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THE DIGITAL ECONOMY DEVELOPMENT IN KAZAKHSTAN

The article researches the key tendencies in the development of the digital economy in the Republic of Kazakhstan. Based on the bibliographic analysis, a review of the theoretical and methodological foundations of the digital economy development, studied by foreign researchers, is carried out.

The authors to present the role of Kazakhstan in digital competitiveness based on the global ranking carried out by the International Institute for Management Development.

Based on the results of the study, an analysis was carried out and a brief overview of the results achieved by the Kazakh society in the field of digitalization was highlighted. Achievements include an increase in the level of computer literacy of the population, an increase in the number of Internet users, and a high proportion of organizations using information and communication technologies.

The conducted research includes an analysis of digitalization in the regional context. It shows the differentiation in the regions of information and communication resources and technologies.

The role of e-commerce in Kazakhstan is shown, the transition to which was greatly impacted by the coronavirus pandemic. This indicates a significant change in consumer behavior in society and the transition to online shopping, stimulating the development of digital literacy among the population.

The issues impeding the digitalization of the country's economy are emphasized, the main of which is the reduction of investments in training specialists in the use of ICT; the main directions of its development are presented.

The article uses methods of content analysis, statistical and analytical methods, a systematic approach, relative assessment and general scientific generalization of phenomena and processes.

Keywords: *digitalization, digital economy, modernization, information and communication technologies, information society, digital technologies, digital innovations, digital industry.*

Кілт сөздер: *цифрландыру, цифрлық экономика, жаңғырту, ақпараттық-коммуникациялық технологиялар, ақпараттық қоғам, цифрлық технологиялар, цифрлық инновациялар, цифрлық индустрия.*

Ключевые слова: *цифровизация, цифровая экономика, модернизация, информационно-коммуникационные технологии, информационное общество, цифровые технологии, цифровые инновации, цифровая индустрия.*

JEL classification: Z 00

Introduction. The shift from automation to informatization and digitalization occurs gradually across various economic activities.

Many developed and developing nations worldwide consider informatization and digitalization as key directions for their growth. This trend is also observed in the Russia, Belarus, Uzbekistan and other countries.

An examination of these aforementioned programs and strategies has revealed that they play a crucial role the establishment of countries' digital economies. It serves to bring together all segments of society to accomplish the objectives of their digital transformation.

The creation of the digital economy in the Republic of Kazakhstan is conditioned by the dictates of time. The foundations for the transition from the traditional economy to the digital one are being laid at the government level through the adoption and subsequent implementation of government initiatives. These include «Information Kazakhstan 2020» (2013), «Digital Kazakhstan» (2017) and the Concept of Digital Transformation (2023).

Facing with a number of existing problems in society, the digitalization of the Kazakhstani economy requires solving all assigned tasks through the implementation of adopted state programs and plans.

However, the inefficiency of the activities of government agencies in the field of digitalization, violation of legislation, the shortcomings of previous "digital" programs, and other problems require their solution.

The article aims to examine the trends and characteristics of Kazakh system of economy's digitalization development to improve the living standards of the country's population.

Common methods and techniques of scientific analysis and comparison of the system development in different countries with the experience of application in Kazakhstan were used to conduct the research.

The research covers the application of traditional document content analysis.

The scientific justification and abstract formulation of conclusions were prepared by the authors on the basis of such methods as the systematic method, the method of relative assessment, the method of general scientific generalization.

The research conducted relies on official statistical data delivered by the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, research by local and international scholars, statistical information from business entities operating in the digital technology market are used.

Literature review. The study of the bibliographic content of scientific literature on the development of the digital economy has revealed the relationship of digitalization with economic growth, business, economic sectors, and social policy [1].

In addition to studying the relationship of digitalization with economic growth and other factors, an analysis of its impact on the innovation of the economy and the environmental component is carried out. Using the example of the Chinese experience using panel data for 31 provinces for the period 2013-2019, the positive impact of digitalization on the economic, innovative and environmental development of China, including rural [2] and urban areas [3], was revealed.

Digital technologies are considered as the most important element of the product-service system, facilitating integration into the business. Using the example of the three manufacturing firms under study, guidelines have been developed that can be used for an effective approach to business [4].

The digital economy is studied from the point of view of its shadow component. For the first time, based on an empirical study, the definition of the digital shadow economy is presented, its distinctive features and ways of manifestation are revealed [5].

A bibliographic analysis of the digital economy in interaction with entrepreneurship based on visualization and comparison of 275 documents allowed us to develop a map of intellectual, social and conceptual research structures related to the digital economy and entrepreneurship [6].

The development of innovative approaches to optimize the organizational process of government programs, including the International Bolashak Program in Kazakhstan, taking into account digital transformations, reveals ways to effectively interact and simplify networking in the process of transforming educational policy [7].

The study of the challenges and obstacles faced by the Kazakhstani economy in the framework of the digitalization process made it possible to assess the potential of the Kazakhstani digital economy and identify ways to develop the country in the context of global digital transformation, maximize the benefits of modern technologies and innovations [8].

Nevertheless, despite the numerous scientific approaches to studying the digital economy and the digitalization of society, the issues of the effectiveness of this activity remain underexplored and unresolved. Therefore, it became necessary to further study this topic, namely, to study and identify the problems of digitalization of Kazakhstani society and develop recommendations for its effective implementation.

Main part. The digital economy is developing rapidly. Non-cash payments, electronic commerce, and the provision of public services within the framework of e-government have become commonplace.

The groundwork for establishing the digital economy in Kazakhstan was laid through the implementation the state programs such as «Information Kazakhstan 2020» in 2013 and «Digital Kazakhstan» in 2017. As a result of these digital transformation efforts, Kazakhstan ranked 28th in government development among 193 countries in 2022 according to UN monitoring levels (compared to 29th in 2020). In terms of the e-participation index, Kazakhstan achieved 15th place (compared to 26th in 2020), and for online services, it secured the 8th position in 2022 (compared to 11th in 2020) [9].

According to the International Institute for Management Development (IMD) in 2023, Kazakhstan advanced two spots to 34th position in the global digital competitiveness ranking among 63 countries. Leading positions are occupied by nations like Denmark, the United States, Sweden, Singapore, and

Switzerland. The IMD World Digital Competitiveness (WDC) ranking assesses countries based on their integration of digital technologies across government, business models, and society overall. The rating is determined by three primary factors according to the WDC methodology: knowledge, technology, and future readiness, each comprising three sub-factors (Table 1).

Table 1

Kazakhstan's Digital Competitiveness Index*

Metrics	2019	2020	2021	2022	2023
1. The overall Competitiveness Index of the IMD countries	34	42	35	43	37
2. Digital Competitiveness Index	35	36	32	36	34
- knowledge	32	34	36	30	30
- technology	39	41	40	40	41
- future readiness	35	33	28	30	31

** Compiled by the authors based on the source [9]*

The result of the implementation of digital transformation in the country was a rise in the population's computer literacy country to 90.2% in 2023 at the age of 6-74, compared with 87.3% in 2021. Among the regions, the highest indicators of digital literacy are observed in Astana (97.0% of the population in 2023 against 94.7% in 2021); Almaty (95.5% in 2023 against 91.5% in 2021). The lowest rates of digital literacy are observed in the region of North Kazakhstan (82.6% in 2023 against 80.2% in 2021) (Figure 1).

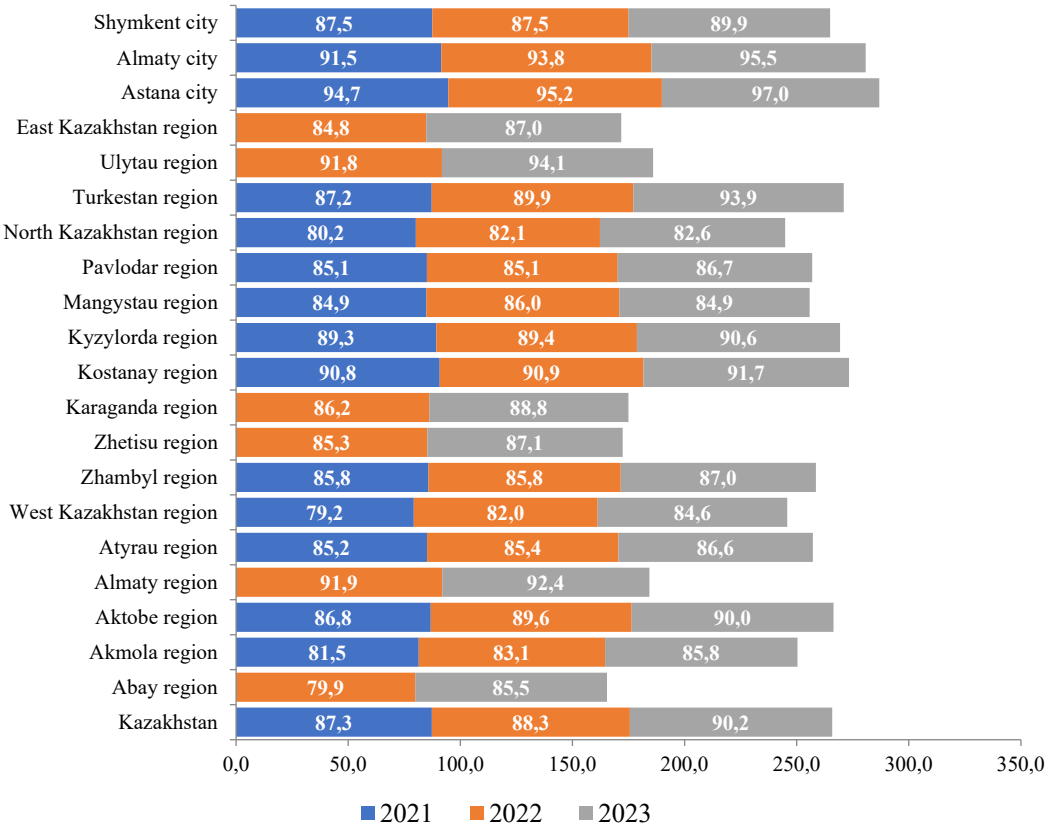

Figure 1. **The proficiency in digital skills of the population in the Republic of Kazakhstan and regions aged 6-74 years, %***

** Compiled by the authors based on the source [10]*

The result of the digital programs were implemented, there was a rise in the percentage of the population gaining access to the Internet, reaching 95.8% in 2023 from 93.3% in 2021. Regionally, the largest share in 2023 belongs to Astana (98.1%); Karaganda region (98.0%); East Kazakhstan region (97.9%). The lowest indicators in 2023 are observed mainly in new regions - Ulytau region (90.4%), Abai region (91.6%), Zhetisu region (92.9%) (Figure 2).

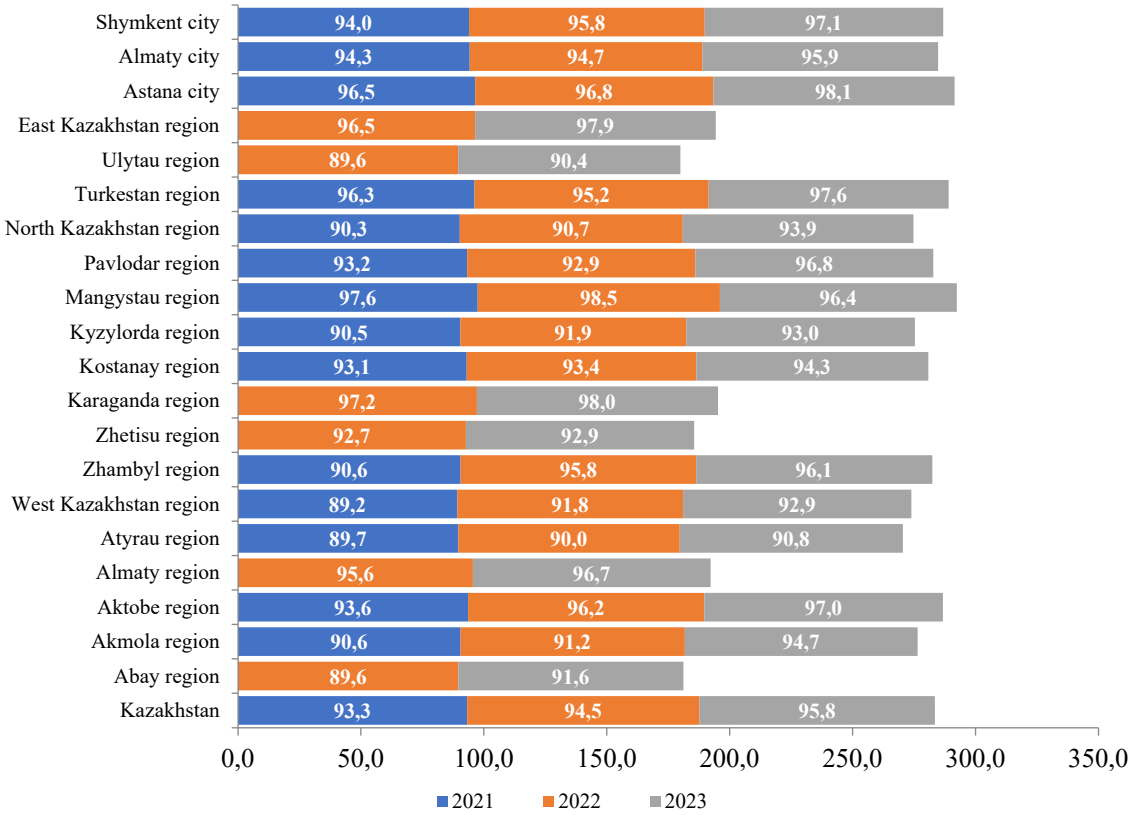

Figure 2. **The share of Internet users in the Republic of Kazakhstan and regions aged 6-74 years, %***

** Compiled by the authors based on the source [10]*

As part of the digitalization of organizations, their use of ICT, in general, has an increasing trend, with the exception of the use of Cloud computing, which decreased from 13.3% in 2021 to 11.0% in 2023 (Table 2).

Table 2

Metrics indicating the uptake of information and communication technologies in organizations throughout the Republic of Kazakhstan during 2021-2023, %*

Indicators	2021	2022	2023
The organizations using computers, percentage	80,2	75,9	81,4
The organizations with Internet access, percentage	78,2	79,1	79,5
The share of organizations with Internet resources	17,6	25,6	26,5
The share of organizations using Cloud computing	13,3	8,8	11,0
The share of organizations receiving orders for goods and services over the Internet	8,5	9,3	10,6
For organizations ordering goods and services over the Internet	10,1	11,0	12,9
The share of organizations using the Internet portal	44,8	-	-

** Compiled by the authors based on the source [10]*

Digitalization of organizations provides for the widespread introduction of elements of Industry 4.0, including robotics, the introduction of artificial intelligence, and big data management. As a result, the share of Kazakhstani industrial enterprises using digital technologies amounted to 16.4% in 2023, having doubled in the last three years. Among the country's regions, the highest indicators belong to the Atyrau region, where the share of enterprises in industry using digital technologies is 33.3% in 2023, which increased 2.3 times compared to 2021; Astana - 29.5% in 2023 against 14.3% in 2021 (an increase of 2 times). The lowest indicators with a declining trend are in the realm of housing and utilities - 4.5% in 2023 against 6.3% in 2021 (a decrease of 28.6%) (Figure 3).

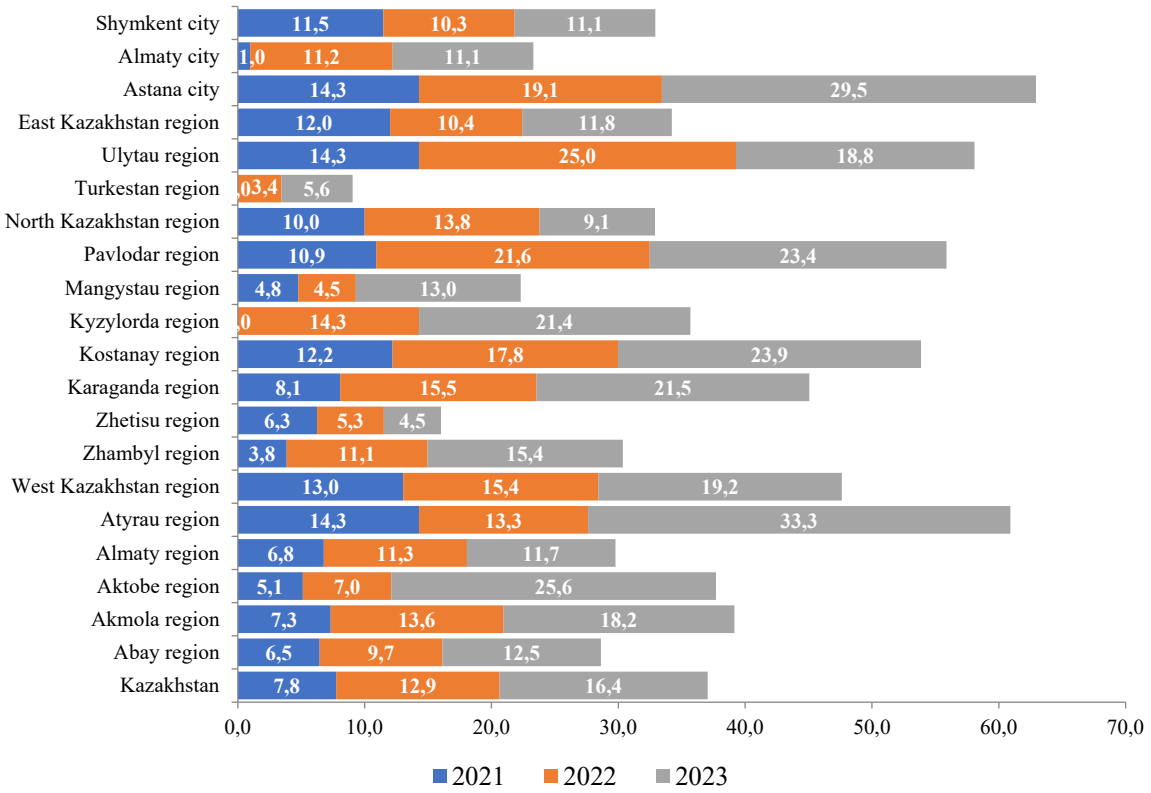

Figure 3. **The share of large and medium-sized enterprises of the Republic of Kazakhstan and regions in the manufacturing industry using digital technologies in 2021-2023, %**

** Compiled by the authors based on the source [10]*

The key driver of trade growth in developed and in many developing countries, radically changing the usual business processes in the retail sector, was e-commerce, expressed in e-commerce, which was massively influenced by the coronavirus pandemic, in particular, and to the digital environment in general.

In 2019-2023, the volume of e-commerce increased from 206.3 billion tenge to 2,440 billion tenge (an increase of almost 12 times). The share in the aggregate retail trade volume increased from 1.8% to 12.7% (an increase of 10.9 percentage points). The volume of transactions conducted outside the country via the Internet using payment cards of Kazakhstani issuers also increased from 192 billion tenge in 2019 to 1,355 billion tenge in 2023 (an increase of 7 times) [11].

At the same time, focus should be directed towards several prevailing issues the field of ICT. First of all, there is a discrepancy between the competencies of ICT specialists and the demands of the employment market. The problem is further compounded by the fact that investments in training such workers are decreasing annually. Thus, n 2023, the expenditure has decreased by fourfold over the past five years (from 8,137.7 million tenge in 2019 to 2,162.2 million tenge in 2023). Specifically, the expenditure on digital skills training in 2023 decreased by 22% compared to the previous year [10].

Therefore, it is important to ensure that the Kazakh education system aligns with the demands of the job market, focusing on training in-demand personnel and reducing unclaimed specialists. To do this, it is important to review the content of all levels of educational programs, taking into account the trends of educational technologies. In addition, it is important to establish conductive environments for the growth of digital skills of specialists from other industries.

It is crucial to enhance the culture of online consumption and other innovative products (digital tenge industrial platform, digital financial infrastructure, etc.), expand information and the proficiency in digital skills. And then digitalization can become a driving force and a generator of sustainable employment in the national economy. It contributes to the advancement and implementation of new technologies in Kazakhstan and creates new jobs.

Conclusion. Based on the conducted review, in Kazakhstan to development the certain spheres and sectors of the economy due to digitalization, as a result of which consumer satisfaction and their level of loyalty to the services provided are increasing.

The result of the implementation of digitalization programs in the country has been an rise in computer literacy among the population mastering Internet opportunities. In addition, the share of organizations, including industrial ones, using ICT (computers, Internet resources, etc.) is increasing, with the exception of cloud computing, the share of which is decreasing. Electronic commerce is actively used and the volume of foreign transactions of Kazakhstani issuers is growing.

The process of digitalization is accompanied by regional differentiation in the use of ICT resources, leading to significant differences in the levels of economic development and competitiveness of regions. The development of ICT in some regions can stimulate innovation, increase productivity and enhance living standards, while other regions lagging behind in this area may face economic difficulties and job cuts. These differences may exacerbate socio-economic inequalities and necessitate targeted government programs to support regions with low levels of ICT adoption.

Given the development of digitalization, it is extremely important to focus on professional development of specialists who meet the requirements of the modern labor market. It is important to address the need to increase funding for ICT training and professional development programs. It is important to pay special attention to digital skills with the active participation of the public and private sectors. It is important to introduce courses on the most in-demand ICT skills and technologies. These include artificial intelligence, cybersecurity, data analysis, etc.

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ҚАЗАҚСТАНДАҒЫ ЦИФРЛЫҚ ЭКОНОМИКАНЫҢ ДАМУЫ

Аңдатпа

Мақалада Қазақстан Республикасында цифрлық экономиканы дамытудың негізгі трендтері қарастырылған. Библиографиялық талдау негізінде шетелдік зерттеушілер зерттеген цифрлық экономиканы дамытудың теориялық және әдіснамалық негіздеріне шолу жасалды.

Мақала авторлары халықаралық менеджментті дамыту институты жүргізетін әлемдік рейтингке сәйкес Қазақстанның цифрлық бәсекеге қабілеттіліктегі рөлін ұсынды.

ҚР цифрландыру бойынша негізгі стратегиялық мемлекеттік бағдарламаларды іске асыру бойынша қол жеткізілген нәтижелерді талдау негізінде халықтың компьютерлік сауаттылығы деңгейінің, интернетке шығатын халықтың үлесінің, ақпараттық-коммуникациялық технологияларды пайдаланатын ұйымдардың үлесінің өсуінен көрініс табатын қазақстандық қоғамның қол жеткізілген нәтижелеріне талдау жүргізілді және қысқаша шолу жасалды.

Жүргізілген зерттеу ақпараттық-коммуникациялық ресурстар мен технологияларды қолданудағы өңірлердегі саралауды көрсететін өңірлік бөліністегі цифрландыруды талдауды қамтиды.

Қазақстанда электрондық сауданың рөлі көрсетілді, оған коронавирус пандемиясы айтарлықтай әсер етті. Бұл қоғамдағы тұтынушылық мінез-құлықтың айтарлықтай өзгеруін және халық арасында Цифрлық сауаттылықтың дамуын ынталандыратын онлайн-сатып алуларға көшуді көрсетеді.

Ел экономикасын цифрландыруға кедергі келтіретін проблемалар айқындалды, олардың негізгілері ақпараттық-коммуникациялық технологияларды қолдану бойынша мамандарды оқытуға инвестицияларды қысқарту болып табылады; оны дамытудың негізгі бағыттары ұсынылды.

Мақалада мазмұнды талдау, статистикалық және аналитикалық әдістер, жүйелік тәсіл, салыстырмалы бағалау және құбылыстар мен процестерді жалпы ғылыми жалпылау әдістері қолданылды.

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РАЗВИТИЕ ЦИФРОВОЙ ЭКОНОМИКИ В КАЗАХСТАНЕ

Аннотация

В статье исследуются ключевые аспекты развития цифровой экономики в Республике Казахстан. На основе библиографического анализа проведен обзор теоретико-методологических основ развития цифровой экономики, изученных зарубежными исследователями.

Авторами статьи представлена роль Казахстана в цифровой конкурентоспособности согласно мирового рейтинга, проводимым Международным институтом развития менеджмента.

На основе анализа достигнутых результатов по реализации основных стратегических государственных программ по цифровизации РК проведен анализ и предстален краткий обзор достигнутых результатов казахстанского общества, который выражается в росте уровня компьютерной грамотности населения, доли населения, имеющего выход в интернет, доли организаций, использующих информационно-коммуникационные технологии.

Проведенное исследование включает анализ цифровизации в региональном разрезе, показывающий дифференциацию в регионах в применении информационно-коммуникационных ресурсов и технологий.

Показана роль электронной торговли в Казахстане, к переходу к которой значительно повлияла пандемия коронавируса. Это свидетельствует о существенном изменении потребительского поведения в обществе и переходе к онлайн-покупкам, стимулирующим развитие цифровой грамотности среди населения.

Выделены проблемы, препятствующие цифровизации экономики страны, к основным из которых является сокращение инвестиций на обучение специалистов по применению информационно-коммуникационных технологий; представлены основные направления ее развития.

В статье использовались методы контент-анализа, статистического и аналитического методов, системного подхода, относительной оценки и общенаучного обобщения явлений и процессов.