









“Effectiveness of public administration of the digital economy in Kazakhstan”

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ARTICLE INFO	Aruzhan Yeraliyeva, Galiya Dauliyeva, Gulmira Andabayeva and Biken Nurmanova (2023). Effectiveness of public administration of the digital economy in Kazakhstan. <i>Problems and Perspectives in Management</i> , 21(3), 125-137. doi: 10.21511/ppm.21(3).2023.10
DOI	http://dx.doi.org/10.21511/ppm.21(3).2023.10
RELEASED ON	Thursday, 20 July 2023
RECEIVED ON	Tuesday, 06 September 2022
ACCEPTED ON	Tuesday, 27 June 2023
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Problems and Perspectives in Management"
ISSN PRINT	1727-7051
ISSN ONLINE	1810-5467
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

39



NUMBER OF FIGURES

4



NUMBER OF TABLES

1

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 6th of September, 2022

Accepted on: 27th of June, 2023

Published on: 20th of July, 2023

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Conflict of interest statement:

Author(s) reported no conflict of interest

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EFFECTIVENESS OF PUBLIC ADMINISTRATION OF THE DIGITAL ECONOMY IN KAZAKHSTAN

Abstract

The digitalization of the economy has become one of the modern concepts in many countries and added urgency for governments to embark on a new path for effective digital and data governance. This study aims to examine the effectiveness of public administration of the digital economy in Kazakhstan, focusing on the policies, regulations, and strategies implemented by the government to support the development of this sector. The paper also explores the challenges faced by the government and the private sector in implementing these policies and regulations, including issues related to infrastructure, human capital, and the regulatory environment. It uses interdisciplinary, analytical, and systemic approaches, as well as desk research, analysis of materials of international organizations, and analysis of legal documents of the Republic of Kazakhstan and data from expert surveys. Thus, the results indicate the main scientific categories of the digital economy. Modern trends in the development of the digital economy in the world and the Republic of Kazakhstan have been identified. The results also show key performance indicators of public administration, assess the effectiveness of public administration of the digital economy in Kazakhstan, and offer directions for improving the efficiency of public administration of the digital economy. The study concludes by offering recommendations for policymakers to enhance the effectiveness of public administration of the digital economy in Kazakhstan.

Keywords

digitalization, digital transformation, digital economy,
public administration, performance evaluation

JEL Classification O38, H83

INTRODUCTION

Digitizing the economy has become a significant priority for governments worldwide. This transition to a digital model introduces various challenges and issues that governments must address during the transformation. Kazakhstan is no exception, as it faces obstacles despite adopting strategic and legislative measures to promote digitalization. Challenges include a shortage of professional IT specialists, partially implemented digitalization plans in national companies, concerns about the effectiveness of ongoing projects, and limited information on the efficiency of budget allocations for digitalization.

Given these challenges and their potential impact on the desired outcomes of state programs focused on digitalizing the national economy, it is crucial to analyze the effectiveness of public administration of the digital economy. Such an analysis can identify key areas requiring special attention from the Kazakhstani government, leading to more effective implementation of related programs and efficient utilization of state resources.

1. LITERATURE REVIEW

Every country, depending on the available resources, world market conditions, and other factors, creates its own unique sectoral structure of the economy, the improvement of which is a natural process. In particular, using the theory of economic cycles by Kurki and Wilenius (2015), the concepts of Kuznets (1940), and Schumpeter (1939), the theory of changing technological mode or a set of technologies characteristic of a certain level of economic development are based. The transition from one way of life to another is accompanied by new technologies, production transformations, labor productivity changes, economic relations complications, and product renewal.

The diffusion of innovation theory best explains the current trend of digitalization in public administration (Kaminski, 2011). The theory states that the diffusion of innovation is a process that occurs as individuals adopt new ideas, products, practices, and philosophies. Only a few people tend to readily adopt the innovation at the initial stages. The process becomes widespread, as early adopters tend to spread the word of mouth, encouraging massive adoption of innovation. It is necessary to note that the diffusion process usually occurs until the saturation of the innovation. Hence, the theory classifies different groups, including early adopters, innovators, early majority, late majority, and laggards. Kaminski (2011) noted that a new group of non-adopters was added to analyze the innovation's spread. The innovation diffusion theory explains the nature and degree of adoption of changes made by the government among the population and private sector.

Banalieva and Dhanaraj (2019) attempted to investigate the internationalization theory regarding the digital economy. The study analyzed the changes brought about by multinational enterprises' internationalization of digital services. Accordingly, the internationalization of digital services by multinational enterprises pushes toward re-examining the internationalization theory assumptions. Based on the decomposability concept, the study accentuated two key aspects of the digitalization process: technology and human capital. Moreover, human capital and technology symbiosis leads to developing firm-specific assets (FSAs). The important proposition was that rising levels of digitalization signify

the role of the network, which serves the dual purpose as the governance mode and the strategic resources. Hence, the network (connectivity) leads to the network advantages, which are considered a distinct strategic resource from the traditional asset-based and transaction-based advantages. In other words, the internationalization theory proposes a new look at the development of the digital economy, which is distinct from the transaction and asset-based relationships. In addition, it facilitates the development of a new form of an advantage: network-based advantage.

One of the technological modes is "digitalization" – the conversion of information into digital form and the process of transferring human activity and the products of this activity into a digital environment. Tapscott (1995) presented the concept "digital economy." The study analyzed trends in transaction costs and formulated several hypotheses about the transition of business to digital reality. Negroponte (1995) formulated the concept of the digital economy: "an electronic economy that includes a shift from processing atoms to processing bits where atoms make up the matter of physical substances and bits- the matter of program codes."

Subsequently, Lane (1999) believes that the digital economy implies the convergence of computers and information and communication technologies on the Internet. The emerging flow of information and technology is driving the development of e-commerce and significant organizational changes. Pratt (2016) defined the term as "a global network of economic interactions that have become available thanks to information and communication technologies (ICT)." Dahlman et al. (2016) believe that the digital economy combines technologies of general application and a range of social and economic activities. Internet users carry them out with the help of appropriate technologies.

Digitalization is capable of providing a science-intensive and innovative type of development of the national economy (Vechkanov, 2012) as a higher degree of technological renewal of productive forces with automation and computerization of all sectors of the economy. Bucht and Hicks (2018) agree that the digitalization of the economy is based on information technology, primarily on Internet technology.

The development of the digital economy is based on the digital ecosystem: digital artifacts and data transmission infrastructure, processing, storage, and system users, as well as political, socio-economic, psychological, and other factors affecting the implementation of electronic interactions (Dong et al., 2007). There are at least four levels that must be considered when applying the concept of “digital transformation” at the country level:

- 1) The “royal” functions of the government (e.g., regulations, taxation, laws).
- 2) Public services (e.g., education, health and justice, other public services).
- 3) Efficient social and economic functioning based on a set of accepted rules (usually a Constitution). This level also should consider the specific economic system and cultural-confessional values.
- 4) The overall effectiveness of the country’s economy, both in general and in relation to how it competes in international markets (Dutta & Lanvin, 2020).

Thus, the strength of the digital economy theory is provided, on the one hand, by the attention of researchers to the transaction costs of organizations, their accurate identification and detailing, and, on the other hand, to the issues of the overall efficiency of the economy and increasing the competitiveness of the country (region) through the application of new technologies. Secondly, digitalization depends to the greatest extent on the quality of government administration and on the efforts of the public administration to encourage the digital economy development. Along with this, public administration is an important factor in both progression and regression of the economy and society. Differences in public administration explain why certain countries experience significant growth while others do not (Samorodova et al., 2019).

The overriding task of any national government is to make public administration more effective. Management efficiency is understood by scientists differently. Technological efficiency is the

level of resource usage intensity through the ratio between production volumes and the volume of resources used. On the other hand, internal efficiency reflects one’s effectiveness assessment, productivity, which is based on the ratio of resources and results. External efficiency shows the structure of the needs of society, their satisfaction with the level of usefulness of a service or product, as well as its potential. It also reflects the structure of social needs, the degree of their satisfaction, the product’s usefulness level, its market share, and potential. Static efficiency reflects evaluating and managing activities in a short time when operational-tactical tasks are solved. Static efficiency involves achieving high results in the long term through the use of various resources and changes in technology. In addition, it is a form of evaluation and management of activities during a short period when operational-tactical tasks are solved. It also involves achieving high results through various resources and changes in technology in the long term (Abubakar et al., 2019; Litvaj & Stancekova, 2015; Barafort et al., 2017).

World Bank Group formulated one of the most well-known systems for assessing the effectiveness of public administration – World Government Indicators (WGI).

Since 2004, World Economic Forum has been calculating the Global Competitiveness Index (GCI). This index is based on 335 competitiveness criteria. To select criteria, research and analysis of international and national sources, economic literature, and reviews of scientists and government agencies are conducted.

When assessing the quality of public administration, special attention is paid to corruption, which is monitored by Transparency International, an organization that develops the Corruption Perceptions Index (CPI). This index is used to assess the scale and prevalence of corruption in different countries, which allows for tracking the dynamics of this negative phenomenon. The score goes from zero to 100, where zero means very high corruption and 100 means very low corruption.

An important indicator of positive changes in the digital economy is the development of digital government. The UN Department of Economics

maintains an Index and Social Policy called the UN Global E-Government Development Index (EGDI). This index is used to measure progress in e-government. EGDI includes three key indicators, such as Online Services Index (OSI), Telecommunications Infrastructure Index (TII), and Human Capacity Index (HCI). The composite value of each component index is normalized to fall within the range of 0 to 1, and the overall EGDI is obtained from the arithmetic mean of the three components (Koroleva et al., 2019).

In Kazakh science, Vladimirov et al. (2020) studied long-term forecasts for digital economy development. The study results served as the basis for developing the methodology focused on calculating factor models of the digital economy in Kazakhstan. Extrapolation methods based on the extension of established trends of the past and present for the future period can be used in forecasting only with a lead period of up to five or six years. One of the most important conditions will be a stably expressed trend in the development of any socio-economic process of national economic activity. With longer forecast periods, these methods did not provide the ability to obtain accurate results.

Despite many comprehensive international indices and scientific publications, there is a lack of extensive national-level academic works to evaluate the public administration effectiveness of the digital economy of Kazakhstan. There are potential reasons explaining the scarcity of scientific works. First of all, the issue can be considered novel in the context of Kazakhstan. Secondly, there needs to be a unified approach and consensus among the researchers in determining the criteria and effectiveness assessment methods to evaluate the transition of the Kazakhstani government into a digital model leading to the incapability to develop a standardized assessment methodology. Thirdly, socioeconomic inequality in the development of countries, including access to the Internet, impedes the development and adoption of new methods of effectiveness measurement. Fourthly, the incompleteness and irregularity of public data about the progress made in the digitalization of specific economic sectors and the lack of adequate analytical information on the effectiveness of digital transformation projects in private and public sectors contribute to the current problem.

The literature review focused on critical aspects of the digital economy, including the theoretical frameworks, key definitions, the assessment of the public administration effectiveness, and the current state of the digitalization of the economy in Kazakhstan. Indeed, theoretical frameworks were dedicated to the analysis of the main motives of the governments to adopt digitalization strategies. On the other hand, the analysis of the digital economy concept has provided a better understanding and interpretation. Furthermore, the public administration effectiveness indicators highlighted different international indicators from international organizations such as United Nations and World Bank. Finally, yet importantly, the analysis of the academic literature dedicated to Kazakhstan's digital economy has outlined the core principles and goals. As shown from the academic literature analysis, most articles dedicated to the digitalization of the economy have not addressed the main methods and approaches to evaluating public administration processes.

This study addresses Kazakhstan's unique challenges and opportunities in its digital transformation journey. By examining the effectiveness of public administration in this specific context, the analysis aims to identify key issues and hurdles that hinder digital progress. Additionally, it uncovers opportunities and best practices that can be leveraged to enhance the country's digital competitiveness. This knowledge is essential for policymakers, government agencies, and stakeholders seeking to navigate the complexities of digital transformation and achieve positive outcomes.

The study contributes to the understanding of the role played by public administration in managing and governing the digital economy in Kazakhstan. The analysis sheds light on how the government influences the digital economy's growth and development by examining the effectiveness of public administration policies, strategies, and initiatives. This understanding is crucial for policymakers, researchers, and stakeholders involved in shaping and implementing effective governance mechanisms in the digital era.

The study's relevance lies in its potential to guide policymakers, researchers, and stakeholders toward evidence-based decision-making and ef-

fective governance mechanisms that support Kazakhstan's digital transformation and contribute to long-term sustainable development.

2. METHODS

To assess the effectiveness of public administration of the digital economy in Kazakhstan, the study uses secondary data analysis through in-depth analysis of the international statistical and methodological publications by the World Bank Group and the Organization for Economic Cooperation and Development (OECD). Considering the specifics of the research topic and its relevance to a narrow audience, qualitative methods such as interviewing are not relevant.

To obtain vivid and relevant information, the study examines several state-level publications and documents, such as governmental decrees, digitalization strategies, and the nation's annual speeches by the country's president. Hence, the combination of the governmental assessment approaches and the performance results of the digitalization-related state programs combined with the international indicators of the governmental digitalization levels determines the potential methodological gaps.

In order to compare the national and international indicators of public administration effectiveness, it is decided to include the following indicators and indexes: the Network Readiness Index (NPI) and the ICT Development Index.

The sources of information from the governmental agencies include the statistical information provided by the National Agency on Statistics of Kazakhstan, the reports by the Ministry of

the Digital Development, Innovation, Aerospace Industry of Kazakhstan, and the statistical bulletins published by the Eurasian Economic Commission. Moreover, the study analyzes media and data company reports such as Gartner, International Data Corporation, SearchNode, We Are Social, and Hootsuite.

Overall, the primary motivation to employ secondary and descriptive statistical measurements was due to the specifics of the research topic and the lack of access to the participants of the public IT sector.

3. RESULTS

Through the implementation of the state program "Digital Kazakhstan," an extensive range of measures is being executed to foster the advancement of the digital economy within the country. Significant emphasis is placed on the progression of the IT industry in Kazakhstan.

The global IT industry moved into rapid growth, preceded by stagnation due to the restrictions of the COVID-19 pandemic, according to Gartner (2023). At the end of 2021, growth was about 6.2%, and in 2022 – 4.6%. In monetary terms, total global spending on the IT sector in 2021 amounted to \$3.923 billion, and spending increased to \$4.105 billion in 2022 (Table 1).

According to the study by analytical firm IDC (Villars et al., 2021), top company executives from 10 different industries indicated in the surveys that businesses have become more appreciative of digital transformation and IT development projects since the start of the COVID-19 pandemic. In addition, the pandemic contributed to the ac-

Table 1. IT spending and forecast for 2020–2022

Source: Gartner (2023).

IT sphere	Expenses in 2020, \$	Growth in 2020, %	Expenses in 2021, \$	Growth in 2021, %	Growth in 2022, \$	Growth in 2022, %
Data Center Systems	214.985 million	0	228.360 million	6.2	236.043 million	3.4
Enterprise software	465.023 million	–2.4	505.724 million	8.8	557.406 million	10.2
Devices and technology	653.172 million	–8.2	705.423 million	8	714.762 million	1.3
IT services	1.012 billion	–2.7	1.073 billion	6	1.14 billion	6.3
Telecommunication technologies	1.35 billion	–1.7	1.411 billion	4.5	1.457 billion	3.3
In total	3.695 billion	–3.2	3.923 billion	6.2	4.105 billion	4.6

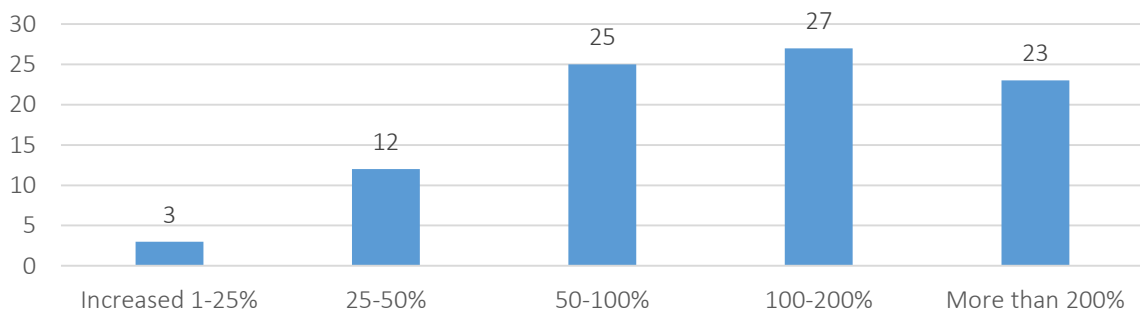


Figure 1. Buyers' assessment of the frequency of online purchases, %

tive development of marketing and business via the Internet and the spread of remote work.

SearchNode (2021) surveyed 100 e-commerce business leaders in Europe and North America online. The study aimed to gather information on current and future e-commerce trends and how e-commerce has been affected by COVID-19. As a result, 7 out of 10 shoppers stated that they started buying more online in 2020 (Figure 1).

Figure 1 shows that 27% of respondents doubled their purchases, and 86% of entrepreneur respondents reported that their online earnings increased from 1% to more than 200% compared to the pre-COVID-19 period. Thus in 2020, two opposite trends were observed in the global IT market. Firstly, due to COVID-19 restrictions, IT spending decreased. Secondly, the interest of entrepreneurs in digital projects increased, leading to an increasing number of online purchases and Internet users.

South Korea (8.86), Iceland (8.89), and Switzerland (8.75) led the ICT Development Index as of 2021. Kazakhstan in the ICT Development Index obtained the 52nd position with a value of 6.79, and it should be noted that this position has stayed the same since 2015. The ICT Development Index consists of three sub-indices: an access sub-index, a usage sub-index, and a skills sub-index. Moreover, each index reflects different aspects and components of the ICT development process.

As a result of governmental measures, the coverage of the Kazakhstani population with the Internet as of 2022 was 99%. Along with this, based on the data from the Ministry of Digital Development, Innovation and Aerospace Industry of Kazakhstan (MDDIAI) (n.d.) of Kazakhstan, there are 17.4 million mobile subscribers with access to the Internet, which was 8% more than in 2021 (Figure 2).

As of 2022, Kazakhstan ranked tenth out of 220 in the ranking of countries with the cheapest

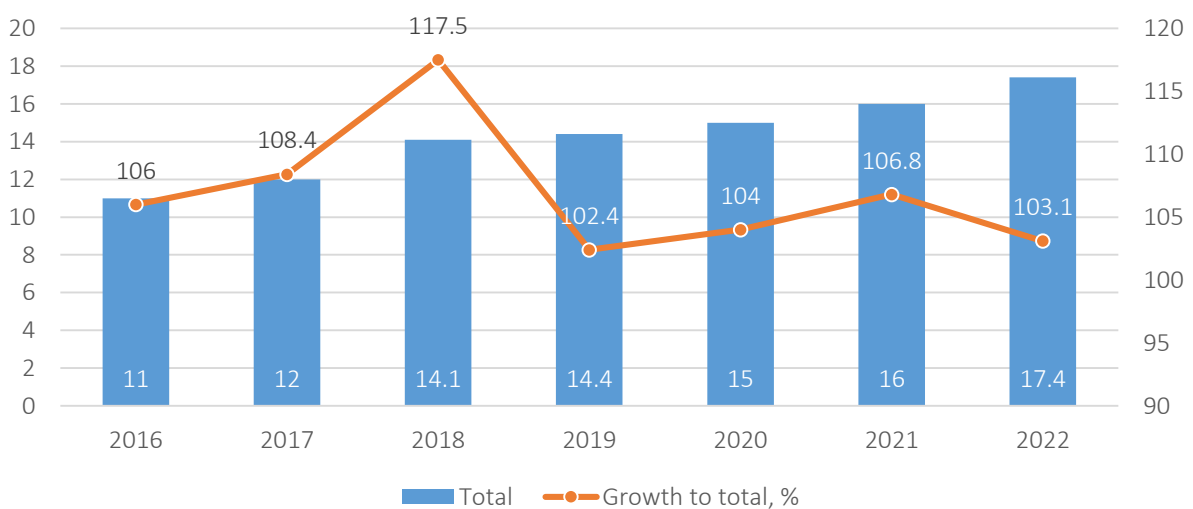


Figure 2. Number of cellular subscribers with access to the Internet in Kazakhstan

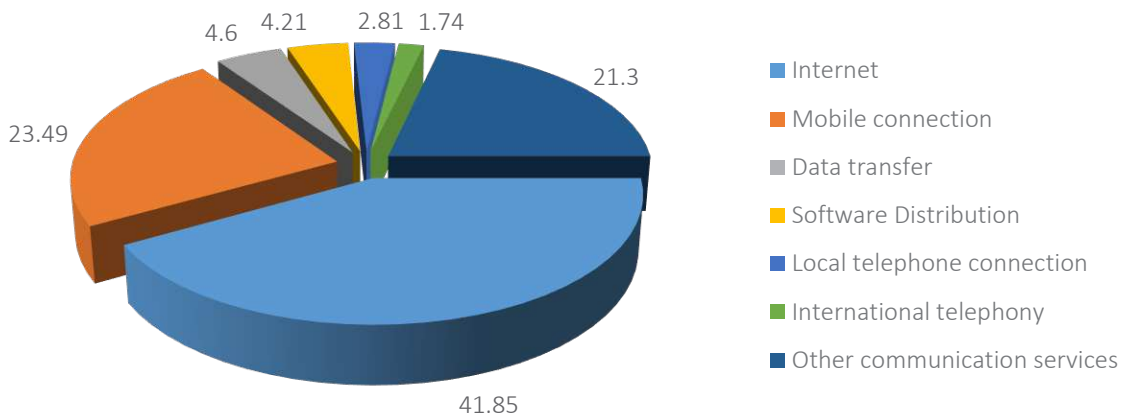


Figure 3. Structure of income from communication services in the Republic of Kazakhstan, January–June 2022, %

Internet. One gigabyte, on average, costs \$0.37 in the country. When Kazakhstanis, on average, paid \$9.46 for 20 gigabytes, Georgian citizens paid \$11.78, and Greek consumers paid \$34.38 (Howdle, 2022). Internet services have a low cost in Kazakhstan. Despite this, in the structure of income from communication services, income from the Internet and mobile communications has the largest share, as shown in Figure 3.

As of June 2022, the total value of the revenues from rendered communication services reached 90.3 billion tenge, an increase of 6.5% compared to the same period in 2021 (Profit.kz, 2023). Another crucial area that the government focuses its attention on is e-commerce. The volume of the retail e-commerce market in Kazakhstan amounted to 1,349 billion tenge in 2022. It was 30% higher than in 2021 (309 billion tenge). There was also an increase in the number of transactions (online orders) by 33%, but the decrease of average check-in tenge by 3% (PwC, 2022).

There are four e-commerce centers in Kazakhstan, providing a full range of training services, supplier sourcing, marketing, SMM promotion, website creation, non-cash payments, fulfillment center operations, and more. Following the Law on Business Environment Development and Trade Regulation adopted in 2019 (Ministry of Justice of the Republic of Kazakhstan, 2019), several concepts related to e-commerce, electronic trading, fulfillment centers, and others have been introduced.

A simplified procedure for customs administration has been implemented for entities engaged in e-commerce, specifically regarding the simplified declaration of export goods using postal documents as declarations. E-commerce entities have been fully exempted from paying corporate income tax (CIT) and personal income tax (PIT). To enhance digital and financial literacy among entrepreneurs, the National Chamber of Entrepreneurs of Kazakhstan (NCE) provides training in basic digital skills.

As for the practical skills of using ICT, namely the digital literacy of the population, according to the UNESCO definition, “digital literacy is the ability to properly and safely manage, integrate, evaluate, understand, share and create information, and access it through online and digital technologies and devices to participate in economic and social life” (Law et al., 2018).

In June 2022, the MDDIAI (n.d.) of Kazakhstan reported that the level of digital literacy of the country’s population reached 85.3%, while in 2018, it was estimated at 77%.

The government of Kazakhstan has implemented several measures to develop digital literacy: integrated digital education in school curricula, created digital educational platforms, and organized special training programs and workshops to teach the population the basics of digital literacy, including computer skills, internet usage, electronic devices, and software applications.

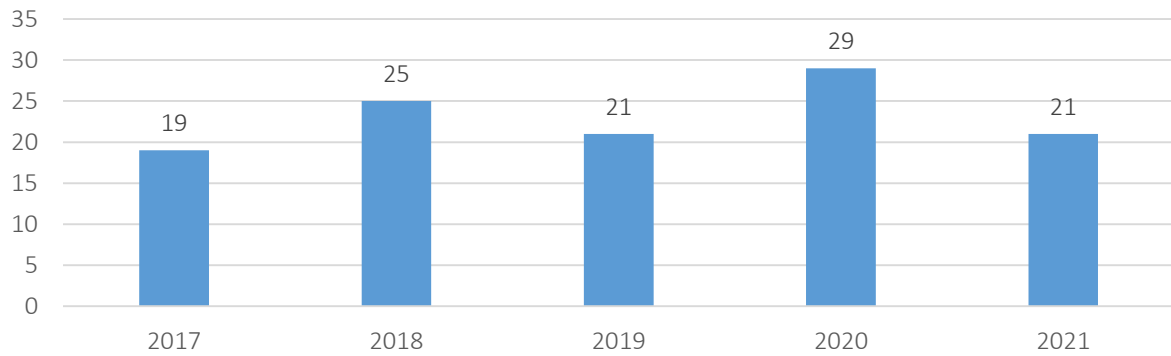


Figure 4. Dynamics of the position of Kazakhstan on the control indicator “Government Efficiency” in the GCI, 2017–2021

Public administration collaborates with educational institutions and the private sector to develop digital literacy programs, establish partnerships, and share resources. This enhances the effectiveness and reach of digital literacy initiatives. The government supports digital technology startups and innovations and promotes digital literacy in Kazakhstan. It conducts informational campaigns and events to raise awareness about the importance of digital literacy, its benefits, and its possibilities.

A large-scale survey “The level of IT competencies of teachers in Kazakhstan” was conducted in Kazakhstan on November 9-11, 2021, in which 306,482 teachers from 6,858 schools participated. The survey intended to identify teachers’ digital literacy and IT competencies to assess readiness for distance learning. The results revealed that 66,262 (22.3%) teachers show average levels. About 202,546 (66.1%) have had an acceptable level. Only 35,674 (11.6%) have had optimal knowledge and computer skills. More than 50% of the respondents experienced poor Windows operating system knowledge (56.4%), virus protection issues (69%), problems in working with MS Office (52.3%), cloud storing issues (54.7%), and others (Tilegen, 2020).

The new Network Readiness Index (NRI) scoring model is based on four basic elements: people, governance, technology, and impact. The NRI included 131 countries in 2022. According to Dutta and Lanvin (2020), the top three world leaders in the Network Readiness Index were the USA (80.30), Singapore (79.35), and Sweden (78.91). In this rating, Kazakhstan obtained the

58th position with a score of 52.46, whereas Russia was 40th (59.54), and Kyrgyzstan was 95th (41.03).

According to the Corruption Perceptions Index (Transparency International, 2022), Kazakhstan scored 37 and was only in 102nd place in 2022. According to the Global Competitiveness Index (IMD, 2022), Switzerland, Sweden, and Denmark were in the top three. Kazakhstan has significantly improved its position in the GCI by 6 points from position 43 in 2022 to 37 in 2023. According to the benchmark “Government Efficiency,” in 2021, Kazakhstan has risen relatively high (21st place), but this position is unstable. The best indicator over the past five years was in 2017 (19), the worst in 2020 (29), and in 2021, the country improved the indicator to 21 (Figure 4).

In the latest study, the UN Global E-Government Development Index (United Nations, 2022), 60 countries demonstrated effective EGDI scores of 0.75 to 1.00 compared to 57 countries in the previous year. In addition, 73 countries have had significant EGDI values, about 0.50-0.75 scores. Among the countries with a score above 0.75 were Denmark (0.9717), South Korea (0.9529), Estonia (0.9393), Finland (0.9533), Australia (0.9405), Kazakhstan (0.8628), and Russia (0.8165).

Kazakhstan has the highest EGDI value among the LLDCs, and the Government plans to expand and accelerate the digital transformation process under its Digital Kazakhstan program. Over the past several years, there have been significant improvements in the ICT infrastructure.

In 2018, only 100,000 people living in around 55 rural settlements had access to the Internet via fiber optic cable; by 2020, the Government had extended fiber optic lines to 741 settlements, and the number of those served had jumped to 800,000. The transport and logistics sectors have undergone a digitalization process that has led to the introduction of a smart traffic system and a highway assets control program using digital technologies.

In Kazakhstan, there is a problem with unlicensed software. The BSA Global Software Survey (2018) showed that the level of use of unlicensed software in Kazakhstan was 74%. An assessment of the current procurement practice in Kazakhstan indicates an improvement in the effectiveness of the mandatory e-procurement system.

The IT sector is not singled out in the employment structure of the Republic of Kazakhstan. Digitalization entails a decrease in the control of digital services and a reduction in jobs. At the moment, the unemployment rate in Kazakhstan is 4.9%. There is no special program aimed at “smoothing” the issues arising from the digitalization of the economy.

The aforementioned four qualitative indicators of effectiveness measurement could contribute toward better public administration of the digital economy in Kazakhstan. However, the results of the study showed that some key challenges could impede the achievement of the main goals outlined in the digitalization reforms introduced by the government of Kazakhstan.

For example, no regulations in the legislation govern the digital transformation process. Moreover, there is a lack of understanding by state bodies and individuals about the benefits derived from digitalization. In addition, corruption remains one of the main de-motivating factors. Nonetheless, the lack of much-needed human resources and industry-specific factors considerably inflate the costs of research and development, and such costs are not bearable by enterprises. Furthermore, procurement in the IT sector is mainly carried out by state and quasi-public sector enterprises.

The digitalization of education allows teachers to use automation software to track attendance, create records, and send automatic responses and reminders to students. According to the MDDIAI of Kazakhstan, in 2022, the training of IT personnel in Kazakhstan is carried out by 84 out of 116 universities of the republic. In 2018–2020, 30,604 specialists graduated, which does not cover the annual need for personnel. It may lead to the risk of slowing down the digitalization of various sectors of the economy.

The formations of digital transport corridors that can increase the efficiency of transport and logistics services are essential for the countries of the Eurasian Economic Union. Paperless documentation will lead to an increase in the speed of information exchange and a reduction in time costs (Economic Commission for Europe, 2019).

One of the most serious issues of the digital economy is the reduction in the number of employed people. In 2020, Kazakhstan experienced a decrease in employment in almost all spheres of the economy. This result excludes healthcare, real estate, and other individual services. One of the significant factors in the decline of employment rates was the reduction in the number of economic entities caused by the coronavirus pandemic.

In Kazakhstan, digital vice-ministers have been appointed (health, education, social and labor sphere, digital development, tax and customs service, industry and energy). The digitalization offices have been formed in central and local government bodies working to strengthen the digitalization of the sectors in their ministries.

The current government program “Digital Kazakhstan” (2017) is expected to become the main driver for the ICT industry development. The amount of 108,683,142 thousand tenge of the state budget was planned to be spent on implementing this program.

In March 2021, the Government of the Republic of Kazakhstan (2021) of Kazakhstan presented the concept of Digital Lifestyle (DigitEL), which defines the vision for the ICT industry development and the digital sphere of Kazakhstan.

4. DISCUSSION

Based on the intensive analysis of the academic and non-academic sources, the effectiveness of public administration of the digital economy in Kazakhstan has not been widely addressed. Nevertheless, Banhidi et al. (2020), Zhao et al. (2015), and Todorut and Tselentis (2018) attempted to address methodological challenges in developing measurement indicators of public administration of a digital economy.

The findings of this study contribute to the understanding of the effectiveness of public administration of the digital economy in Kazakhstan. Through a mixed-methods approach, combining qualitative, quantitative data collection, and analysis techniques, the study aimed to address the research questions and provide insights into the current state of public administration, its impact on the digital economy, key influencing factors, and recommendations for improvement.

Compared to previous studies, these findings support and expand upon existing knowledge regarding the effectiveness of public administration of the digital economy. Prior studies have highlighted the importance of policies, regulations, and infrastructure in fostering the growth of the digital economy (Dahlman et al., 2016). This study goes further by incorporating the perspectives of key stakeholders and providing a comprehensive analysis of the factors influencing the effectiveness of public administration in Kazakhstan.

The qualitative data offer valuable insights into the challenges and opportunities associated with the public administration of the digital economy. These findings align with previous studies emphasizing the need for a coordinated and collaborative approach, innovation promotion, digital skills development, and responsive regulatory frameworks (Beisenbaeva et al., 2018). The study also reveals the specific context and challenges faced by Kazakhstan, providing a nuanced understanding of the effectiveness of public administration in the country's digital economy.

Several factors can explain the results of this study. Firstly, the digital economy is a relative-

ly new and rapidly evolving domain, presenting challenges in policy development, implementation, and evaluation. The dynamic nature of digital technologies requires public administration to adapt and respond quickly to emerging trends and disruptive innovations. Therefore, the effectiveness of public administration in the digital economy may be influenced by the agility and flexibility of the government in keeping pace with technological advancements.

Secondly, the success of public administration of the digital economy relies on a multi-stakeholder approach involving collaboration and coordination between government agencies, the private sector, academia, and civil society. Effective governance mechanisms, inter-agency cooperation, and public-private partnerships are essential for creating an ecosystem that supports digital entrepreneurship, investment, and innovation. The results of this study highlight the importance of enhancing collaboration and coordination among stakeholders to improve the effectiveness of public administration of the digital economy in Kazakhstan.

The findings of this study have important implications for the future development of public administration of the digital economy in Kazakhstan. The identified challenges and recommendations provide a roadmap for policymakers and stakeholders to enhance the effectiveness of public administration and drive digital transformation.

Research prospects include comprehensive digital strategies that align with national development goals and incorporate continuous evaluation and adaptation mechanisms. Policy coherence, regulatory frameworks, and legal reforms must be established to address emerging issues and create an environment conducive to digital innovation and investment. Strengthening digital skills development, fostering public-private partnerships, and enhancing coordination mechanisms can further support the growth of the digital economy in Kazakhstan.

Further research should focus on longitudinal studies to assess the long-term impact of public administration initiatives on the digital economy.

Comparative analyses with other countries can provide insights into best practices and lessons learned. In-depth case studies can explore specific sectors or regions within Kazakhstan to understand context-specific challenges and opportunities.

This study contributes to understanding the effectiveness of public administration of the digi-

tal economy in Kazakhstan. The findings highlight the importance of continuous evaluation, coordination, and stakeholder collaboration. By addressing the identified challenges and implementing the recommended strategies, the government can strengthen public administration practices and drive the growth and development of the digital economy.

CONCLUSION

This study aimed to assess the effectiveness of public administration of the digital economy in the Republic of Kazakhstan and develop recommendations for its improvement. By comparing the results with previous studies, it reinforces and expands upon existing knowledge on the subject. The paper emphasizes the significance of policy coherence, regulatory frameworks, innovation promotion, and collaboration among stakeholders in enhancing the effectiveness of public administration in the digital economy. The study sheds light on the specific context and challenges faced by Kazakhstan, providing a nuanced understanding of the effectiveness of public administration of the country's digital economy. The findings suggest that several factors influence the effectiveness of public administration, including agility in adapting to technological advancements, coordination and collaboration among stakeholders, digital skills development, and responsive regulatory frameworks.

To enhance the effectiveness of public administration, it is recommended to implement comprehensive digital strategies, establish policy coherence, strengthen inter-agency cooperation, foster public-private partnerships, and continuously evaluate and adapt initiatives. Moreover, developing a unique government program to address negative phenomena in the IT sector and mitigate the effects of digitalization in the labor market is crucial.

This study significantly contributes to understanding the effectiveness of public administration of the digital economy in Kazakhstan. The findings provide valuable insights for policymakers and stakeholders to improve public administration practices and drive digital transformation. By addressing the identified challenges and implementing the recommended strategies, the government can create an enabling environment that supports the growth and development of the digital economy in Kazakhstan.

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