2030 (The Order No. 490) and the Strategy for the Development of the Electronic Industry of the Russian Federation until 2030 (Decree No. 20-r). In accordance with their provisions, Yaroslavl region public administration provides mechanisms to support the IT-industry. They can be classified as follows:

I. Contest conduct.

This includes the projects selection on development of Russian IT solutions; providing competitive grants for domestic software promotion; competitive admission of the residents for accelerating.

II. Support mechanisms for companies – IT solutions developers.

- 1) application of zero income tax rate for accredited organizations;
- 2) accredited organizations exemption of tax, currency control, and other types of state and municipal control;
- 3) providing grants for the domestic IT solutions development;
- 4) selection of Russian software licensors;
- 5) startups support for the early stages of development as part of the «Start – Digital Technologies» programme;
- 6) support for companies with experience in the development and sale of science-intensive products under the «Development – Digital Technologies» programme;
- 7) support for enterprises planning to present their own products to foreign markets as part of the «Export – Digital Technology» programme;
- 8) support for enterprises planning to refine and scale their own digital solutions, products, or platforms as part of the «Commercialization – Digital Technologies» programme;
- 9) supporting businesses developing open source code, creating, and developing open-source library as part of the «Code to Digital» programme;
- 10) concessional lending to IT companies.

III. Support mechanisms for companies implementing IT solutions imply concessional lending for the introduction of domestic software; grants for projects of digital business transformation, for pilot implementation of Russian software, platform solutions, services, or software and hardware complexes based on artificial intelligence technologies. As part of the «Digitalization – Digital Technologies» programme, support is provided to small businesses planning to implement Russian digital solutions.

IV. Support mechanisms for IT professionals include privileged mortgages for employees of accredited IT companies, as well as getting occupational deferment from military service.

Thus, the public administration of Yaroslavl region provides the processes of digital transformation by expanding the range of digital public services and increasing the transparency of public administration through ICT. In addition, they act as subjects of digital transformation in terms of the development of the information infrastructure in the region, as well as the implementation of mechanisms to support the IT industry.

## Discussion

There are various approaches to the defining of the processes of public administration digitalization in the scientific literature. Thus, in (Kochetkova, 2022) there is a description of the constants determining the regional economic systems qualitative change in terms of digitalization. Regions digital maturity is a tool of public administration digital transformation in (Bannykh et al., 2022). The impact of digitalization on the interaction between the authorities and regional development institutions is considered in (Patrusheva & Rajkhlina, 2021a). The paper (Dobrolyubova et al., 2019) dwells on the challenges of digital transformation is impossible without greater efficiency, expediency, and therefore a new quality of public authorities and

governance, as well as providing greater validity of public intervention. Many studies emphasize that the pandemic was a major challenge to driving digital transformation processes into public administration worldwide (e.g., Gangneux & Joss, 2022). Researchers also pay attention to the national specifics of these processes (Battisti, 2020; Rusu et al., 2020). It emphasizes the digital transformation of public administration causes multiplicative socio-economic effects (Kitsios et al., 2021). Also it requires new technologies in knowledge management (Alvarenga et al., 2020). In general, this phenomenon is still developing, and its understanding is just being built up (Verhoefa et al., 2021). Therefore, the scientific understanding of this phenomenon demands the implementation of the interdisciplinary approach.

### Conclusions

Thus, digitalization is a new stage of building an information society, contributing to the realization of the constitutional right of citizens to freely seek, receive, transmit, produce and disseminate information in any lawful way. Information resources of public authorities, local self-government bodies, organizations, and public associations are formed to achieve this goal. Digitalization is designed to provide a new level of quality and efficiency in different subject areas. The effects of digitalization (digital transformation) have a major impact on the development of the regional economy.

The digital transformation of the region as a whole, and regional public administration in particular, should strengthen the economic and social components of the competitiveness of the territory. The mechanism of this process is the intensification of state-society interaction in electronic form by achieving «digital maturity» of the economy and social sphere, i.e. the use of domestic digital solutions to solve economic and social problems. It is shown that in the Yaroslavl region consistently and systematically solve the problems of digital transformation, providing competitive development of the territory.

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