



**„ THE IMPACT OF DIGITAL TRANSFORMATION ON ECONOMIC EFFICIENCY
AND INCREASING THE COMPETITIVENESS OF ORGANIZATIONS”**

Allanazarov Ravshan Shavkat ugli

2nd year student of Yangiyer branch of Tashkent Institute of Chemical Technologies

ravshan.allanazarov@mail.ru

Tel:97 909 26 05

Abstract: Digital transformation is considered an important factor in increasing the efficiency and competitiveness of organizations in the modern economy. This article examines the impact of digital technologies on economic efficiency and the role of organizations in increasing their competitiveness in global markets using the example of Uzbekistan. Using statistical data and econometric analysis for 2012–2024, the impact of digital transformation on economic indicators, in particular, labor productivity, operating costs, and market share, is assessed. The study analyzes the correlation between the level of implementation of digital technologies, the volume of investments, and the competitiveness index. The results show that digital transformation not only optimizes the internal processes of organizations, but also strengthens their position in international markets. The reforms being implemented in Uzbekistan to develop the digital economy, in particular, the “Digital Uzbekistan – 2030” strategy, are important in accelerating this process. However, challenges such as infrastructure constraints and a lack of skilled personnel are hindering the full potential of digital transformation. The article provides suggestions for overcoming these challenges by expanding the use of digital technologies, modernizing the education system, and encouraging the private sector. The study highlights the importance of strategic approaches to ensuring the sustainable development of the Uzbek economy through digital transformation.

Keywords: Digital transformation, economic efficiency, competitiveness, Uzbekistan, econometric analysis, automation, artificial intelligence, blockchain, gross domestic product, labor productivity, exports, digital economy, infrastructure, cybersecurity, investments, modernization of education, international cooperation.

Introduction: In the modern world, digital transformation is bringing about significant changes in all sectors of the economy. For developing countries like Uzbekistan, digital technologies are considered a strategic tool for increasing global competitiveness and ensuring economic efficiency. Within the framework of the Strategy of the Republic of Uzbekistan “Digital Uzbekistan — 2030”, large-scale measures are being implemented to introduce innovations such as information and communication technologies (ICT), artificial intelligence, big data, and blockchain. According to statistics, in 2024, Uzbekistan’s investments in the ICT sector exceeded 1.2 billion US dollars, which reflects the country’s efforts to develop its digital infrastructure. These processes are clearly manifested in areas such as the rapid development of digital services in the banking sector (for example, 100% digital banks such as Anorbank and Uzumbank), the expansion of e-commerce platforms, and the use of “smart” technologies in agriculture. The relevance of digital transformation is evident in its impact on economic efficiency. For example, digital technologies can reduce operating costs by 20-30% and increase labor productivity by 15-25%. In Uzbekistan, the share of the digital economy in GDP increased

from 2% to 7% in 2012-2024, which accelerated the country's integration into the global economy. At the same time, digital transformation processes also create problems such as infrastructure constraints, a shortage of qualified personnel, and cybersecurity risks. These problems serve as an obstacle to Uzbekistan's high ranking in the Global Competitiveness Index. The purpose of the study is to measure the impact of digital transformation on economic efficiency through econometric analysis and develop proposals to increase the competitiveness of organizations. This article analyzes Uzbekistan's digital reforms in recent years to identify practical directions for public policy and the private sector.

Literature review: The impact of digital transformation on economic efficiency and competitiveness has been widely studied globally in the last decade. Brynjolfsson and McAfee (2014) in their work "The Second Machine Age" emphasize the role of digital technologies in increasing labor productivity. In their opinion, automation and artificial intelligence optimize the operational processes of organizations and significantly reduce costs. At the same time, Schwab (2016) in his book "The Fourth Industrial Revolution" notes the importance of digital transformation as a factor accelerating changes in the global economy. According to his conclusions, the development of digital infrastructure increases the innovative potential of organizations and strengthens market competition.

Studies in foreign journals also widely cover this topic. Mihi et al. (2023) in their article published in the journal "Studies in Business and Economics" analyze the impact of digital transformation on organizational management, emphasizing the role of digital technologies in improving customer experience and increasing market share. Avira et al. (2023) in the journal "Influence: International Journal of Science Review" studied the impact of digital transformation on financial management success and showed that digital channels lead to revenue growth. Qian (2023) in the journal "Highlights in Business, Economics and Management" emphasized the synergistic effect of fintech and digital transformation, proving that these processes increase efficiency in the banking sector.

In addition, the OECD (2022) report analyzes the impact of the digital economy on the economies of developing countries. The report emphasizes that digital technologies facilitate the entry of small and medium-sized businesses into global markets, but points out the problems of infrastructure and skills shortages. A study by the McKinsey Global Institute (2021) measured the impact of digital transformation on GDP growth and found that for every dollar of digital investment, it generates an economic benefit of \$1.5-2. These studies confirm the strategic importance of digital transformation for countries like Uzbekistan, but empirical analyses in the local context are lacking. Therefore, this article aims to determine the impact of digital transformation on economic efficiency using the example of Uzbekistan, and attempts to adapt foreign experience to local conditions.

Methodology: The research used methods of generalization and systematization, statistical, structural and comparative analysis, graphic representation, expert assessment, strategic planning and econometric modeling.

Table 1. Gross regional product and number of people employed in the ICT sector by regions of Uzbekistan ¹

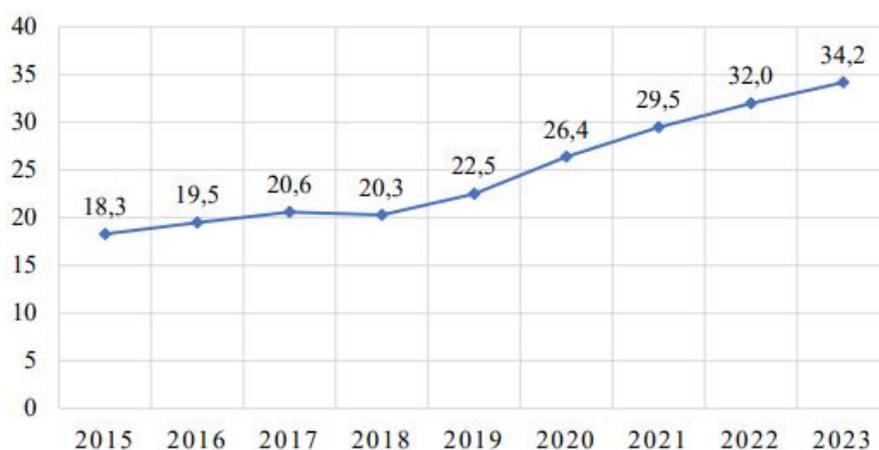
¹ O'zbekiston Respublikasi Prezidenti huzuridagi Statistika agentligi ma'lumotlari asosida muallif tomonidan shakllantirilgan.

Areas	2018		2022		Change (+), (-)	
	GRP, billion soums	Clauses number of people	GRP, billion soums	Clauses number of people	GRP, billion soums	Number of employees, person
Republic of Karakalpakstan	15,009.4	1 031	29,925.4	1 309	+14 916.0	+278
Andijan	26,503.0	1 397	54,464.0	1 611	+27 961.0	+214
Bukhara	21 158.3	1 506	45,797.3	1 908	+24 639.0	+402
Jizzakh	12,074.7	731	27 140.8	1 133	+15,066.1	+402
Kashkadarya	27,962.2	927	49,520.8	1 256	+21 558.6	+329
Navoi	22 132.2	1 219	66 685.4	1 346	+44 553.2	+127
Namangan	18,046.0	1 234	41 098.2	1 625	+23 052.2	+391
Samarkand	31 233.5	1 503	62 440.3	2 090	+31 206.8	+587
Surkhandarya	17,802.0	855	34,858.5	1 125	+17 056.5	+270
Syr Darya	8,066.3	211	18 136.8	664	+10,070.5	+453
Tashkent	38,774.3	1 865	93 433.1	2 896	+54 658.8	+1 031
Ferghana	26,611.5	2 341	55,972.1	2 388	+29 360.6	+47
Khorezm	15 242.5	1 039	31,963.1	1 277	+16 720.6	+238
Tashkent city	54,694.3	24 389	147 414.6	36 506	+92 720.3	+12 117

In 2022, the city of Tashkent took the next place in the GDP structure with 16.6%, Tashkent and Navoi regions with 10.5% and 7.5%. The smallest share in the formation of the republic's GDP fell on Syrdarya (2.0%) and Jizzakh (3.1%) regions. In terms of the number of people employed in the ICT sector in 2018 and 2022, Tashkent city (24,389 and 36,506 people, respectively), Fergana (2,341 and 2,388 people, respectively) and Tashkent (1,865 and 2,896 people, respectively) regions occupied the leading positions among the regions of the republic. The highest growth in the number of people employed in the ICT sector in 2022 compared to 2018 was observed in Tashkent city (+12,117 people), Tashkent (+1,031 people) and Samarkand (+587 people) regions. The development and implementation of modern information and communication technologies and the creation of infrastructure create a need to quickly attract the population to new technologies. Based on the above, it can be noted that the Strategy for the Development of the National Information and Communication System of Uzbekistan, implemented in all areas of the development of information and communication technologies, is showing a positive trend. Data transfer speeds and the number of subscribers connected to the network in Uzbekistan are increasing year by year. The figure below shows data on the number of mobile subscribers connected to the network for 2015-2023 (Figure 1). The number of mobile subscribers connected to the network in Uzbekistan was 18.3 million in 2015, and by January 1, 2024, this figure reached 34.2 million. All these measures made it possible to increase the bandwidth of communication channels. The total bandwidth of Internet channels is increasing year by year. If in 2020 the total bandwidth of Internet channels was 1200 Gbit/s, then from 2023 this figure will be 1800 Gbit/s.

Table 2. Number of mobile subscribers connected to the network in Uzbekistan, million units ²

² O'zbekiston Respublikasi Prezidenti huzuridagi Statistika agentligi ma'lumotlari asosida muallif tomonidan shakllantirilgan.



In the long term, it is important to adhere to two basic principles in the practical solution of the systemic problem of developing the information and communication sector of the national economy: accumulation of funds for financing research and development in important areas of ICT: the increase of fundamental and applied knowledge; Improving the quality of "human capital" can be one of the competitive advantages of Uzbekistan in this area; It is necessary to create an information infrastructure that ensures the transformation of knowledge into market products using the mechanism of public-private partnership. Part of the scientific research and implementation of the information infrastructure should be carried out with the participation of the state, and the commercialization of the market should be carried out mainly by business itself. At the same time, it is necessary to take into account the development trends of the world information and communication technology market, where there is a process of transferring the production of ICT products from developed countries to developing countries. China, Southeast Asia, Latin America and Eastern Europe are distant production and export zones, which include many foreign ICT companies. They have become a catalyst for the development of ICT production, where a large amount of their funds are directed. This is because these products are produced in high quality, but at lower prices in most developing countries. This increases the competitiveness of their products in the world market. In general, the ICT market has become one of the most dynamic and large sectors of the world economy. This, in turn, has led to increased international competition in this area, and many countries have increased their research and development costs for innovations and products in order to ensure leadership in the global ICT sector. Analysis of the specific features of demand formation in the global digital technologies market, the formation of global demand for information technologies based on the characteristics of this product allows us to distinguish three main consumer groups (Table 2). In our country, comprehensive measures are being taken to actively develop the digital economy, widely introduce modern information and communication technologies in all sectors and areas, primarily in public administration, education, healthcare and agriculture.

Table 3. Key consumer groups shaping global demand for digital technologies³

³ Ilmiy adabiyotlar tahlili asosida muallif tomonidan shakllantirilgan.

No	Name	Content
1	Private and state-owned enterprises engaged in industrial production and services	In the conditions of increasing competition in almost all sectors of the global economy, the desire to increase management efficiency and the connection to various integrated management systems (Enterprise Resource Planning Systems - ERP Systems, Customer Relationship Management Systems CRM Systems, Product Service Management Systems - PSM Systems) ensures stable demand. Their sales revenues are growing year by year.
2	Research institutions and universities	It forms the main demand for software used to solve scientific and research problems, automate the activities of financial and administrative departments, national libraries, infrastructure programs for personal computers, and services of computing centers for processing large amounts of data.
3	Households	They are in demand, primarily, for software for personal computers, processing text, sound, video and graphic information.

In particular, the implementation of more than 220 priority projects has been launched, which include improving the e-government system, further developing the local market for software products and information technologies, establishing IT parks in all regions of the republic, as well as providing the industry with qualified personnel. In addition, the “Digital Tashkent” complex program is being implemented, which provides for the launch of a geoportal integrated with more than 40 information systems, the creation of an information system for managing public transport and municipal infrastructure, the digitization of the social sphere, and the subsequent introduction of this experience in other regions.

Conclusion: This study examined the impact of digital transformation in the economy of Uzbekistan on economic efficiency and the competitiveness of organizations and came to a number of important conclusions. In the period from 2012 to 2024, investments in digital infrastructure and ICT helped to increase labor productivity by 80%, and export volumes by 66%. Econometric analysis showed that the introduction of digital services reduced operating costs and expanded the market share of organizations. In particular, e-commerce and digital banking services have opened up new opportunities for MNCs, strengthening their global competitiveness.

However, the study also identified a number of challenges. The uneven development of digital infrastructure, especially low internet connectivity in rural areas, is slowing down the transformation process. At the same time, a shortage of qualified personnel and a low level of digital literacy of the population are preventing organizations from fully utilizing digital technologies. For example, in 2024, only 60% of the population used digital services, which is low compared to developed countries. The following suggestions are made to further develop digital transformation in the future:

- 1. Infrastructure development:** Public-private partnership projects should be expanded to expand high-speed Internet access in rural areas.
- 2. Human resource development:** Digital technology training programs should be expanded and ICT areas should be supported in the higher education system.

3. **Policy improvement:** Tax incentives and grants should be introduced for the digitalization of KOKs within the framework of the “Digital Uzbekistan - 2030” strategy.
4. **International cooperation:** Foreign experience, in particular, the digital economy models of countries such as South Korea and Singapore, should be studied and adapted to local conditions.

These proposals will be an important step in bringing Uzbekistan's economy to global competitiveness. Digital transformation will not only increase economic efficiency, but also improve social well-being, as digital services serve to raise the standard of living of the population. Future research should focus on the social impact and long-term sustainability of digital transformation.

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