THE IMPORTANCE OF DIGITALIZATION IN ECONOMIC DEVELOPMENT OF THE GOVERNMENT

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https://doi.org/10.5281/zenodo.19492171

Abstract. *Uzbekistan is focused on studying how digitalization influences economic growth as well as various sectors of the national economy. The research primarily relies on a review of international literature and an examination of key financial indicators related to the digital economy within a specific country. During the study, statistical data were collected, illustrated and analyzed using charts and tables. Additionally, a regression analysis has been conducted to evaluate the relationship between the development of the ICT and logistics sectors and real GDP. The article also presents key findings along with practical recommendations regarding the process of digitalization.*

Keywords: *real GDP, digital economy, e-service, e-commerce, ICT.*

Introduction

In parallel with global economic advancement, the pace of information technology development and data exchange has significantly accelerated. The concept of the digital economy refers to the extensive network of continuous online interactions among organizations, individuals, data systems, technologies, and processes that underpin economic activities. It is fundamentally based on the integration and interaction of organizations, individuals, and machines through the Internet, digital platforms, websites, mobile applications, and related technologies (Nguyen, 2023). Contemporary research highlights that economic agents increasingly operate in an environment where transactions are facilitated through smartphones, social networks, and online marketplaces. Empirical evidence suggests that, particularly in developed economies, improved accessibility to information contributes to enhanced productivity and greater operational efficiency (Guariso & Nyqvist, 2018).

In the contemporary digital era, the Internet has evolved into a critical element of corporate governance, transitioning from its initial role as a relatively low-cost communication medium to a strategic infrastructure. Technological advancement plays a pivotal role in enhancing economic performance and improving societal welfare across countries (Korotkevich, 2019). The adoption of emerging technologies may generate short-term labor displacement; however, it simultaneously creates new employment opportunities in the medium to long term (Sellar, 2019). In the context of rapid technological advancement, national economies can achieve stable and sustained growth through the effective integration of practical and innovative technologies. In pursuit of sustainable development, developed countries are increasingly prioritizing advanced solutions such as 3D printing and biofuel engineering (Shor et al., 2022).

Technological innovations—including the digitalization of public transportation systems, the expansion of online banking services, the development of internet-based marketing, the

implementation of e-learning platforms, and the enhancement of intercity communication infrastructures—have been successfully adopted in many developing economies (Kotevski & Milenkoski, 2018). Among the key constraints to economic growth are inefficiencies in time management and relatively low productivity levels. Addressing these challenges requires the widespread implementation of automation, digitalization, and innovative technologies to enhance efficiency across sectors and industries (Yano, 2016).

At advanced stages of economic development, employment tends to shift toward digital and remote service sectors, surpassing traditional industries such as manufacturing and agriculture. Moreover, economic activity is no longer confined to specific geographic locations; instead, it operates within a globalized framework that enables individuals to engage in work across borders. Consequently, governments are increasingly focusing on strengthening the ICT labor force (Clemons, 2007). Ensuring an effective and well-managed transition to the digital economy remains a critical responsibility of policymakers. Given that the potential benefits outweigh the associated risks, it is essential to implement policies aimed at reducing structural barriers, fostering job creation, and supporting sustainable economic growth (Chatani, 2012).

Literature review

The digital economy is fundamentally grounded in the extensive adoption of information and communication technologies (ICT) across all sectors to enhance productivity and efficiency. It represents an economic system in which digital and computer-based technologies play a dominant role. Within this framework, networking and communication infrastructures serve as a global platform that enables individuals and organizations to plan, interact, exchange information, and collaborate regardless of geographical boundaries (Alam et al., 2022). A comprehensive understanding of the Fourth Industrial Revolution (4IR), including its emerging technologies and associated risks, is essential for all countries. The rapid advancement of innovative technologies has generated diverse perspectives regarding the implications of automation, global supply chains, and outsourcing on employment patterns. As noted by Krichen (2022), the digital revolution is expected to continue evolving through technological progress, with an increasing emphasis on data-driven systems and artificial intelligence.

In the context of sectoral transformation, full digitalization of banking systems is considered crucial for ensuring transparency and operational efficiency (Naheem, 2015). Similarly, promoting digital information exchange in agriculture remains a key priority during the ongoing phases of industrial transformation (Oguamanam, 2018).

However, the expansion of artificial intelligence also raises significant ethical concerns, including the protection of human rights and societal values. Balancing innovation with ethical regulation, while simultaneously enhancing individual and societal well-being, remains a complex but essential challenge.

Furthermore, managing the integration of human resources and technological advancements within the digital economy presents considerable difficulties, particularly in developing countries, where aligning these elements with inclusive and equitable growth objectives is critical (Joseph & Marrow, 2017).

At the same time, emerging research highlights substantial opportunities related to new organizational structures driven by artificial intelligence, human capability enhancement, and national digital economies (Zhang et al., 2021). The integration of science, technology, and big data into industrial processes can significantly improve access to information, reduce transaction costs, and enhance overall competitiveness (Sahay et al., 2020).

Ensuring an effective transition to the digital economy requires that its advantages outweigh potential drawbacks, particularly in terms of employment challenges, which should be mitigated through sustained economic growth and development (Elsafty & Elzeftawy, 2022). In this regard, many developing countries have implemented ICT strategies, legal frameworks, and policy measures aimed at fostering transparency, accountability, and socio-economic progress (Aziz & Naima, 2021).

Methodology

This study investigates the role of the digital economy in promoting economic development. It employs a comparative analytical approach to examine the impact of digitalization across various economic sectors.

Research Results

In line with the "Digital Uzbekistan – 2030" strategy, comprehensive measures are being implemented to promote digital transformation across economic sectors and regions. These include the development of state information systems, expansion of electronic public services, and digital reforms in key areas such as education, public administration, the judiciary, and the financial and banking sectors.

The introduction of a unified rating and evaluation framework to assess the level of digital economy and e-government development across economic sectors, social domains, and regions has enabled the establishment of an effective interagency coordination mechanism. This framework supports the systematic evaluation and implementation of sectoral and regional digital development programs.

According to the GovTech Enablers Index published by the World Bank, Uzbekistan achieved 9th place globally in 2025, particularly excelling in digital skills and innovation in public service delivery. This ranking underscores the significant role of the digital economy in advancing government digitalization policies and fostering economic growth.

Furthermore, the expansion of digitalization is increasingly recognized as a key determinant of a country's investment attractiveness. Compared to 2020, Uzbekistan improved its position by 71 places, with its index score rising substantially from 0.617 to 0.958. Consequently, the country reinforced its standing within the "High GovTech Maturity" category (Category A).

The index evaluates digital transformation in public administration across four principal dimensions: core government systems, the provision of online public services, digital citizen engagement, and enabling factors that support GovTech development.

By the end of 2025, Uzbekistan ranked first in Central Asia and entered the global top ten, alongside leading countries such as South Korea, Australia, India, and Canada. Furthermore, these results demonstrate that sustained investment in digital infrastructure and human capital is essential for maintaining progress in GovTech development.

Strengthening institutional capacity and expanding access to digital services can further enhance public sector efficiency and inclusiveness. In addition, continued policy support for innovation and digital transformation will contribute to long-term economic resilience. Overall, Uzbekistan's achievements highlight its potential to become a regional leader in digital governance and technology-driven development.

This is clearly demonstrated in the next figure.

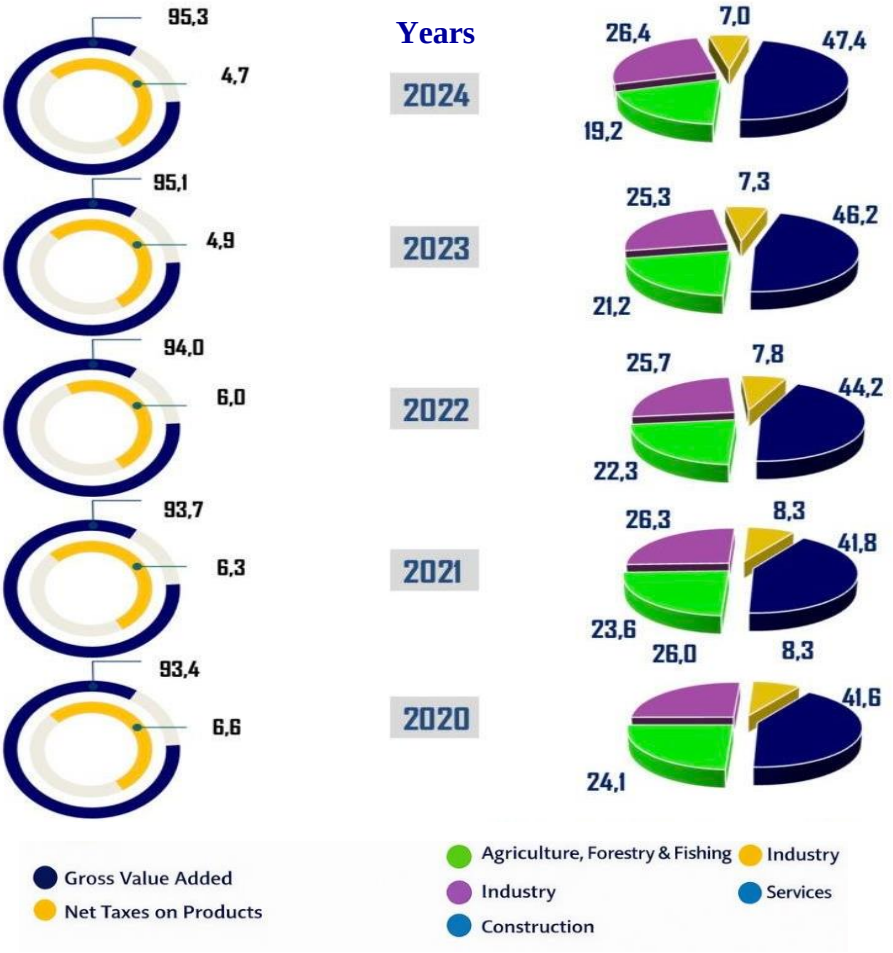


Figure 1. GDP composition by types of economic activity, in % of total

In Figure 1, we see the analysis of the growth dynamics In 2024, the Gross Domestic Product (GDP) of Uzbekistan reached 1.45 quadrillion soums, representing an annual growth rate of 6.5%. Based on the average exchange rate, this corresponds to approximately 115 billion US dollars. In addition, GDP per capita rose to 39.1 million soums, equivalent to about $3,093. These statistics were officially reported by the Agency of Statistics of Uzbekistan. The structural composition of the national economy has undergone notable changes in recent years. The share of the services sector increased from 46.2% to 47.4%, indicating a gradual shift toward a service-oriented economy. Similarly, the industrial sector expanded its contribution from 25.3% to 26.4%, reflecting ongoing industrial development. In contrast, the share of agriculture declined from 21.2% to 19.2%, suggesting a relative reduction in its role within the overall economic structure. The construction sector also experienced a slight decrease, with its contribution falling from 7.3% to 7%.

With regard to sectoral dynamics, the contribution of information and communication technology (ICT) services reached 2.4% of GDP, while the broader information and telecommunications sector accounted for 2.7%. At the same time, transportation and logistics services represented 5.4% of total GDP, highlighting their growing importance in supporting economic activity. The role of small businesses and private entrepreneurship has also strengthened significantly. Their share in GDP increased from 51.2% to 54.3%, demonstrating the positive outcomes of economic reforms aimed at promoting private sector development and enhancing entrepreneurial activity in Uzbekistan. According to preliminary estimates, which incorporate the results of statistical assessments of the informal and shadow economy, the total volume of market

services in Uzbekistan for the period January–December 2025 reached 1,050.3 trillion soums, representing a 14.7% increase compared to 2024. In the previous year, the volume of services amounted to 840.1 trillion soums, reflecting a growth rate of 13.3% relative to 2023.

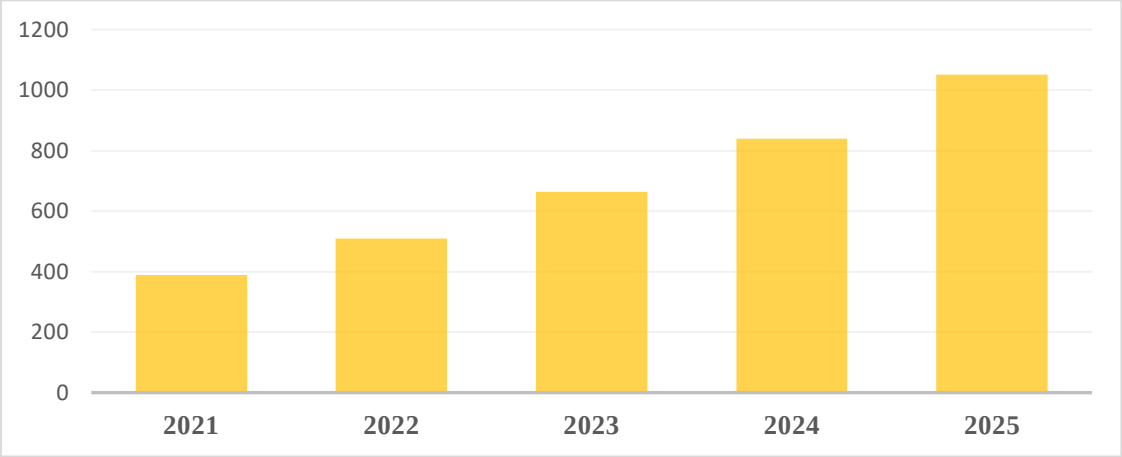


Figure 2. The volume market services provided, *in trillion sums*

In Figure 2, illustrates the volume of market services provided from 2021 to 2025, measured in trillion soums. Overall, the data shows a steady upward trend over the given period. In 2021, the volume of services amounted to 389.4 trillion soums. This figure increased significantly to 509.6 trillion soums in 2022 and continued to rise to 664.8 trillion soums in 2023. In 2024, the volume reached 840.1 trillion soums, showing substantial growth compared to the previous year. In 2025, this figure reached 1 050,3 trillion soums, marking the highest level in the observed period.

This steady growth reflects the ongoing expansion of the service sector and increasing demand for market-based services in the economy. The upward trend can be attributed to economic reforms, digitalization processes, and the development of modern service industries. In particular, the rapid growth in recent years indicates improved business activity and rising consumer demand. Overall, the data suggests that the service sector is becoming an increasingly significant contributor to economic development.

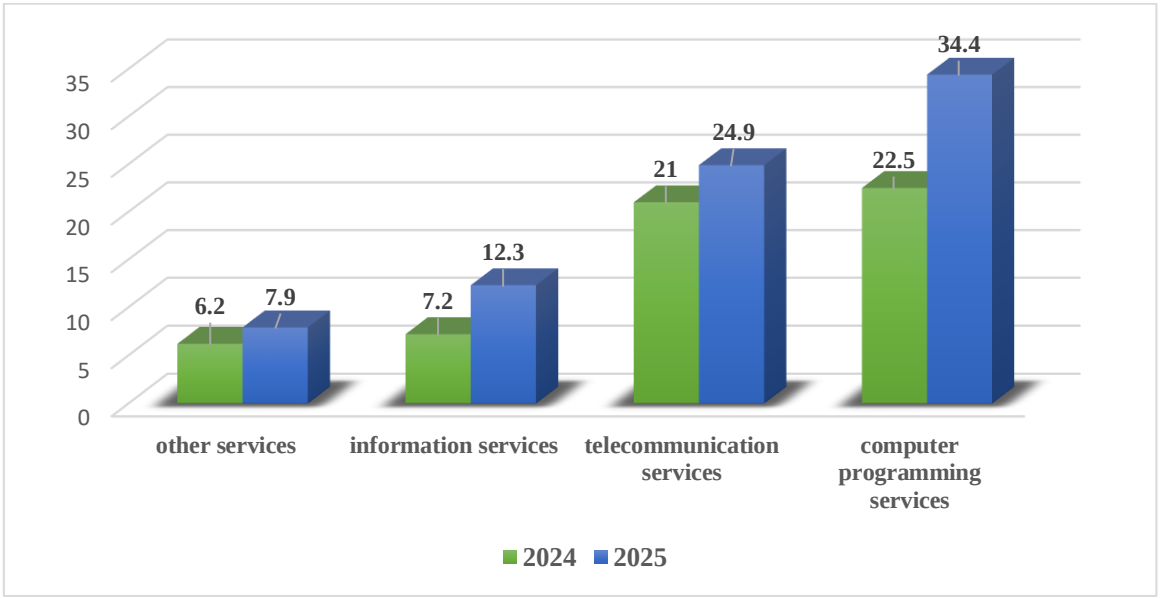


Figure 3. Volume of communication and information services by type, in trillion soums

As illustrated in Figure 3, during the period under review in 2025, the total volume of communication and information technology services in Uzbekistan reached 79.5 trillion soums.

Among these, computer programming services constituted the largest share, accounting for 43.2% of the total. Telecommunications services represented 31.3%, followed by information services at 15.5%. Publishing services contributed 7.1%, while other services made up the remaining 2.9% of the overall volume of communication and ICT services.

Table 1

Key indicators of the service sector by their main types

Type of services	**2024 (trln soums)**	**2025 (trln soums)**	**Growth rate (%)**
Services – total	840,1	1050,3	114,7
Communication and information services	56,9	79,5	122,7
Financial services	135,8	171,9	124,6
Transport services	151,8	188,5	110,8
including automobile transport	73,8	95,9	114,2
Accommodation and food services	183,9	226,9	110,4
Trade services	155	187	113,8
Real estate services	20,9	25,9	113,1
Education services	32,1	39,6	110,4
Healthcare services	16	19,9	134,2
Rental services	9,9	12,8	129,1
Computer & household repair services	11,7	14,4	112,3
Individual services	15,6	19,9	112,3
Architecture, engineering & technical services	10,5	13,1	113,5
Other services	40	51,1	112,8

In the Table 1 we can saw, the overall increase in the volume of market services was primarily driven by several key sectors. Financial services recorded the highest growth rate at 24.6%, contributing 4.0 percentage points to the total increase. This was followed by trade services, which grew by 13.8% and contributed 2.5 percentage points. Accommodation and food services expanded by 10.4% (2.3 percentage points), while transport services increased by 10.8%, accounting for 2.0 percentage points. Communication and information services demonstrated significant growth of 22.7%, contributing 1.5 percentage points to the overall increase. Other sectors, including miscellaneous services (12.8%, 0.6 percentage points), education (10.4%, 0.4 percentage points), healthcare (14.2%, 0.3 percentage points), and real estate-related services (13.1%, 0.3 percentage points), also made notable contributions. Additionally, growth in rental services (19.1%), architectural services (13.5%), repair of computer and household goods (12.3%), and personal services (12.3%) collectively contributed approximately 0.8 percentage points to the overall growth.

In terms of structural composition, during January–December 2025, accommodation and food services accounted for the largest share of total market services at 21.6%. This was followed by transport services at 17.9% and trade services at 17.8%. Financial services represented 16.3%, while communication and information services accounted for 7.6%. Education services comprised 3.8% of the total volume of market services. Compared to 2024, the volume of accommodation and food services increased by 43.0 trillion soums, reaching 226.9 trillion soums in 2025. A significant proportion of these services—approximately 95.9%—was associated with the provision of food and beverage activities.

During the period from January to December 2025, the total volume of transportation services amounted to 188.3 trillion soums. Within this sector, automobile transport services constituted the dominant share, accounting for 50.9%, or 95.9 trillion soums. The expansion of transportation services is closely connected to the growth of both domestic and international trade, as well as the development of logistics, tourism, and e-commerce. These factors collectively contribute to increased demand for the movement of goods and passengers, thereby supporting the overall growth of the sector.

Table 2

Structural structure and dynamic change of gross added value created in the fields of information economy and electronic commerce

Indicator	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Information economy & e-commerce (total)	10777	16939,5	27791,2	32500	36864	42000
Share in GDP (%)	1,9	2,5	3,4	2,1	2,7	3
ICT total	9095,9	11567,6	16089,9	28000	36864	42500
ICT production	540,1	503,3	805,5	950	1200	1500
ICT trade	252,3	367,8	594	700	900	1100
ICT services	8303,5	10696,4	14690,4	26000	34000	39000
Content & media	1089,7	1464,6	1944,9	2200	2600	3000
E-commerce	591,4	907,3	756,4	1500	2000	2500

The data presented in the Table 2 illustrate the structural composition and dynamic changes in the gross value added (GVA) generated within the information economy and electronic commerce sectors of Uzbekistan over the period 2020–2025. The analysis reveals a consistent upward trend in the overall contribution of these sectors to the national economy. In particular, the total volume of gross value added in the information economy and e-commerce increased significantly from 10,777.0 billion soums in 2020 to an estimated 42,000 billion soums by 2025. This growth reflects the accelerated digital transformation processes and the expansion of ICT-related activities in the country.

A substantial share of this growth is driven by the ICT sector, which remains the dominant component within the information economy. The value added generated by ICT services constitutes the largest proportion, indicating the increasing importance of digital services, software development, and telecommunications. At the same time, ICT production and trade sectors demonstrate moderate but stable growth, supporting the overall development of the industry.

Moreover, the share of the information economy and e-commerce sectors in GDP shows a gradual increase, highlighting their growing role in economic diversification and modernization. The expansion of the e-commerce sector, in particular, reflects changes in consumer behavior, wider internet penetration, and the development of digital infrastructure. Overall, the observed trends confirm that the information economy is becoming a key driver of economic growth in Uzbekistan, with strong potential for further expansion in the medium term.

Preliminary regression analysis indicates that a 1% increase in ICT development is associated with a negative effect on real GDP, whereas a 1% increase in the logistics sector contributes positively to real GDP by approximately 0.49%. These findings suggest the presence of certain structural limitations and highlight the need for further empirical research, particularly in light of data constraints.

Source	SS	df	MS	Number of obs	=	13
				F(2, 10)	=	4.87
Model	.0200521	2	.01002605	Prob > F	=	0.0333
Residual	.020568127	10	.002056813	R-squared	=	0.4936
				Adj R-squared	=	0.3924
Total	.040620226	12	.003385019	Root MSE	=	.04535

GDP	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Log	.4934534	.1901749	2.59	0.027	.0697173	.9171896
ICT	-.3039226	.1533102	-1.98	0.076	-.6455189	.0376737
_cons	1.013919	.2801135	3.62	0.005	.3897871	1.638051

Figure 2. Regression analysis of the impact of logistics and ICT on real GDP

Conclusion

In the context of contemporary economic development, the effective analysis of macroeconomic trends increasingly depends on advanced information processes. Such tools play a crucial role in shaping both overall economic development strategies and sector-specific policies. In this regard, information technologies serve as a foundational element for supporting the structural transformation required for the digitalization of the economy. Ongoing reforms have led to the introduction of 178 public services through e-government platforms and unified interactive service portals, significantly contributing to the reduction of transaction costs and the improvement of service delivery efficiency. Based on the findings, several policy recommendations are proposed to enhance the role of information technologies in national economic development:

- modernization of knowledge systems and the integration of advanced information technologies;
- expansion of access to global information resources and digital infrastructures;
- improvement and adaptation of contemporary legal frameworks governing socio-economic development;
- development of institutional mechanisms aimed at increasing the share of ICT professionals and boosting the contribution of digital goods and services to GDP;
- enhancement of social information and communication systems through the provision of relevant and high-quality content;
- effective implementation of public information policies through the advancement of telecommunications, broadcasting, internet services, and both traditional and digital media platforms.

Overall, the integration of digitalization into the economy provides opportunities to address key macroeconomic challenges, including unemployment, inflation, economic growth, national output, and export performance. The scientific contributions presented in this study offer a foundation for further research in this field. The results emphasize the importance of expanding the use of digital technologies and products to foster sustainable economic development in Uzbekistan.

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