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THE ROLE OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN THE DEVELOPMENT OF SOCIAL SPHERES

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Abstract: In recent years, artificial intelligence (AI) technologies have been rapidly entering the life of society. We can find information on the Internet about effective foreign examples of AI technologies, especially in medicine, education, employment, etc., which employ the largest number of citizens in the social sector. This article analyzes the role and importance of artificial intelligence technologies in the development of social spheres in Uzbekistan. It examines the possibilities, advantages, and existing problems of using AI technologies in the fields of healthcare, education, social protection, and public administration. By the author of Uzbekistan's "Digital Uzbekistan – 2030" and 'Strategy for the Development of Artificial Intelligence Technologies until 2030" and assesses the state of the existing infrastructure, human capital, and legal framework for the integration of AI. The article also addresses threats to the implementation of AI technologies, including infrastructure shortages, ethical and legal issues, algorithmic bias, and job losses. These risks are also highlighted. Additionally, the author provides a number of strategic recommendations for the effective implementation of AI in Uzbekistan.

Keywords:artificial intelligence (AI), social sphere, healthcare, education system, social protection, public administration, digital transformation, ethical issues, algorithmic bias, digital infrastructure, data ecosystem, human capital, international cooperation, e-government, pilot projects, innovation, legal framework.

Today, artificial intelligence (AI) is becoming a powerful transformative force penetrating
the social sphere, including all spheres of public life. Global experience shows that AI technologies have great potential for optimizing processes, increasing efficiency, and improving the quality of services
in such areas as healthcare, education, social protection, and public administration. Uzbekistan, actively striving for digital transformation, also prioritizes the development and implementation of advanced technologies, including AI. Strategic documents such as "Digital Uzbekistan – 2030" and "Strategy
for the Development of Artificial Intelligence Technologies until 2030" define specific goals and objectives for the integration of AI into various sectors of the economy and social sphere.

General characteristics of the social spheres of Uzbekistan. The social sphere of Uzbekistan includes a number of key areas, each of which plays an important role in ensuring the well-being
of the population.

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The healthcare system of Uzbekistan faces a number of problems, including a shortage
of qualified medical personnel, especially in remote areas, limited access to specialized medical care, and an increasing prevalence of certain diseases[1]. The government is making active efforts to reform the healthcare system. These efforts are aimed at improving the quality and accessibility of medical services, introducing new treatment standards, strengthening the material and technical base of medical institutions, and developing primary healthcare [2]. Despite the achieved economic growth, problems remain in the healthcare sector, which creates potential areas for the application of AI in order to increase the effectiveness and quality of medical care.

The education system of Uzbekistan is aimed at increasing the level of literacy of the population and training qualified personnel for various sectors of the economy. The main priorities are
the development of digital literacy and skills in the field of information technology.

One of the important projects in this field is the “One Million Uzbek Coders” program, aimed
at providing free education to young people in the basics of programming and IT specialties [3]. Focusing on the development of digital skills will create a favorable basis for the further implementation and use of AI technologies in the educational process and in the training of specialists in this field.

The social protection system of Uzbekistan includes various programs aimed at reducing poverty and supporting vulnerable segments of the population. The government pays special attention to social support issues, expands the coverage of assistance programs, and improves the mechanisms for their provision. At the same time, the existing social protection system is characterized by a certain degree
of dispersion and a limited level of coverage, which indicates the need to search for more effective
and targeted approaches, including using AI [4].

Uzbekistan has achieved significant progress in the digitalization of public services in the field of public administration, in particular through the Single Portal of Interactive Public Services (my.gov.uz). The government strives to increase transparency, reduce bureaucracy, and improve interaction with citizens through the introduction of digital technologies. As a result of the development of existing digital infrastructure and e-government, a solid foundation is being created for the further integration of AI in order to increase the efficiency of public administration and improve the quality
of services provided.

The current state of AI development in Uzbekistan. Uzbekistan is demonstrating growing activity in the field of artificial intelligence development, which is reflected in the adoption of a number of strategic documents and the implementation of specific initiatives.

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The "Strategy for the Development of Artificial Intelligence Technologies until 2030" defines
the main goals and priorities of the country in this area, including by 2030. It is planned to bring
the volume of the market of software products and services based on AI to 1.5 billion US dollars, integrate AI into public services, develop research infrastructure, and enter the TOP-50 countries
in the government's AI readiness index. These targets indicate that Uzbekistan is seriously striving
to become one of the leaders in the region in the field of AI.

A number of specific projects related to the application of AI are being implemented in Uzbekistan, including the development of the Unified Portal of Interactive Public Services and
AI assistants for the Tax Committee, the implementation of the PalmPay system, as well as the creation of the LexAI legal platform. An important step was also the creation of the Center for the Development of Artificial Intelligence and the Digital Economy, aimed at coordinating efforts in this area and supporting startups [5]. At the same time, the "One Million Uzbek Coders" program plays an important role in the formation of basic skills necessary for the further development of AI. In addition,
work is underway in the country to create modern data processing centers and develop the computing infrastructure necessary for working with AI [6].

Uzbekistan actively develops international cooperation in the field of AI, interacts with such organizations as the World Bank and UNESCO, and establishes partnerships with the United Arab Emirates. The collaboration with Meta on adapting AI language models to the Uzbek language deserves special mention [7]. Participation in international projects and exchange of experience are also important factors for the successful development of AI in Uzbekistan.

Application of AI in the social spheres of Uzbekistan. Artificial intelligence technologies open up wide opportunities for solving urgent tasks in the social sphere of Uzbekistan and improving
the quality of services:

In the healthcare sector, AI can be used to automate diagnostic processes (for example, in the field of breast cancer detection), analyze medical images, and support doctors' decision-making. Automation of diagnostic procedures allows reducing the workload of medical personnel and increasing diagnostic accuracy, especially in specialized areas. AI can also contribute to the development
of telemedicine and remote patient monitoring, which is especially important for providing medical care to people in remote areas. Analysis of large volumes of epidemiological data using AI helps to predict the spread of diseases and develop effective measures for their prevention. In addition, AI has the ability to optimize administrative processes in medical

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institutions, including patient records management
and resource allocation.

In the field of education, AI can adapt to the individual needs and pace of learning of each student, adapting teaching materials, and introducing individual approaches to learning [8]. Intelligent learning systems based on AI are capable of establishing individual feedback with students and providing them with individual assistance [9]. AI can automate the process of checking assignments, directing teachers' time toward more important tasks. AI tools for speech-to-text conversion and translation significantly increase learning opportunities for students and pupils with disabilities [10]. An important step in the training of future specialists in this field is the opening of specialties in “Al-Khwarizmi University” (the historical name of the National University of Uzbekistan) specializing in educational systems that combine the fields of science, technology, engineering, and mathematics with AI [11].

In the field of social protection, AI can be used to more accurately identify vulnerable groups of the population and provide targeted support by analyzing various data sources. SI eligibility (from English – “compliance”, “responsibility”, “legality”). This term often refers to the state of being eligible to apply for or participate in something. That is, if someone or something meets certain conditions, requirements, or criteria, they can verify “eligible”, assign payments, and optimize interactions with beneficiaries (this is a person or organization benefiting from some funds, rights, or service) [12].
AI technologies can be effectively used to detect and prevent fraud within social support programs,
and AI-based chatbots and virtual assistants can provide personal information and advice to beneficiaries.

In the field of public administration, AI can significantly increase the effectiveness of e-government activities, improve citizens' interaction with government bodies, and reduce bureaucracy. AI tools have the ability to process citizens' appeals, provide advice, and improve communication. AI-based Legal Tech platforms, such as LexAI, can help in the preparation of legal issues and documents. AI can automate daily administrative tasks in government institutions, improve data management, and optimize resource allocation. Especially in the customs sphere, AI can be used
to analyze transit risks, detect fraud, and increase the efficiency of procedures.SI texnologiyalarining imkoniyatlari va afzalliklari.

The introduction of AI into the social spheres of Uzbekistan can open up a number of important opportunities and advantages. AI is capable of increasing efficiency and productivity by automating everyday tasks, optimizing processes, and improving overall management in various social spheres.
This will allow for more rational use of resources and direct them towards solving more complex and priority tasks.

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This will allow for more rational use of resources and direct them towards solving more complex and priority tasks.

AI-based analysis provides valuable information for making informed decisions in the field
of planning, resource allocation, and service quality improvement. This will allow the Government
of Uzbekistan to more effectively meet the needs of the population and make more rational strategic decisions.

The development of the AI ecosystem in Uzbekistan has great potential for economic growth by creating new jobs, increasing exports, and attracting foreign investment. Uzbekistan's ambitious goal
of increasing the volume of the AI market to 1.5 billion US dollars by 2030 (this is a more complex goal than ordinary ones, requiring more labor, knowledge, and resources, but bringing great success) emphasizes significant economic expectations associated with the development of AI [13].

Problems and threats related to AI technologies. Despite the great potential, the introduction of AI into the social sphere of Uzbekistan is associated with a number of problems and risks, which must be taken into account and eliminated by effective methods and means. Including:

infrastructure limitations, such as insufficient quality and quantity of internet access
and underdevelopment of data processing centers, remain one of the serious obstacles to the widespread introduction of AI technologies;

data quality and accessibility are crucial for training AI models. Problems associated with data fragmentation, their security, and insufficient quality can make it difficult to effectively use AI;

the shortage of qualified specialists in the field of AI is another serious problem.
For the successful development and implementation of AI, it is necessary to invest in educational programs and personnel training [14];

ethical considerations such as algorithmic bias, data privacy violations, and responsible use
of AI require special attention and the development of appropriate regulatory mechanisms. Recognizing such ethical problems and developing ethical standards is an important step towards the responsible implementation of AI [15];

existing gaps in the legal and regulatory regulation of AI-related activities may limit
its development and application in the social sphere. For this, it is necessary to develop a clear
and flexible legal framework;

automation arising from the implementation of AI can lead to a reduction in jobs in some sectors of the economy. To mitigate the negative consequences of this process, it is

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necessary to develop strategies for retraining and advanced training of the workforce. Despite the pursuit of creating new jobs, there are also reports of a potential reduction in existing jobs [16]. This emphasizes the need to take measures in the field of labor development;

in addition, there is a risk of increasing authoritarianism associated with the possibility of using AI technologies to strengthen control and surveillance over the population [17].

International cooperation and best world practices in the field of AI technologies. Uzbekistan is actively developing international cooperation in the field of AI and digital transformation. In particular, cooperation with such organizations as the World Bank, UNESCO, and Meta contributes to the exchange of experience, the attraction of investments, and the introduction of best practices.

According to current trends, global experience shows the successful application of AI in various social spheres. In the healthcare sector, AI is used for disease diagnostics, telemedicine, and optimization of administrative processes. In the field of education, AI is used for individual learning, intelligent learning systems, and automated assessment [18]. In the field of social protection, AI is also used
to improve the targeting of assistance, optimize service delivery, and detect fraud [19]. In the sphere
of public administration, AI contributes to increasing the efficiency of electronic services, improving interaction with citizens, and optimizing administrative processes.

Analysis of AI development strategies in Central Asia and other developing countries allows
us to identify regional trends, best practices, and potential areas for cooperation. Comparing the approach of Uzbekistan with the experience of neighboring countries can provide valuable directions for the further development of AI in the country.

Recommendations for the implementation of AI technologies in the social sphere of Uzbekistan. For the further development and effective implementation of artificial intelligence technologies in the social sphere of Uzbekistan, it is necessary to implement a number of strategic measures:

firstly, it is necessary to strengthen digital infrastructure by expanding and modernizing internet access in terms of quality and coverage, investing in data processing centers and high-performance computing capacities;

secondly, it is necessary to improve the data ecosystem by developing strategies to improve
data quality, accessibility, interoperability, and security, including the creation of «Big Data» databases;

thirdly, it is necessary to make large investments in the development of human capital, including the expansion and improvement of all educational programs in the field of AI, supporting initiatives such as «One Million Uzbek Coders» and developing specialized

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educational institutions such as
Al-Khwarizmi University;

fourth, it is necessary to develop and implement a comprehensive ethical framework for the development and application of AI, based on efforts to integrate ethical standards, taking into account issues of bias, confidentiality, transparency, and accountability;

fifthly, it is necessary to create a clear and flexible legal and regulatory framework for AI, which, taking into account the ongoing process of AI regulation, will stimulate innovation and at the same time reduce risks;

sixth, it is necessary to establish and encourage cooperation between government institutions, technology companies, research institutes, and civil society organizations to promote innovation and the implementation of AI;

seventh, it is necessary to continue active participation in international cooperation to use global experience, access financing opportunities and exchange best practices;

eighth, the development and implementation of AI should be oriented towards human needs
and empowerment in accordance with the government's vision;

ninth, to test the effectiveness of AI solutions, it is necessary to implement pilot projects in key social spheres (this is a small-scale pilot project, the main goal of which is to conduct an experiment, test the results and identify problems before the full implementation of the main (large) project) and develop strategies for expanding successful applications at the national level;

tenth, to mitigate the potential negative consequences of automation caused by AI, it is necessary to develop strategies for retraining and advanced training of the workforce, as well as to create social protection systems.

In conclusion, it can be said that artificial intelligence has enormous potential to transform the social potential of Uzbekistan and help achieve the national development goals. Based on strategic, ethical, and collaborative approaches, AI allows Uzbekistan to fully realize the benefits of these technologies while minimizing potential risks. Consistent implementation of the presented recommendations will further contribute to Uzbekistan's progress towards creating a prosperous
and inclusive society using the capabilities of artificial intelligence.

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