

DIGITAL ECONOMY: FEATURES, TRENDS, AND WAYS OF FURTHER DEVELOPMENT

Kobilov Alisher

Tashkent State University of Economics

<https://orcid.org/0000-0001-8537-8544>

E-mail: alisherkobilov19701009@gmail.com

Abstract

The article examines the current state and global trends in the development of the digital economy and suggests measures for its further development in Uzbekistan.

Key words: digital economy, information and communication technologies, digitalization, digital technologies, Internet of Things, e-commerce.

Аннотация

В статье рассматриваются современное состояние и мировые тенденции развития цифровой экономики, а также предлагаются меры по ее дальнейшему развитию в Узбекистане.

Ключевые слова: цифровая экономика, информационно-коммуникационные технологии, цифровизация, цифровые технологии, Интернет вещей, электронная коммерция.

Annotatsiya

Maqolada raqamli iqtisodiyotni rivojlantirishning bugungi holati va jahon tendentsiyalari ko'rib chiqilib, uni O'zbekistonda yanada rivojlantirish chora-tadbirlari taklif etiladi.

Kalit so'zlar: raqamli iqtisodiyot, axborot-kommunikatsiya texnologiyalari, raqamlashtirish, raqamli texnologiyalar, narsalar interneti, elektron tijorat.

INTRODUCTION

The rapid development of digital technologies is driving fundamental changes not only in the economy but also in society itself. By reducing information costs, digital technologies significantly lower the cost of economic and social transactions for governments, companies, and individuals. They foster innovation, where transaction costs approach zero, and dramatically increase efficiency: existing activities and services become cheaper, faster, or more convenient. Furthermore, digital technologies facilitate integration, allowing people to access services that were previously unavailable to them [1].

Simultaneously, an information market is emerging, characterized by a network of social, legal, and economic relations that develop in the sphere of purchasing, selling, and exchanging information products among consumers, producers, and intermediaries. This phenomenon strengthens the dominance of the information industry in the economies of several countries, making the spheres of production and services increasingly knowledge-intensive and innovative [2].

Over the past decade, these processes have led to fundamental changes in business models and consumer behavior in the modern economy. They have also laid the foundation for the transformation of a wide range of social processes, including high-tech production [3], economic activity, financial services, educational concepts and standards, and entertainment and leisure. This infrastructure, based on electronic interaction, represents a new vector for the development of the global economy, increasingly defined as an economy based on digital technologies [4].

In this context, Uzbekistan is paying significant attention at the highest levels to the development of information and communication technologies (ICT), recognizing their critical role in the country's socio-economic development. A notable example is President Shavkat Mirziyoyev's speech during his inauguration ceremony, where he stated:

"Modernization of industries and regions, increasing their competitiveness, and developing export potential will always be at the center of our attention. To achieve this, we must actively attract foreign investment, advanced technologies, including information and communication technologies, to all areas. On this basis, we aim to double the gross domestic product by 2030" [5].

The digital economy, as a new economic space, offers fundamentally different opportunities and prospects for its participants compared to the past. According to an OECD report, competition in digital markets exhibits unique characteristics, including trends such as "winner takes all" in market competition, network effects, and a strong emphasis on innovation and investment. The cyclical nature of competition suggests a high likelihood that successful digital platforms may achieve significant, yet temporary, market advantages. Dynamic competition, driven by continuous innovation, development, and change, remains a cornerstone of a market economy [6].

In this context, countries that can quickly and effectively adapt to ongoing changes are poised to derive the greatest benefits from the digital economy. Conversely, those that fail to adapt are likely to fall behind.

LITERATURE REVIEW

The concept of the digital economy emerged in the last decade of the 20th century, with the term introduced in 1995 by Nicholas Negroponte from the University of Massachusetts. Over time, the scientific community has developed numerous approaches to defining and explaining the term "digital economy."

M.L. Kaluzhskiy defines the digital economy as a communication environment for economic activity on the Internet, encompassing the forms, methods, tools, and outcomes of its implementation [7]. The OECD describes the digital economy as a general term for markets centered on digital technologies, typically involving trade in information goods and services through e-commerce [6]. Here, digital technologies refer to the Internet, mobile phones, and other means of collecting, storing, analyzing, and exchanging information in digital form [1].

Thomas Mesenburg identifies three main components of the digital economy [8]:

E-business infrastructure: Includes technical tools, software products, telecommunications, networks, human capital, and other essential resources.

E-business: Represents a way of conducting business through information and communication networks.

E-commerce: Involves the transfer of goods, such as selling a book online.

V. Katasonov, in general terms, describes the digital economy as the part of economic relations facilitated by the Internet, cellular communications, and ICT [9]. Digital technologies in the modern world offer fundamentally new opportunities for interactions among the state, businesses, and the population by eliminating long intermediary chains and accelerating transactions and operations.

Based on this understanding of the digital economy, many researchers conclude that this economic model offers "digital dividends" to society. These benefits include expanded access to markets, enhanced market coverage, improved internal and external efficiency (e.g., higher labor productivity and reduced transaction costs), increased employment, reduced unemployment, greater satisfaction of human needs, reduced poverty, and even a weakening—or complete elimination—of social polarization in society [1, 10–12].

METHODOLOGY

The research employed empirical methods, system analysis, comparative analysis, statistical grouping, and expert assessment to achieve its objectives.

ANALYSIS AND RESULTS

Digital technologies have undergone rapid development over the last decade. Between 2015 and 2022, the number of people with Internet access increased from 1 billion to 3.4 billion, covering over 40% of the global population [13]. In developing countries, more households own a mobile phone than have access to electricity or clean drinking water. Mobile phone ownership extends to nearly 70% of individuals in the bottom income quintile, compared to 98% in high-income countries [1].

Digitalization is reshaping the economy, disrupting traditional business models, expanding markets and opportunities, and fostering increased competition and competitiveness—both among individual economic entities and entire nations.

Many experts agree that digital transformation has become one of the key drivers of global economic growth. According to The Boston Consulting Group (BCG), a leading authority in the field of the digital economy, the share of the digital economy in the GDP of developed countries has increased by 1.2 percentage points since 2017, reaching 5.5%. In developing countries, this figure has grown from 3.6% to 4.9% of GDP (see Table 1).

Table 1.

Dynamics of growth of the share of digital economy in GDP of G20 countries, %

Country	2010 (%)	2016 (%)
United Kingdom	8.3	12.4
South Korea	7.3	8.0
China	5.5	6.9
European Union	3.8	5.7
India	4.1	5.6
Japan	4.7	5.6
USA	4.7	5.4
Mexico	2.5	4.2
Saudi Arabia	2.2	3.8
Australia	3.3	3.7
Canada	3.0	3.6
Argentina	2.0	3.3
Russia	1.9	2.8
South Africa	1.9	2.5
Brazil	2.2	2.4

Source: Boston Consulting Group (BCG).

As established, the United Kingdom is a global leader in the share of the digital economy within GDP. The digital sector, encompassing IT and telecommunications, online trade, and government spending related to the Internet, ranks second in the country's economy—surpassing manufacturing and trade while trailing only the real estate sector. South Korea and China follow closely behind in this ranking.

When examining the level of development of electronic commerce (EC) across countries, the United Kingdom also leads, followed by Germany, according to data from The Boston Consulting Group (BCG) [14] (see Table 2).

Table 2.

Level of development of e-commerce in some countries in 2014, %

Country	Share of E-commerce in Total Retail Trade (%)	Share of E-commerce in Food Retail Trade (%)
United Kingdom	11.4	4.4
Germany	10.2	0.8
China	8.4	-
USA	6.8	3.0
Japan	6.2	-
Netherlands	-	3.6
France	-	1.5
Russia	3.3	0.2

Source: Boston Consulting Group (BCG).

The remarkable growth of e-commerce in China is noteworthy. According to The Boston Consulting Group (BCG), China's e-commerce turnover in 2017 amounted to \$18 billion. By the end of 2022, Chinese consumers had spent approximately \$750

billion on online purchases, surpassing the combined figures for the United States and the United Kingdom. Furthermore, the Ministry of Commerce of the People's Republic of China reported that by the end of 2021, China accounted for 39.2% of the global e-commerce market [15]. Under the country's 2021–2025 industry development program, e-commerce turnover is expected to grow to \$5.8 trillion within five years[16].

According to estimates from the McKinsey Global Institute [17], digital technologies will drive China's GDP growth to 22% and Russia's to 34% by 2030. In the United States, digital technologies are expected to add \$1.6–2.2 trillion to GDP by 2025. These forecasts are attributed not only to the automation of existing processes but also to the adoption of groundbreaking business models and technologies, such as digital platforms, digital ecosystems, advanced big data analytics, and Industry 4.0 technologies (e.g., 3D printing, robotics, Internet of Things). McKinsey estimates that annual investments in the global Internet of Things economy will reach \$4–11 trillion by 2030.

A notable trend in e-commerce is the growing involvement and influence of small and medium-sized businesses (SMEs) in global trade. Digitalization enables SMEs to evolve into "micro-multinational" organizations by leveraging digital platforms that operate on a "plug-and-play" basis. These platforms also provide SMEs with unprecedented access to vast global databases of potential customers.

Social media platforms host some of the largest databases of potential clients. For example, according to Facebook [18], the number of SMEs registered on its platform increased from 25 million to 65 million between 2020 and 2023, with approximately 30% of their followers being foreign subscribers. This highlights the significant role of social media platforms as powerful marketing tools, particularly for companies aiming to boost export performance.

While e-commerce is a critical component of the digital economy, it is not the only one. In certain countries, sectors such as e-banking have achieved significant development. In 2022, BCG [14] conducted an analysis of the digital economy across various sectors, resulting in an index ("BCG Index") that ranks countries based on their digital economy performance. The top-ranked countries were:

1. Denmark
2. Luxembourg
3. Sweden
4. South Korea
5. The Netherlands
6. Norway
7. The United Kingdom

Lower-ranked countries included the UAE (30), China (35), Russia (39), India (80), and Cameroon (85).

BCG categorizes digital economies into five groups based on the relative level of digital operations and GDP per capita:

1. Leaders: Countries with the highest levels of digitalization and advanced technologies, including South Korea, Denmark, the United Kingdom, Sweden, Norway, and the Netherlands.

2. Main Group: Countries with developed economies, such as Germany, the United States, Japan, and other EU countries.

3. High-Income but Lower-Digitalization Countries: Middle Eastern nations like the UAE and Saudi Arabia. BCG notes that these countries exhibit strong potential for digital growth and could rise to higher groups in the future.

The digital economy continues to reshape global economic structures, with countries that adapt quickly to its demands likely to achieve significant economic growth and global competitiveness.

The fourth group in the BCG classification includes "emerging leaders," characterized by a level of digital operations development that surpasses their overall economic development. The most prominent representative of this group is China.

The fifth group, labeled as "lagging behind," includes countries that are still underdeveloped in terms of the digital economy.

Uzbekistan's Digital Transformation

Since gaining independence, Uzbekistan has prioritized the development of information and communication technologies (ICT). Large-scale projects have been launched to develop digital infrastructure, including the expansion of state electronic services, electronic procurement systems, and increased citizen engagement in socially significant decision-making processes. Real digital services are now accessible to the population and businesses.

According to Internet Live Stats [19], Uzbekistan ranks first in Central Asia, third in the CIS, and 37th globally in terms of Internet users. As of 2022, the country's international network access speed reached 35 Gbit/s, compared to 26.4 Gbit/s in 2015. Mobile communications cover 92% of the country's settlements, with 20.8 million subscribers. According to the Program for the Development of the Service Sector for 2022–2025, this figure is expected to grow to 27 million subscribers by 2025 [20].

Challenges and Opportunities

Despite the positive dynamics in ICT and digital technology development, more active integration into economic sectors is still required. The rapid global expansion of digital technologies brings both opportunities and challenges. While these innovations open up new development prospects, they also pose significant risks for countries and companies that fail to adapt to a fast-paced, innovation-driven world.

The competitiveness of businesses and nations will increasingly depend on their level of digitalization. In this context, adopting a proactive approach is crucial. Success in the digital economy demands bold investments, a results-oriented mindset, flexibility, and a willingness to innovate and experiment.

Countries and companies that position themselves as digital economy leaders will unlock virtually unlimited potential. Aware of this, leading nations are actively investing in ICT infrastructure, modernizing education systems, and implementing advanced digital tools, including artificial intelligence (AI). Over the last two years,

countries like the United States, the United Kingdom, South Korea, and China have adopted national strategies for further digital development, with some plans outlining specific funding allocations worth billions of dollars.

Uzbekistan's Response to Digital Challenges

To narrow the technological gap with global leaders, Uzbekistan must develop effective responses to the challenges of the digital era. Several initiatives are already underway:

- Digitalization of government operations: Projects are being implemented to improve the quality, accessibility, and efficiency of public services.
- Unified Portal of Interactive Public Services (EPIGU 2.0): The updated platform (my.gov.uz) offers expanded functionality, modernized real estate registration and cadastre systems, a Notary information system, and electronic databases for individuals, legal entities, and vehicles.
- Tax digitalization: Future plans include the digitalization of tax accounting and the approval of a methodology for assessing the financial efficiency of e-government.

In 2022 alone, contracts worth approximately 6 billion UZS were signed from the funds of the Fund for Development of Information and Communication Technologies of Uzbekistan for the implementation of e-government projects [21].

Legislative Framework Improvements

Uzbekistan has made significant strides in improving its legislative framework to support digitalization. A series of laws have been enacted to regulate electronic document management, including the Law on Electronic Document Management and the Law on Electronic Digital Signature.

By the Decree of the President of the Republic of Uzbekistan dated June 30, 2017 (No. UP-5099), a robust foundation was established for the software development sector in the country. This led to the creation of the Mirzo Ulugbek Innovation Center, which operates on the principle of extraterritoriality. The center and its residents enjoy unprecedented tax and customs benefits, promoting innovation and fostering the development of the ICT sector.

Future Prospects

Efforts to enhance grant financing for scientific research within the framework of state scientific and technical programs are underway. The state plans to co-finance promising projects aimed at developing competitive, science-intensive domestic products using funds from the Fund for the Support and Development of Scientific and Technical Activities.

Addressing Digital Economy Challenges

The successful development of the digital economy requires the resolution of key challenges:

expanded implementation of digital technologies: Efforts must focus on further developing ICT and its supporting infrastructure;

universal Internet access: ensuring affordable and ubiquitous Internet connectivity is critical to bridging the persistent regional digital divide;

effective legislative framework: policies must be aligned with the evolving needs of the digital economy to provide a supportive environment for innovation and growth;

Educational Infrastructure Adaptation

Adapting the educational infrastructure to meet the demands of the changing labor market is crucial. The education and retraining system must prepare specialists with digital skills to meet the requirements of the digital era. The automation of an increasing number of operations will lead to the disappearance of certain traditional specialties, resulting in a massive shortage of professionals with relevant digital competencies.

The successful realization of these initiatives will position Uzbekistan as a competitive player in the global digital economy. By addressing these challenges head-on, the country can ensure its economic resilience and sustainable growth in the digital era.

CONCLUSIONS AND SUGGESTIONS

One of the key trends shaping the global economy in recent decades is its rapid digitalization. Digital transformations are reshaping the structure of economies, disrupting traditional business models, expanding markets, and becoming a critical driver of global economic growth.

The analysis suggests that, in the near future, the level of digitalization will determine the competitiveness of not only individual businesses but also entire nations. Countries and companies that can quickly adapt and leverage the benefits of these changes are most likely to achieve a sustainable competitive advantage.

Recommendations for Uzbekistan Developing Long-Term Digital Strategies Uzbekistan must create scientifically grounded, long-term digitalization strategies that ensure advanced development at the national level and across various industries and enterprises. These strategies should focus on implementing next-generation technologies, rather than pursuing a gradual "catch-up" approach with outdated solutions. Such an approach would risk perpetually lagging behind competitors and exposing the economy to significant risks from new market entrants with innovative business models.

Identifying High-Impact Digital Trends

It is essential to identify the digital technologies and trends that will have the greatest impact on the economy and specific industries over the next 5–10 years. By prioritizing these technologies, Uzbekistan can maximize the economic and social benefits of digital transformation. Accelerating Digital Infrastructure Development In the Internet of Things (IoT) era, fast, reliable, and secure connectivity is essential. Expanding the coverage and rapid deployment of advanced technologies on a national scale will enhance Internet accessibility, foster entrepreneurship in digital regions, and contribute to overall economic growth.

Enhancing the Domestic ICT Industry

Strengthening Uzbekistan's ICT industry will reduce dependency on imports and increase exports of digital technologies. The favorable conditions established by the

Decree of the President of the Republic of Uzbekistan dated June 30, 2017 (No. UP-5099) provide a solid foundation for achieving this goal.

Promoting "Industry 4.0" Technologies

The development of industry-specific programs for the modernization of Uzbekistan's industrial sector, based on "Industry 4.0" principles, will stimulate demand for advanced technologies. Financial and non-financial mechanisms should be introduced to encourage industrial enterprises to collaborate with domestic suppliers, engineering firms, and research centers. This approach will make local demand a key driver for the growth of domestic technology companies.

Training and Retraining of Personnel Adapting the educational system and infrastructure to meet the requirements of the digital era is critical. New educational approaches should be introduced, prioritizing digital literacy and ensuring a high level of basic digital skills among the population. This will enable the workforce to meet the demands of an increasingly automated and technology-driven economy.

Conclusion

The digital economy is a powerful catalyst for innovation, economic growth, and social well-being. Its development in Uzbekistan is not just an opportunity but a necessity in the modern era. By deepening and expanding digitalization, Uzbekistan can enhance its global competitiveness, pave the way for a transition to an innovative and knowledge-based economy, and significantly improve the quality of life for its population.

REFERENCES

1. World Bank. *World Development Report 2016: Digital Dividends* / World Bank Group, 2016.
2. Tsvetkov V.A. "Implementation of Strategies for the New Industrialization of the Economy" // *Bulletin of the Financial University*, 2016. - Vol. 20. - No. 6 (96). - P. 19–30.
3. *Electronic Economy* // Wikipedia [2016–2016] [Electronic resource]. – Access mode: <http://ru.wikipedia.org/?oldid=81412399> (date of access: 18.07.2016).
4. Mesenbourg, T.L. *Measuring the Digital Economy* // The Netcentric Economy Symposium. University of Maryland, 2001.
5. Katasonov V. "Digital Economy — A Bright Future for Humanity or a Stock Market Bubble?" [Electronic resource]. – Access mode: <http://www.kramola.info/vesti/novosti/cifrovaya-ekonomika-svetloe-budushcheelovechestva-ili-birzhevoy-puzyr> (date of access: 13.08.2017).
6. Grimes, S. "How Well Are Europe's Rural Businesses Connected to the Digital Economy?" // *European Planning Studies*, Vol. 13, 2005, No. 7, October.
7. Meeker, M. *Internet Trends 2017* // Code Conference materials. California, 2017.
8. Banke, B. et al. *Russia Online? Catch Up, Can't Fall Behind* / Boston Consulting Group, 2016.

9. "China's Share in E-Commerce is 40%" [Electronic resource]. – Access mode: <https://hightech.fm/2017/05/31/china-ecommerce> (date of access: 08.29.2017).
10. "Chinese Authorities Plan to Increase the Volume of E-Commerce to \$6 Trillion" [Electronic resource]. – Access mode: <http://www.rosbalt.ru/business/2016/12/30/1580499.html> (date of access: 08.29.2017).
11. McKinsey Global Institute. *The Internet of Things: Mapping the Value Beyond the Hype* / McKinsey & Company, 2015.
12. Facebook. "Helping Small Businesses Succeed in a Mobile World" [Electronic resource]. – Access mode: <https://www.facebook.com/business/news/helping-small-businesses-succeed-in-a-mobile-world#> (date of access: 08.29.2017).
13. *Internet Users by Country* // InternetLiveStats, 2016 [Electronic resource]. – Access mode: <http://www.internetlivestats.com/internet-users-bycountry/> (date of access: 08.18.2017).
14. "The Number of Internet Users Has Exceeded 13 Million" [Electronic resource]. – Access mode: <https://www.gazeta.uz/ru/2016/09/20/subscribers/> (date of access: 18.08.2017).
15. Director of the Center "Electronic Government" of Uzbekistan on the Results and Upcoming Changes // *Digital Report* [Electronic resource]. – Access mode: <https://digital.report/rukovoditel-elektronnogo-pravitelstva-uzbekistana-obitogah-i-gryadushhih-peremenah/> (date of access: 25.08.2017).
16. Kobilov, A. (2021). "The Concept of Digital Economy, Its Features and Prospects." *Arxiv Nauchnykh Issledovaniy*, 2(1), 42–48.