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The Impact of Digitalization and Artificial Intelligence Technologies on the Economy

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Abstract: This article presents a strategy for the development of digitalization and artificial intelligence technologies. The views and research of scholars on digitalization and artificial intelligence are also discussed. It is emphasized that modern technologies play an important role in optimizing business processes, increasing efficiency, and creating new economic opportunities. The research results demonstrate the positive impact of digital transformation on the economy and help identify future directions.

Keywords: digitalization, artificial intelligence, strategiya, economy, technological development, business processes, innovation, industry, finance, services, agriculture, digital transform.

Introduction

In today's conditions, when science and information and communication technologies are rapidly developing, it is becoming customary in developed countries of the world to widely use the capabilities of modern information technologies and artificial intelligence in public and public administration, economy, industry, social protection, education, medicine, employment, agriculture, defense, security, tourism and other areas. In order to create conditions for the development of artificial intelligence technologies, the Resolution of the President of the Republic of Uzbekistan No. PP-358 dated October 17, 2024 "On Approval of the Strategy for the Development of Artificial Intelligence Technologies until 2030"[1] was adopted. In accordance with this resolution, in order to create favorable conditions for the introduction of artificial intelligence technologies in the social sphere and economic sectors, to achieve's entry into the ranks of the world's leading countries using artificial intelligence technologies, as well as to ensure the implementation of the goals and objectives set out in the "Digital Uzbekistan 2030" strategy, the Strategy for the Development of Artificial Intelligence Technologies until 2030 was approved. Starting from the 2021/2022 academic year, courses and disciplines on the practical application of artificial intelligence technologies in economic sectors and the public administration system have been introduced in 15 higher educational institutions, and starting from the 2023-2024 academic year, 572 students (510 bachelor's, 62 master's) have been admitted to 12 higher educational institutions to train personnel in the "Artificial Intelligence" direction. The "El-Yurt Umidi" Foundation sent young people who expressed a desire to study in the "Artificial Intelligence" direction to leading

[1] Resolution of the President of the Respublic of Uzbekistan No. PQ-358 dated October 17, 2024 "On approval of the Strategy for the development of articial intelligence technologies until 2030"

foreign higher educational institutions. A research institute for the development of digital technologies and artificial intelligence with specialized laboratories was established under the Ministry of Digital Technologies. Within the framework of the activities of the Open Data Portal of the Republic of Uzbekistan, a digital data platform (data.egov.uz) was launched, which provides the opportunity to obtain data and other data sets of state bodies for using software based on artificial intelligence. Within the framework of the decision, pilot projects were implemented to introduce artificial intelligence in agriculture, banking, finance, transport, healthcare, pharmaceuticals, energy, taxation and other priority sectors and areas.

Literature review on the topic.

According to Klaus Schwab, founder of the World Economic Forum, through the proper management of digitalization and artificial intelligence, humanity can achieve economic growth and poverty reduction. At the same time, the misdirection of these technologies can cause deep social and economic problems in society.

Professor Erik Brynjolfsson and Andrew McAfee analyzed the socio-economic impact of digital technologies and AI in their book “The Second Machine Age”. They talked about how modern technologies can increase social inequality, but at the same time create new jobs and opportunities.

Professor Bruce Schneier, a cybersecurity expert, says that the issues of data security in the process of artificial intelligence and digitalization should concern everyone. He warns that the rapid development of technologies can affect privacy and innovation.

Professor Hal Varian, Google’s chief economist, emphasizes that AI and big data analysis allow organizations to make quality decisions. They believe that by using data, they can better understand market demands.

Nazokat Abdukunduzova, head of the press service of the Ministry of Innovative Development, emphasizes the need to train qualified personnel to expand the use of artificial intelligence technologies. According to her, postgraduate educational institutions in the specialty “Digital Technologies and Artificial Intelligence” have been opened in Uzbekistan and research projects are being implemented in this direction.

Speaking about the impact of artificial intelligence on the media sector, technology expert Hikmatulla Ubaydullayev notes that this technology has expanded the possibilities of processing images and sounds, but at the same time, the risk of spreading fake content has increased. He also notes the need for effective use of artificial intelligence.

Darkhan Mirzabayev, Director of the Department of Innovative Development at the Ministry of Digital Development, Innovation and Aerospace Industry, emphasizes that artificial intelligence can complement some functions, but cannot completely replace humans. According to him, artificial intelligence can facilitate the work of consultants and translators, but cannot completely replace them.

Research methods. During the research, methods such as studying the research of scientists in the field, abstract logical thinking, induction and deduction, monographic observation, systematic analysis, comparison, and economic analysis are used.

Analysis and results. Digitization is the implementation of changes in various sectors of the economy and society by converting processes and data into digital format. It has both positive and negative sides, and it is important to balance them. The digitization process has developed and penetrated various sectors of society. For example, at present, the digitization process has penetrated into social, economic, legal and other similar spheres of the state, manifesting itself as an integral part of these sectors. In particular, the impact of the digitization process on the economy has become significant, leading to the transformation, development of many sectors of the economy and the creation of new ones. In particular, as a result of the introduction of digitization into the economy, first of all, production efficiency has further improved, strengthened and developed. That is, as a result of the digitization of

economic sectors, many manual work processes have been automated. This has also had an impact on the efficiency of these sectors, creating the basis for reducing the costs and time spent on these tasks. This, in turn, has led to reduced costs and increased labor productivity. According to the McKinsey Global Institute, up to 22% of GDP growth in China by 2025 may be due to Internet technologies. In the United States, the expected added value from digital technologies may range from $1.6 trillion to $2.2 trillion by 2025. The potential economic impact of digitizing the Uzbek economy is expected to increase the country's gross domestic product by 8-9% by 2025 [5].

According to the National Statistics Committee, the GDP reached 807.9 trillion soums as of June 2025, which is an increase of 7,2% compared to the same period in 2024 [5].

Secondly, as a result of the introduction of digitalization into the economy, new business sectors have been formed. This has allowed the creation of new business sectors, such as e-commerce and online markets, which are currently developing (especially in the pandemic and subsequent years, we can see that the demand for online stores has increased significantly compared to previous years). It should be noted that these sectors are growing in our country from year to year.

Thirdly, the introduction of digitalization into the economy has created new jobs. The formation of a new category of employees involved in the digitalization process has led to the creation of new job opportunities in areas such as digitalization-related data analysis, digital economy, and digital marketing.

Fourth, as a result of the penetration of digitalization into the economy, we can say that space has become less important in the relations of various enterprises and organizations. In particular, digitalization has allowed enterprises to enter the global market.

There are four main revolutions in the field of digitalization, which determine important stages of industrial development.

“Digitalization and artificial intelligence are fundamentally changing economic processes and creating new opportunities. At the same time, society must acquire new knowledge and skills to adapt to these technological changes.” Klaus Schwab “The Fourth Industrial Revolution” [2].

Stages of the Industrial Revolution [2]

Names	Date	Reasons
First Industrial Revolution	Late 18th century – early 19th century	The creation of the steam engine and mechanical textile machines. Automation of manual work in production.
Second Industrial Revolution	Late 19th century – early 20th century	The widespread introduction of electricity and the formation of a mass production system. Production using the conveyor method (on the example of the Ford automobile plant).
Third Industrial Revolution	Mid-20th century – early 21st century	The emergence of computers and digital technologies. The use of programmed control systems in production.
Fourth Industrial Revolution	Early 21st century – present	The development of artificial intelligence, IoT (Internet of Things), big data (Big Data) and automated systems. The widespread introduction of cyber-physical systems, smart factories and digital technologies into production.

These revolutions have fundamentally changed industry and society and have contributed greatly to the formation of modern technologies.

Artificial intelligence is a field of science and technology focused on creating machines capable of imitating human intelligence. Examples of AI technologies in widespread use today include intelligent web search engines, recommendation systems, natural language understanding, self-driving cars, and

more.

Alan Turing was the author of the first study in the field of artificial intelligence. Artificial intelligence was founded as an independent field in 1956. This summer, at a conference at Dartmouth College, John McCarthy first used the term “artificial intelligence” and went down in history as the author of this term. Although research on artificial intelligence has been conducted since the mid-20th century, public interest in it increased sharply after deep learning demonstrated its superiority over other artificial intelligence methods in 2012 and after the breakthroughs in transformer architecture in 2017. In the early 2020s, the field has been booming, with many companies, universities and laboratories making significant progress in the field of artificial intelligence. This field is based on the assumption that the intelligence of Homosapiens can be described so accurately that it can even be modeled by a machine, which is a key characteristic of intelligent beings. In the Philosophy section, see the Dartmouth Proposal. This raises philosophical questions about the nature of intelligence and the ethics of creating artificial beings, questions that have been studied in myth, science fiction, and philosophy since ancient times. Artificial intelligence is viewed with optimism. Optimism was present in the predictions of early AI researchers. But it has also experienced crises. Crises can be seen in the ALPAC announcement in 1966, the failure of perceptrons in 1970, the Lighthill announcement in 1973, and the development of the Lisp machine market in 1987. Today, artificial intelligence has become an important part of the technology industry and offers solutions to many of the most difficult problems in computer science. Artificial intelligence research is a highly technical and specialized field, often “deeply” divided into subfields that do not communicate with each other. Subfields have emerged around solving specialized problems, using specialized institutions, the work of individual researchers, and the use of very different tools and long-standing differences of opinion about how to implement artificial intelligence. At the heart of AI is a set of skills such as the ability to think, know, plan, learn, communicate, sense, and manipulate and manipulate objects. General intelligence (or “strong AI”) is one of the industry’s long-term goals [1].

Conclusions and analysis: Digitalization and artificial intelligence are fundamentally changing the economic sector, contributing significantly to increased efficiency and innovation. Artificial intelligence expands the possibilities of automating business processes, reducing costs, and making data-based decisions. Digital technologies create new opportunities in the industrial, financial, service, and agricultural sectors, increasing production capacity and improving the quality of service for consumers. Also, despite the positive impact of digitalization on the economic sector, there are some problems. Issues such as cybersecurity, the digital divide, and information privacy are among the negative aspects of technological development, and cooperation between the public and private sectors is necessary to solve them. In conclusion, digitalization and artificial intelligence serve to develop the economy more efficiently, innovatively, and sustainably. In the future, it will be important to properly direct these technologies and manage their socio-economic consequences.

Analysis shows that artificial intelligence and digitalization, while accelerating economic growth, will also lead to the creation of new jobs and the reshaping of the labor market. For example, robotization in production can reduce the need for ordinary workers, but at the same time, the demand for technological services and IT specialists will increase. At the same time, artificial intelligence will develop automated systems in the finance and trade sectors, reducing operating costs and enabling faster customer service. In agriculture, smart technologies will help increase productivity, which will help ensure food security. However, the digitalization process will not have an equal impact on the economy. While the integration of artificial intelligence is taking place faster in developed countries, in developing countries, the lack of infrastructure and personnel can hinder this process. In general, digitalization and artificial intelligence, while providing positive results in various sectors of the economy, also pose certain problems. In the future, public policy, private sector collaboration, and the flexibility of the education system will be essential for the effective use of technological developments.

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