



THE IMPACT OF IMPLEMENTING DIGITAL TECHNOLOGIES IN ENTERPRISES ON EFFICIENCY AND INNOVATIVE DEVELOPMENT.

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ABSTRACT: *This article analyzes the economic efficiency of implementing digital technologies in enterprises and their impact on innovative development. The study examines the role of digital transformation processes in improving production efficiency, optimizing costs, increasing labor productivity, and enhancing the quality of management. Using the case of Uzbekistan, the article analyzes the main economic outcomes achieved as a result of introducing information and communication technologies, automation systems, and digital management solutions in enterprises. The research is based on official statistical data, state development programs, and open sources to assess the impact of digital technologies on increasing innovation activity. The findings indicate that digital technologies are a key factor in strengthening enterprise competitiveness, accelerating innovation processes, and ensuring sustainable economic growth.*

Keywords: *digital technologies, digital transformation, innovative development, enterprise efficiency, economy of Uzbekistan.*

INTRODUCTION

In recent years, Uzbekistan has been implementing large-scale institutional and structural reforms aimed at improving market mechanisms, strengthening the competitive environment, and enhancing the qualitative aspects of economic growth. These reforms have been driven by the need to eliminate long-standing structural imbalances in the national economy, low efficiency in resource utilization, insufficient technological modernization of production processes, and the slow growth of labor productivity.



At the same time, macroeconomic instability in the global economy, disruptions in global value chains, the consequences of the COVID-19 pandemic, and changes in external market conditions have imposed new constraints and requirements on national economic actors. Under these circumstances, the introduction of digital technologies has emerged as a key strategic factor in ensuring economic stability, increasing enterprise competitiveness, and accelerating innovation activity. In particular, the digitalization of production and management processes, optimization of business operations, and the development of data-driven decision-making mechanisms play a crucial role in improving the economic efficiency of enterprises.

LITERATURE REVIEW

In recent years, the implementation of digital technologies in enterprises has become one of the key areas of scientific research in the global economy. Studies conducted by international organizations and academic circles focus on a comprehensive analysis of the impact of digital transformation on economic efficiency, innovation activity, and competitiveness. In particular, the reports published by the OECD, such as the *Digital Economy Outlook*, note that enterprises implementing digital technologies demonstrate higher labor productivity and production efficiency compared to traditional enterprises. These studies emphasize that digitalization processes ensure economic efficiency by optimizing costs, improving the accuracy of management decisions, and increasing the share of innovative products.

Research conducted by the World Bank also highlights the impact of digital technologies on economic development at both the macro and micro levels. In particular, World Bank reports emphasize that digital transformation is a key factor in improving the business environment, enhancing transparency in enterprise operations, and ensuring the effective functioning of market mechanisms. The studies provide evidence-based findings that digital technologies improve the



investment climate, stimulate innovation activity, and strengthen competition among enterprises.

Studies by the International Telecommunication Union (ITU) analyze the relationship between the development level of digital infrastructure and economic growth. According to ITU data, the advancement of information and communication technologies expands opportunities for enterprises to automate production processes, optimize logistics and supply chains, and develop innovative products. These studies reveal the long-term economic benefits of implementing digital technologies.

In the context of Uzbekistan, issues of digital technologies and innovative development are considered one of the priority directions of state policy. Reports prepared by the United Nations Development Programme (UNDP) on the “Digital Economy in Uzbekistan” analyze the current state of digital transformation in the country, existing challenges, and development prospects. These reports emphasize that the implementation of digital technologies in enterprises plays a crucial role in increasing labor productivity, modernizing management processes, and enhancing innovation activity.

Furthermore, the strategic documents of “Digital Uzbekistan – 2030” identify the widespread implementation of digital technologies across economic sectors as a key objective to increase production efficiency and accelerate innovative development. These documents emphasize the necessity of enhancing enterprise competitiveness through the development of digital management, automation, and data-driven decision-making mechanisms.

Scientific studies conducted by local researchers have also examined the impact of digital technologies on enterprise activities from both empirical and theoretical perspectives. Articles published in Uzbek scientific journals note that the implementation of digital technologies results in cost reduction, increased production efficiency, and a higher share of innovative products. However, most of the existing studies have been conducted within individual sectors or limited indicators, and the



comprehensive impact of digital technologies on innovative development has not been sufficiently addressed.

From this perspective, the analysis of existing literature indicates that digital technologies play a crucial role in enhancing both the economic efficiency of enterprises and their innovative development. However, in the context of Uzbekistan, a comprehensive statistical and practical analysis of these processes remains a pressing scientific task.

Natijalar: Economic development is improving. Uzbekistan's economy has shown steady and strong growth. In the first quarter of 2024, its GDP grew by 6.2% year-on-year, demonstrating the stability and vitality of its economy. This growth has been driven by the government's determined implementation of structural reforms, including the reform and privatization of state-owned enterprises, major investments in energy and harnessing the dividend of a young population. The 2022-2026 Development Strategy for New Uzbekistan, which has been implemented since 2022, aims to optimize the economic structure, enhance export competitiveness and attract foreign investment, and promote the rapid growth of exports of non-gold goods and services, especially transport and tourism. Until the June of 2024 year Uzbekistan's GDP reached the US\$45 billion, and its economic development continued to make new breakthroughs, showing strong resilience, and continuing to move towards the development goal of being stronger, better and bigger. Uzbekistan's economic structure is being gradually optimized. The growth of the service sector and the transformation and upgrading of industries have jointly promoted stable economic growth.

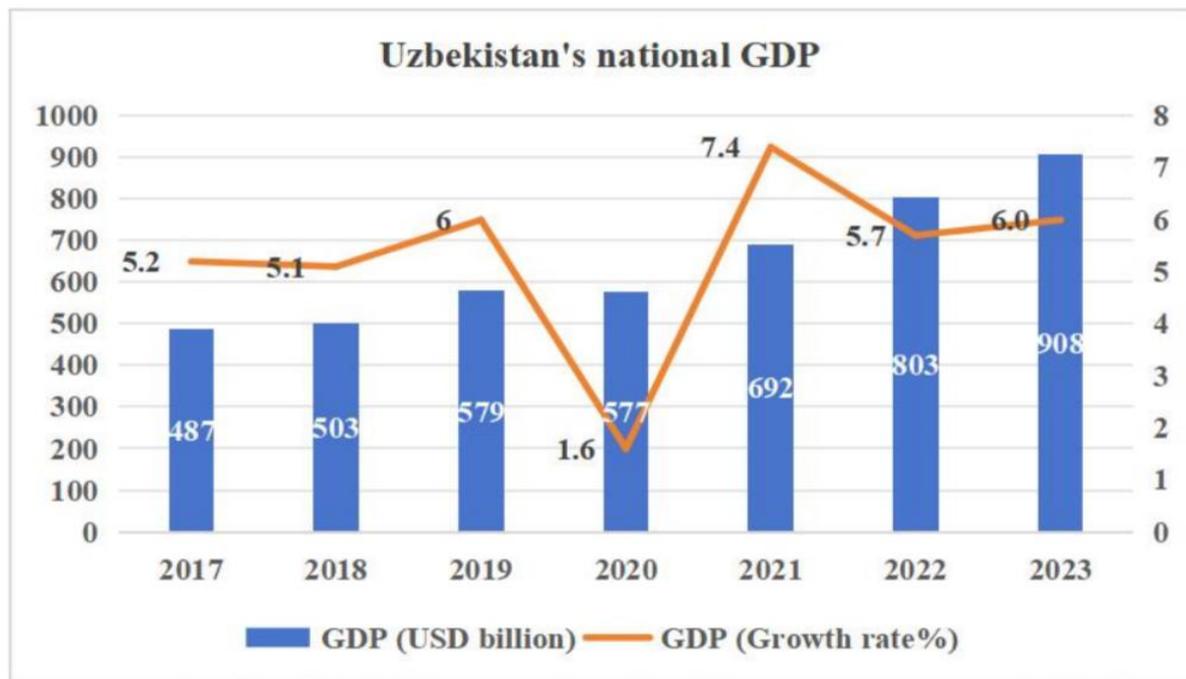


Figure 1. Economic development of Uzbekistan, 2017-2023 year

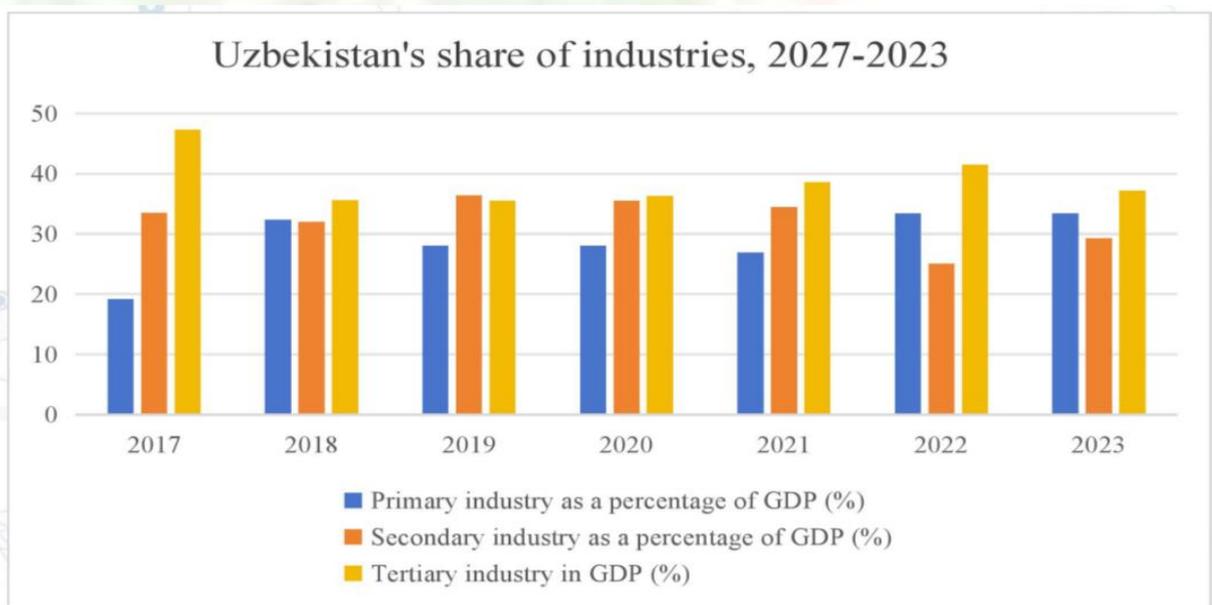


Figure 2. Share of each industry in Uzbekistan, 2017-2023 year

Source: STATISTICS AGENCY UNDER THE PRESIDENT OF THE REPUBLIC OF UZBEKISTAN

Strategy-driven and institutional guarantee. The Uzbekistan government has established a comprehensive, systematic, scientific, and reasonable top-level strategic planning framework for the digital economy. The framework is centered on the



National Strategy for Digital Uzbekistan 2030, and specifies the overall objectives, priorities, implementation paths and safeguards for the development of the digital economy. At the same time, the government has formulated a series of supporting policies, action plans, and implementation plans, forming a strategic planning system that connects the top and the bottom and links the left and right, providing a solid institutional guarantee for the development of the digital economy.

Project-led and deepen international cooperation. In the rapid development of the digital economy, Uzbekistan regards international cooperation as a core driving force, actively integrates into international cooperation frameworks such as the “Digital Silk Road”, “One Belt – One Road” Initiative, and the Shanghai Cooperation Organization, and builds a close and extensive cooperation network with many countries around the world. In this process, Uzbekistan has focused on cutting-edge IT campus construction, efficient transformation of digital government, and the booming rise of e-commerce. It has actively introduced international cutting-edge technologies and advanced experience to accelerate its digitalization process and strived to occupy a position in the global digital economy. At the same time, Uzbekistan has held a series of high-standard international forums and expositions to build a bridge for exchanges and cooperation with the leaders of the global digital industry, opening up a wider vision and space for the innovative development of the digital economy. Against this background, economic and trade cooperation between China and Uzbekistan has deepened. In particular, under the framework of the “One Belt – One Road” Initiative, the two countries have achieved remarkable results in cooperation in energy, infrastructure construction, manufacturing and other key fields. In the field of digital economy, Chinese enterprises, with their leading advantages in technology and management, have deeply participated in Uzbekistan's digital transformation strategy, become the key force driving the rapid development of its digital economy, and jointly draw a blueprint for a new highland of digital economic cooperation between China and Uzbekistan.



Open up the market and attract foreign investment. With its open and inclusive investment environment, Uzbekistan has become a hot country in Central Asia to attract foreign investment. The Government has created a favorable business environment for foreign investors through a series of policy measures, such as reducing tax rates, providing tax incentives, simplifying business registration and customs procedures. Moody's, Fitch, and Standard & Poor's rated Uzbekistan's sovereign credit rating as Ba3 and BB-/B respectively, with stable outlooks. Uzbekistan has established trade relations with 193 countries and regions. It is a member of the CIS Free Trade Area and an observer country of the Eurasian Economic Union and the WTO. It has granted MFN status to 47 countries, including China. In addition, Uzbekistan enjoys the GSP+ treatment for trade with the EU since April 10, 2021. 6,200 goods can be exported to the EU duty-free. Uzbekistan attaches great importance to the strategy of attracting investment, and has clearly listed the attraction of foreign investment as a priority for economic development. It has established a solid foundation and promulgated laws such as the Law on Foreign Investment and Measures for Safeguarding and Safeguarding the Rights and Interests of Foreign Investment. According to the 2023 World Investment Report released by UNCTAD, Uzbekistan attracted foreign direct investment flows of US\$2.531 billion in 2022, a year-on-year increase of 11 percent. By the end of 2022, Uzbekistan's foreign capital stock was US\$13.631 billion. With an open and inclusive attitude, the Uzbek government actively seeks in-depth cooperation with global partners in the digital field, jointly explores new paths and models for digital economy development, and steadily expands new patterns of international cooperation.

In the field of software and information technology services, many local software companies in Uzbekistan grow rapidly. These companies focus on software development, system integration, data analysis and other areas, providing customized digital solutions for various industries in the country. At the same time, they actively integrate with the international market, undertake overseas software



outsourcing projects, and improve technical level and international competitiveness. E-commerce and digital trade, e-commerce in Uzbekistan ushered in a golden period of development. More and more enterprises use the Internet platform to expand sales channels, local characteristic products to the domestic and foreign markets. The expanding scale of digital trade and the increasingly active cross-border e-commerce business have injected new impetus into the country's economic growth. The government has also actively introduced policies to support the development of e-commerce, improve the logistics distribution system, and enhance the shopping experience of consumers. Financial technology industry, financial technology has emerged in Uzbekistan, and innovative financial services such as mobile payment, online lending, and digital insurance are emerging. Financial technology enterprises cooperate with traditional financial institutions to jointly promote the digital transformation of the financial industry. By introducing advanced technology, the efficiency and convenience of financial services will be improved, financial transaction costs will be reduced, and more financial support will be provided to small and medium-sized enterprises and individuals. Take the IT Park of Uzbekistan as an example. Since the park was completed and put into operation on July 24, 2019, it has focused on application software development and international BPO outsourcing services. It has received financial support from many state-owned and private banks in the park and has been equipped with preferential industrial policies. So far, it has achieved remarkable success. For example, by May 2024, it has attracted more than 2,187 companies, of which over 30% are foreign companies. Among them, there are many international talents from around the world. The export service volume has exceeded the US\$ 344 million in 2023 year. This number not only demonstrates the strong attraction of the park, but also reflects the huge potential and strong growth momentum of Uzbekistan's ICT industry.

Digital transformation of traditional industries. With the implementation of the One Belt-One Road Initiative, the transportation industry in



Uzbekistan will welcome major development opportunities with the implementation of the "China-Kyrgyzstan-Uzbekistan" railway, and the national strategy of "Becoming a Transportation Center in Central Asia". Therefore, the digital infrastructure of aviation, railway and highway will be introduced. Introduce advanced digital technologies such as cloud, artificial intelligence, big data analysis, and converged sensing to upgrade and transform, and make a qualitative leap in the management level of internal production control and the quality of external service provision. The manufacturing industry in Uzbekistan has been upgraded by digitalization. The manufacturing industry in Uzbekistan has actively embraced the digital wave and increased investment in digital technologies. Enterprises adopt intelligent manufacturing technology to realize automation, intelligence and digital management of production process. Optimize the production process, improve product quality and production efficiency, train and reason autonomous driving algorithms, and follow the world development trend to gradually commercialize EV autonomous driving in important cities through technologies such as the Internet of Things, Big Data analysis, cloud computing, and AI intelligent computing. At the same time, manufacturing enterprises cooperate with digital technology enterprises to jointly develop smart products, find more business application scenarios, and increase the added value of products. Digital expansion of the service industry, which occupies an important position in Uzbekistan's economy, brings new opportunities for the development of the service industry. Tourism, catering, logistics and other service enterprises use digital platforms to promote marketing, customer service and business management. The online travel platform provides convenient travel booking services for tourists, the catering take-out platform meets the diversified needs of consumers, and the logistics information platform improves the efficiency and accuracy of logistics distribution.

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By implementing the proposed organizational-economic mechanism to enhance the efficiency of innovative management in industrial enterprises, the long-



term innovative activity of Uzbekistan's industrial sector is expected to increase significantly, expanding the opportunities for practical application of innovations. In the context of Uzbekistan, the effectiveness of this process is measured by the contribution of enterprises to the gross domestic product through the integration of modern technologies into production processes. Furthermore, digital transformation and automation initiatives play a crucial role in improving labor productivity, increasing production efficiency, and expanding the share of innovative products within enterprises. Looking ahead, under the objectives outlined in the "Digital Uzbekistan – 2030" strategy, these processes will accelerate the country's industrial and economic development, strengthen competitiveness, and contribute to sustainable growth in the global economic arena. From this perspective, by enhancing innovative management and broadly implementing digital technologies, Uzbek enterprises can consolidate their position not only in the domestic market but also in international competition.

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