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The Use Of Artificial Intelligence In Uzbekistan

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Abstract: In this article, the development and application of artificial intelligence (AI) technologies in Uzbekistan are reviewed. The article discusses the global impact of AI, Uzbekistan's government policy and national strategy, achievements in education and research, applications in various sectors, legal and ethical issues, challenges, and future prospects. Uzbekistan is actively using AI to develop the digital economy and improve quality of life, aiming to become a regional leader through international cooperation and education.

Keywords: Artificial intelligence, Uzbekistan, national strategy, education, research, healthcare, finance.

INTRODUCTION:

In the 21st century, artificial intelligence (AI) has become one of the defining forces shaping global development. It influences nearly every aspect of human life, from how people communicate and work to how societies manage healthcare, education, and governance. Artificial intelligence can be described as the ability of a computer system or machine to mimic human thinking - to learn from experience, analyze complex data, and make logical decisions. Today, AI technologies such as natural language processing, image recognition, and predictive analytics are deeply embedded in everyday life, often operating in ways that users do not even notice. Around the world, AI is transforming economies and industries at an unprecedented pace. Countries such as the United States, China, Japan, and members of the European Union have made massive investments in artificial intelligence research and development. According to international studies, AI could contribute more than $15 trillion to the global economy by 2030. Recognizing this potential, many developing countries are also implementing national AI strategies to strengthen their digital economies.

Uzbekistan, as one of the rapidly modernizing nations in Central Asia, is also embracing this technological revolution. Over the past decade, the government has made digital transformation a key national priority. This focus includes not only expanding internet access and e-government services but also actively developing AI-based solutions that can improve people's daily lives and make governance more efficient.

Government Policy and National Strategy.

The foundation for AI development in Uzbekistan was laid in 2021 when the President signed a decree titled "On Measures for the Development of Artificial Intelligence." This document introduced the National Strategy for the Development of Artificial Intelligence until 2030, a comprehensive roadmap aimed at building a strong digital infrastructure and promoting innovation. The strategy outlines several main goals:

- increasing the share of digital and AI-based services in government operations;
- creating specialized AI research centers and innovation laboratories;
- preparing at least 10,000 highly qualified specialists in artificial intelligence and data science;
- and ensuring that AI contributes significantly to the country's economic growth.

One of the flagship initiatives within this strategy is the "One Million AI Leaders" program, which aims to train

young people in the fundamentals of AI, data analytics, and machine learning. Through partnerships between government institutions, universities, and private technology companies, thousands of students are now gaining practical skills that will allow them to participate in the country's growing digital economy.

Development in Education and Research.

Education and research play a central role in shaping the future of artificial intelligence in Uzbekistan. Recognizing that no technological advancement can succeed without a solid foundation of human knowledge, the country has made higher education a strategic focus in its AI development agenda. Over the last few years, several leading universities have introduced new academic programs and research initiatives specifically aimed at producing the next generation of AI specialists.

Among these institutions, the Tashkent University of Information Technologies (TUIT) stands out as a pioneer in the field. It has launched specialized bachelor's and master's degree programs in artificial intelligence, robotics, and data science. These programs not only provide theoretical instruction but also emphasize hands-on experience through laboratory projects, coding boot camps, and collaborations with local IT companies. Students are encouraged to participate in hackathons and innovation contests, which help them transform their ideas into real-world solutions.

Inha University in Tashkent, in collaboration with its parent institution in South Korea, has developed an advanced curriculum focusing on machine learning, neural networks, and computer vision. The university regularly invites foreign professors and researchers to deliver lectures and lead workshops, exposing students to global trends in AI research. Similarly, Amity University Tashkent has become known for integrating AI into broader areas such as business analytics, cybersecurity, and digital innovation management - showing how AI knowledge can be applied in various professional fields beyond pure computer science. Partnerships with foreign universities are also expanding rapidly. Uzbek institutions have signed cooperation agreements with universities and research centers in South Korea, Singapore, Japan, and the United States, allowing students and faculty to take part in exchange programs, joint research projects, and online learning initiatives. For example, a growing number of Uzbek students are completing internships in AI laboratories abroad, where they gain exposure to advanced technologies and international research standards. These experiences not only strengthen their technical expertise but also help create a new generation of globally connected AI professionals who can bring fresh ideas back to Uzbekistan. Another important driver of innovation is IT Park Uzbekistan, a national technology hub established to support digital entrepreneurship and research. The park serves as a bridge between education, business, and government by creating an environment where startups, students, and industry experts can collaborate. Within the park, the AI Lab has become a focal point for experimentation and applied research. The lab works on projects that use machine learning and data analysis to solve local challenges in agriculture, logistics, and finance. For example, AI tools are being developed to help farmers predict crop yields and optimize irrigation, while logistics companies use AI models to improve delivery efficiency and reduce transportation costs. In addition to technical support, IT Park offers mentoring programs for young innovators. Many of these mentors are successful entrepreneurs or researchers with international experience who guide students and startups in turning their prototypes into market-ready products. The park also hosts regular AI-related events such as the AI Summit Uzbekistan, workshops, and coding competitions, which bring together local and foreign experts to exchange ideas and discuss future trends in technology. Furthermore, the government is encouraging stronger collaboration between universities and the private sector. Several memorandums of understanding have been signed between academic institutions and companies operating in telecommunications, finance, and manufacturing. Through these partnerships, students gain access to real datasets, internships, and joint research projects that have direct practical applications. This approach ensures that graduates not only possess academic knowledge but also understand how AI can be used to solve concrete business and social problems. The emphasis on education and research reflects Uzbekistan's broader vision of building a knowledge-based economy. By investing in people - especially in young scientists, engineers, and innovators - the country aims to create a self-sustaining ecosystem where research, industry, and entrepreneurship feed into one another. In the long term, this educational foundation is expected to drive Uzbekistan's transition from a technology importer to a regional leader in artificial intelligence and digital innovation.

Application of Artificial Intelligence in Different Sectors. AI technologies in Uzbekistan are being used across multiple sectors. In healthcare, AI-driven diagnostic systems are being tested to analyze X-ray and CT scan images, allowing doctors to detect diseases such as tuberculosis or cancer at earlier stages. This not

only improves the accuracy of medical diagnoses but also reduces human error and shortens waiting times for patients. During the COVID-19 pandemic, AI-based models were also used to forecast infection rates and monitor the availability of medical resources. In education, AI is helping to personalize the learning process. Adaptive learning platforms can assess students' strengths and weaknesses and provide customized recommendations to improve their academic performance. For example, the national educational portal ZiyoNet has integrated recommendation algorithms that suggest reading materials and online courses based on users' interests and skill levels. This approach allows students to learn more efficiently and according to their individual pace. In the financial and business sectors, AI is increasingly being used for risk management, fraud detection, and customer service. Banks and insurance companies are adopting predictive algorithms that analyze clients' credit histories and identify potential financial risks. Chatbots and virtual assistants are also being introduced to improve customer interactions and reduce service times. In agriculture, AI applications are helping farmers enhance productivity and manage resources sustainably. By combining machine learning with satellite imagery, AI systems can monitor soil quality, predict crop yields, and suggest optimal planting and irrigation schedules (FAO, 2023). These technologies are particularly useful in areas facing water shortages, as they enable farmers to use limited water resources more efficiently. Additionally, predictive analytics tools are being applied to monitor weather patterns and prevent pest infestations, reducing crop losses and improving food security. In public administration, the government is using artificial intelligence to enhance transparency and efficiency. The online platform my.gov.uz uses AI tools to process citizens' requests automatically and classify them by urgency and topic. AI is also used in traffic management systems, urban planning, and environmental monitoring to help local authorities make better decisions based on real-time data.

Legal and Ethical Considerations.

As AI technologies continue to evolve and integrate into public life, ethical, privacy, and security concerns have become increasingly pressing. The government of Uzbekistan has acknowledged these challenges and is developing a comprehensive legal framework to ensure the responsible use of artificial intelligence. The proposed Law on Artificial Intelligence seeks to define clear standards for data protection, transparency in algorithmic decision-making, and accountability for the misuse of AI systems (Government of Uzbekistan, 2023). Another major focus of national policy is data sovereignty — ensuring that sensitive personal and state data are securely stored and processed within Uzbekistan's borders. To achieve this, the government is investing in advanced data centers and strengthening national cybersecurity infrastructure. In parallel, AI ethics is gaining increasing attention among policymakers and researchers. Experts emphasize that AI systems must serve human welfare, not replace human judgment, and that their operations should be explainable, fair, and unbiased (UNESCO, 2022). These developments reflect Uzbekistan's determination to balance technological progress with ethical responsibility, aligning its national AI strategy with international standards and best practices. The combination of innovation and regulation will help the country ensure that artificial intelligence contributes to sustainable, inclusive, and secure digital growth.

Challenges and Future Prospects.

Despite notable achievements, the AI sector in Uzbekistan still faces several challenges. The most significant issues include limited access to large and reliable datasets, a shortage of skilled professionals, and insufficient local research funding. Additionally, awareness of AI among the general public remains relatively low, which can slow down the adoption of new technologies. However, the government and private sector are taking steps to overcome these barriers. International cooperation plays a crucial role: Uzbekistan is collaborating with organizations such as the United Nations Development Programme (UNDP), the World Bank, and UNESCO to promote AI literacy and innovation. The establishment of AI clusters and research laboratories in partnership with global technology companies is also expected to accelerate progress. In the coming years, Uzbekistan plans to integrate AI more deeply into key areas of national development. These include smart city projects, intelligent transportation systems, renewable energy optimization, and advanced agricultural management. With continued investments in education, infrastructure, and international cooperation, Uzbekistan has the potential to become one of the regional leaders in artificial intelligence and digital innovation.

CONCLUSION

Artificial intelligence is no longer a distant concept but a real and transformative force shaping the modern world. In Uzbekistan, AI has moved from theory to practice - from academic discussion to concrete implementation in healthcare, education, government, and industry. While challenges remain, the direction of progress is clear: the country is building the foundations for a smarter, more efficient, and more

inclusive digital future. With a strong commitment from the state, active participation of universities, and growing enthusiasm among young professionals, Uzbekistan is gradually positioning itself as one of the promising centers of innovation in Central Asia. The responsible and strategic use of artificial intelligence will not only strengthen the national economy but also improve the overall quality of life for the people of Uzbekistan.

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