

THE ROLE OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN THE MODERN DIGITAL ECONOMY

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ABSTRACT	KEYWORDS
<p>This article explores the influence of artificial intelligence technologies on managerial decision-making processes within the digital economy from scientific, theoretical, and applied viewpoints. The research focuses on the adoption of artificial intelligence across various economic sectors, its functional significance in public governance and business operations, as well as its contribution to improving economic performance. The level of artificial intelligence implementation is examined through the case of Uzbekistan, highlighting its strategic role in ensuring the sustainable development of the digital economy. The findings indicate that the consistent application of artificial intelligence in management decision-making enhances economic efficiency and supports institutional advancement.</p>	<p>Artificial intelligence, digital economy, management decisions, digital transformation, information security, public administration, innovation, economic efficiency, application of artificial intelligence, technologies.</p>

Introduction

In 2025, the use of artificial intelligence technologies in Uzbekistan is still at an early stage, with the AI adoption rate being only 5.7%. However, as part of the “Digital Uzbekistan – 2030” strategy, a comprehensive set of measures is being implemented to develop AI and digital technologies. More than 20 AI projects have been implemented in the country and about 70 new initiatives have been developed. At the same time, Uzbekistan has risen to 70th place in the global ranking of AI readiness, achieving a leading position in Central Asia. According to expert assessments, the combination of the digital economy and artificial intelligence sectors has the potential to add up to \$10 billion in economic value to the country’s economy by 2030.

At the same time, the expansion of digital infrastructure in Uzbekistan is creating the necessary basis for the introduction of artificial intelligence technologies. In recent years, the number of e-government services has exceeded 800, and the level of use of public services by the population has significantly expanded, which has led to the formation of large volumes of data (Big Data). The use of this data based on artificial intelligence allows for increased efficiency in the areas of tax administration, social protection, healthcare and transport. According to international organizations, if existing digital resources are systematically used based on artificial intelligence, there will be an opportunity to

significantly improve labor productivity and the quality of public administration in Uzbekistan in the coming years, which will be an important factor in the sustainable development of the digital economy.

LITERATURE ANALYSIS

Many academic sources have extensively studied the digital economy, as well as the impact of artificial intelligence technologies on economic processes. The term “Digital Economy” was first coined in 1995 by American programmer Nicholas Negroponte, and now this term is used by politicians, economists, journalists, and entrepreneurs around the world - almost everyone[2].

The development of the digital economy has also been widely covered in reports from the Davos World Economic Forum, which emphasize that artificial intelligence and digital technologies serve economic growth by automating and digitizing global production systems.[3]

Brynjolfsson and McAfee have analyzed the impact of SI technologies on the labor market and productivity in their research. They believe that digital transformation will bring about structural changes in all aspects of the economy[4].

In his article, Kholmukhamedov A. analyzes the impact of innovative approaches, including artificial intelligence, on economic efficiency in the context of the digital economy using local real-world situations[5]. According to him, the widespread introduction of AI technologies increases the country's economic competitiveness. In general, an analysis of the existing literature shows that artificial intelligence and the digital economy are of strategic importance.

METHODOLOGY

This study aims to analyze the relationship between artificial intelligence and the digital economy, their strategic importance, and future prospects. The following methodological approaches were used in the study: analytical approach, comparative method, empirical approach, and inductive method.

DISCUSSION AND RESULTS

This research work has revealed that the development of the digital economy is one of the important directions of modern economic transformation and its importance. The importance of developing the digital economy:

1. Accelerates economic growth:
 - digital technologies increase production efficiency;
 - creates new jobs, especially in the IT and services sectors.
2. Stimulates entrepreneurship and innovation:
 - creates a favorable environment for startups;
 - facilitates market entry through online platforms.
3. Optimizes public administration:
 - electronic government (e-gov) services provide fast and transparent services to the population;
 - tax and statistical systems are automated.
4. Modernizes the education and healthcare system:
 - opportunities for distance education and medical consultations (telemedicine) are expanded.
5. Reduces territorial inequality:
 - economic opportunities are created for the population in remote areas through the Internet.

The President of the Republic of Uzbekistan's "Digital Uzbekistan - 2030" strategy of June 17, 2020, sets out measures to introduce artificial intelligence. This further increases the relevance of the topic[6].

One of the greatest strategic benefits of artificial intelligence and the digital economy in accelerating economic efficiency and innovation is increased efficiency in manufacturing and service sectors. Artificial intelligence helps optimize business processes through automated systems, resulting in reduced production costs, increased productivity, and improved service speed and quality. Also, algorithms based on artificial intelligence make it possible to predict market demand, improve products and services, and optimize marketing strategies.

The introduction of the digital economy and artificial intelligence in the transformation of new jobs and labor markets will lead to changes in the labor market. While some traditional jobs are being automated, new technologies are emerging in the professions that meet the needs of new technologies, such as data analysts and artificial intelligence engineers, cybersecurity specialists, cloud technology specialists, robotics engineers, etc. [7]. This poses strategic challenges for countries to train and retrain new personnel.

In the context of the formation and development of the digital economy, artificial intelligence technologies are deeply penetrating almost all parts of the economic system. Artificial intelligence is emerging not only as a means of automating production and service processes, but also as an important instrument for data-based management, forecasting and strategic decision-making. In this regard, it is necessary to systematically analyze the impact of artificial intelligence on the digital economy in separate areas. The table below summarizes the main areas of impact of artificial intelligence on the digital economy, their functional content, and economic and strategic results based on an integrated approach (Table 1).

Table 1 Directions of influence of artificial intelligence on the digital economy in the development of the national economy¹

DIRECTION OF INFLUENCE	FUNCTIONAL ROLE OF ARTIFICIAL INTELLIGENCE	ECONOMIC MECHANISM (CONTENT)	IMPACT STRATEGIC IMPLICATIONS FOR THE DIGITAL ECONOMY
Production processes	Process automation, predictive management, early detection of technical failures	AI algorithms analyze large amounts of technical and operational data from production processes, increasing resource utilization efficiency and reducing losses due to failures.	Lower production costs, increased labor productivity, and accelerated digital transformation in industry
Business and entrepreneurship	Decision support, market forecasts, individual services	Artificial intelligence accurately forecasts demand by analyzing consumer behavior, adapts marketing strategies, and reduces the risk of business decisions.	Increased competitiveness, the emergence of new digital business models

¹ Author's development

Financial System and FinTech	Risk assessment, fraud detection, credit scoring	SI analyzes financial transactions in real time, identifies illegal transactions, and reduces dependence on the human factor in lending	Strengthening financial stability, expanding financial inclusion
Labor market	Transformation of professions, formation of new digital competencies	Artificial intelligence will reduce some traditional jobs, while increasing the demand for highly skilled digital professions	Structural changes in the labor market, the need to increase investments in human capital
Public administration (E-government)	Data-driven management, service automation	SI allows government agencies to make analytical decisions based on big data, reduce corruption risks, and increase the speed of services.	Increased transparency, efficiency, and trust in public administration
Tax and customs system	Tax base analysis, identification of the hidden economy	Artificial intelligence analyzes taxpayer behavior to identify tax evasion and improve forecasting	Stabilization of budget revenues, increased efficiency of fiscal policy
Transport and logistics	Route optimization, cargo flow management	SI reduces logistics costs and increases delivery speed based on real-time data	Development of digital logistics systems, acceleration of trade turnover
Innovation and startup ecosystem	Creating new technological solutions, accelerating R&D processes	Artificial intelligence automates research and innovation processes, reducing the time to create new products and services	Formation of an innovative economy, increasing the share of high value-added products
Digital equality and inclusion	Remote services, AI assistants	SI expands remote access to education, healthcare, and government services	Reducing the digital divide between regions, social stability

The analysis of the table shows that artificial intelligence is not a separate sector of the digital economy, but rather a systemic factor that connects and develops all its components. The integration of artificial intelligence into areas such as production, finance, the labor market, public administration and logistics serves to increase the efficiency of economic processes, optimize the use of resources and increase the accuracy of management decisions. At the same time, the widespread introduction of artificial intelligence technologies will qualitatively change the demand for human capital and further strengthen the need to develop digital competencies.

In general, artificial intelligence can be recognized as one of the main drivers ensuring the sustainable and innovative development of the digital economy.

In the context of the digital economy, the introduction of artificial intelligence technologies is an important factor in increasing the efficiency of economic and institutional systems[8]. Although artificial intelligence in Uzbekistan is actively used mainly in the fields of public administration, finance and security, the process of introducing these technologies in the real sector is being carried out gradually. The table below provides a systematic approach to the current state of artificial intelligence in the sectors of the Uzbek economy, existing problems, mechanisms for their elimination, and development prospects (Table 2).

Table 2 Status of implementation of artificial intelligence in economic sectors in Uzbekistan²

Industry/network	Application of artificial intelligence	Current status	Main effect
Public Administration	Chatbots, automatic analysis of appeals	Actively implemented	The speed and efficiency of public services are increasing
Tax System	Identifying tax risks, analyzing the hidden economy	Partially implemented	Control over budget revenues is increasing
Banking and finance	Credit scoring, anti-fraud algorithms	Actively being implemented	Credit risks are decreasing
Transportation	Video analytics, smart monitoring	Actively implemented	Road safety and quality of management are improving
Health care	Medical image analysis	In the pilot phase	Diagnostic accuracy is increasing
Agriculture	Yield forecast, land monitoring	Limited implementation	Resource efficiency is increasing
Education	Adaptive learning, test analysis	Partially implemented	The quality of education and assessment is improving.
Ecology	Environmental monitoring	Initial stage	Environmental control options are expanding

The analysis of the table shows that in Uzbekistan, artificial intelligence technologies are being introduced relatively quickly in the public administration and financial system, while in the real sector this process remains at the testing and pilot stage. This situation indicates the existence of digital infrastructure and institutional foundations, but the need for deep integration of artificial intelligence with the production and service sectors. In general, the systematic introduction of artificial intelligence will ensure the sustainable development of the digital economy, increase the efficiency of resource use, and qualitatively renew human capital[9].

In order to further improve this research and increase its scientific significance, it is advisable to expand the role of artificial intelligence in management decision-making in the conditions of Uzbekistan based on a deeper systematic approach. In particular, within the framework of the research, the role of artificial intelligence technologies in public administration and the digital economy should be substantiated not only descriptively, but also institutionally and functionally. At the same time, clarifying methodological approaches, that is, expanding the scope of application of analytical and comparative methods, and drawing empirical conclusions based on national and foreign experience, will strengthen the scientific validity of the research. In order to enrich the research results in a practical sense, it is important to develop specific proposals for integrating artificial intelligence into real sector sectors, training personnel with digital competencies, and introducing models for forecasting and decision support based on artificial intelligence in public administration. These approaches will further clarify the strategic role of artificial intelligence in the digital economy and increase the scientific and practical value of the research work.

² Author's development

CONCLUSIONS AND SUGGESTIONS

The results of the study show that in the digital economy, artificial intelligence technologies are helping to bring the process of making management decisions to a qualitatively new level. Artificial intelligence, by forming data-based management, increases the predictability and efficiency of economic processes. Although artificial intelligence technologies are being actively introduced in Uzbekistan mainly in the public administration and financial sectors, there is a need for their widespread use in the real sector. Deep integration of artificial intelligence with economic sectors, development of human resources, and improvement of institutional mechanisms are important conditions for ensuring the sustainable and innovative development of the digital economy.

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