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AREAS OF PROSPECTIVE IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE IN UZBEKISTAN USING THE EXAMPLE OF THE FINANCIAL SPHERE

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Abstract
This article analyzes promising areas for the implementation of artificial intelligence (AI) in the financial sector of Uzbekistan. In the context of rapid technological development and global digitalization, AI is becoming a key tool for improving the efficiency of various sectors of the economy and social sphere. The article discusses several key areas where the use of AI can lead to significant improvements. It emphasizes the need to create a favorable infrastructure and educational base for training specialists in the field of AI, as well as the importance of cooperation with international organizations and the private sector for the implementation of projects. In conclusion, the author concludes that the successful implementation of AI in Uzbekistan can become a catalyst for economic growth and social progress, contributing to the sustainable development of the country in the face of global challenges.

Keywords: Artificial intelligence, AI, economy, threat, financial sphere, tax sphere, customs sphere, healthcare, agriculture, energy, international cooperation, innovation, Uzbekistan, strategy - 2030.

Introduction

Artificial intelligence (AI) is currently at the center of discussions about the future of technology and its impact on society. With rapid progress and global changes taking place in the world, Uzbekistan faces a unique opportunity to integrate AI into its economy and social spheres. The country, with its rich historical heritage and significant natural

resources, is focused on modernization and digitalization, which opens up broad prospects for the application of AI technologies in various industries.

In the Strategy for the Development of Artificial Intelligence Technologies in 2024-2026[1] According to Appendix No. 3, it was decided to define the priority areas for the implementation of artificial intelligence technologies:

- in the banking and financial sector - fraud prevention, assessment of users' solvency, forecasting market trends;
- in the tax and customs spheres - reducing the share of the shadow economy, forecasting suspicious customs transactions and risk management;
- in the field of healthcare - determining methods of diagnosis, treatment of diseases, analysis of medical images and management of patient data;
- in the field of agriculture - crop yield forecasting, agricultural resource management, monitoring of crop, poultry, fish and livestock cultivation processes;
- in the energy sector - energy resource management, optimization of energy production and distribution, development of the use of renewable energy sources and forecasting demand for them.

However, the above areas are just some of those where artificial intelligence can play a key role in improving the efficiency and quality of services provided. For example, in the education system, the use of adaptive learning platforms that analyze students' progress and offer individual learning plans based on their strengths and weaknesses. For example, systems such as Knewton or DreamBox can adapt to the students' level of knowledge. And also, in industry, the implementation of robotics and AI to automate production processes, which increases efficiency and reduces errors. Examples include the use of industrial robots from companies such as KUKA, ABB or others.

Moreover, creating a favorable ecosystem for AI development requires not only technical infrastructure, but also educational initiatives aimed at training specialists capable of working with new technologies. The government of Uzbekistan is already taking steps in this direction, initiating programs for digitalization and support for high-tech startups.

Thus, the introduction of artificial intelligence in Uzbekistan is not only a challenge, but also a unique opportunity for the country to reach a new level of development. In this article, we will take a detailed look at the key areas of AI application, existing initiatives and strategies that can contribute to the creation of a sustainable and innovative economy in Uzbekistan.

Research Methods

To analyze the potential and prospects for the implementation of artificial intelligence in Uzbekistan, several research methods were used, which provided a comprehensive approach to the topic under study. The main methods include:

1. Literature analysis: A review of existing scientific and analytical publications concerning the application of AI in various industries was conducted. In particular, the works of such authors as:

• Thomas Davenport is a professor of management and information technology at Babson College, co-founder of the International Institute for Analytics, a research fellow at the MIT Initiative on the Digital Economy, and a senior consultant at Deloitte Analytics;
• Djurabaev O.T. - DSc, Tashkent State University of Economics;
• Atajanov Sh.Sh. - senior lecturer of Tashkent State University of Economics;
• etc.

2. Case stages: Specific examples of the implementation of AI technologies in Uzbekistan and other countries were studied, which made it possible to analyze the effectiveness of various solutions and identify success factors. Case stages included both large projects and initiatives of small and medium enterprises.
3. Comparative analysis: A comparative analysis of international experience in implementing AI was conducted, taking into account the specifics of Uzbekistan. This made it possible to identify approaches that can be adapted to local conditions.
4. Familiarization with regulatory documents: An analysis of the current regulatory legal acts of Uzbekistan related to digitalization and the implementation of AI technologies was carried out, such as: Strategy Uzbekistan-2030 and the Strategy for the Development of Artificial Intelligence Technologies in 2024-2026. The goals and objectives, goals and objectives, as well as general information related to the Strategy for the Development of Artificial Intelligence Technologies in 2024-2026 were studied.
The use of these research methods provided a multifaceted approach to studying the topic, which allowed for a deeper understanding of both the challenges and opportunities associated with the implementation of artificial intelligence in Uzbekistan.

Research Results

According to the Strategy "Uzbekistan - 2030", the task is to expand the use of artificial intelligence in various spheres of life. More than 20 projects have already been implemented based on this technology, another 70 projects have been developed for individual industries and large enterprises. In the international index of readiness for artificial intelligence, Uzbekistan rose by 17 positions [2].
Uzbekistan has moved up 17 places in Oxford Insights' Global AI Readiness Index to 70th place out of 188 countries, demonstrating the country's growing potential in AI. With a score of 53.45, Uzbekistan ranks third in South and Central Asia after India and Turkey. This positions the country as a regional leader in Central Asia.
The index assesses governments' ability to implement AI using 40 key indicators. This progress is in line with Uzbekistan's Digital Uzbekistan 2030 initiative.[3].
Strategy until 2030 Uzbekistan sets the following goals:
• Reach 50th place in the world on the AI Readiness Index.
• Create 100,000 new technology jobs.
• Train 1,000 AI specialists[1].
In continuation of the attention paid to this area, on October 14, 2024, the Strategy for the Development of Artificial Intelligence Technologies until 2030 was adopted by the decree

of the President of Uzbekistan. It defines measures to increase the share of software products and services based on AI, expand the technical infrastructure and increase human resources [2].

At a meeting on December 24, 2024, the Minister of Digital Technologies, Sherzod Khotamovich Shermatov, presented plans for the next year.

In particular, cloud data centers will be launched in Bukhara, Fergana and Tashkent regions. To support startups, artificial intelligence laboratories will be opened at Tashkent University of Information Technologies and Inha University. Three thousand employees of government agencies, as well as khokims and their deputies, will undergo advanced training in this area.

The responsible persons have been tasked with increasing the number of projects based on artificial intelligence to 100, and the volume of software products and services to 50 million dollars.[2].

In the near future, Uzbek banks are expected to continue intensive development of digital technologies. This includes improving mobile applications with broader functionality, developing artificial intelligence systems for personalizing services, and using blockchain technologies to increase the transparency and security of financial transactions.[4]. However, to better understand and take into account risks and prospects, experts rely on international experience in the implementation of artificial intelligence technologies.

One prominent example is Singapore's DBS, the largest bank in Southeast Asia and a leader in using technology to improve service and operations. Once called "slow as hell," DBS was named the world's best digital bank by Euromoney in 2016. The bank has been focusing on AI for several years now, and was one of the first businesses to contract IBM to develop an AI-powered app. The app, announced in January 2014, was intended to be an intelligent robo-advisor that would advise DBS clients on wealth management and investment opportunities. Robo-advisors exist at other financial institutions, but their advice is generally poor because they lack intelligence.

DBS wanted a system that could digest a variety of inputs – research reports, company news, market sentiment indicators and a client's existing portfolio – and then make recommendations to the bank's relationship managers and the clients themselves. But DBS CIO David Gledhill said the technology wasn't up to the task:

"We started very early, and Watson's technology was not yet mature. It was not ready to become the cutting-edge, all-round wealth advisor that both DBS and IBM had envisioned. We were ahead of our time when we embarked on this project. In hindsight, the technology was not mature enough. It was not prepared for many of our use cases. Part of the problem was that the software could not understand many of the charts and graphs it was supposed to understand. In addition, the bank's research reports were presented in a variety of formats, making it difficult for Watson to parse the data without a lot of human intervention. So, although we did develop a pilot robo-advisor, it was half as effective and productive as the average relationship manager. We learned from this and stopped the project early."[5].

David Gledhill and his colleagues continue to evaluate new technologies that might be useful for improving the intelligent robo-advisor, but so far they have found nothing. However, they still believe in the value of AI. They are focusing on important but somewhat smaller problems in their business that could be at least partially solved by cognitive technologies.

DBS's AI projects span a wide range of areas, but most are operational. For example, the bank uses machine learning models to predict when ATMs need to be refilled with cash. Whereas ATMs used to run out of cash once every three months, the average is now once every 55 years, and the number of trips to refill ATMs has been reduced by more than 10%.[5].

In the HR space, DBS predicts the churn of its salespeople. Based on a range of factors identified by machine learning models (including vacation time, sick leave, and email response rates), the bank can predict with 85% certainty whether an employee will leave three months in advance.

The bank also uses AI to detect securities fraud, build algorithmic lending models, manage customer service chatbots, and perform a range of other tasks. AI plays a particularly important role

at digital-only bank DBS in India, which employs 90% fewer people than a traditional bank. Across the bank, customer interactions with AI reduce customer service calls by 15%.

David Gledhill commented on the change in AI focus at DBS:

"The original robo-advisor was our most ambitious project. It didn't go as planned because we wanted a product that was way ahead of its time. However, we learned from that first project and have not given up on AI. We are taking the path of least resistance, using AI to optimize business processes at the bank, and we are having huge success. Individually, these projects are not that ambitious, but together they are transformative for the business, as they help reduce operating costs, increase employee productivity, reduce errors, and increase the speed to market. The key for us is not to reduce headcount, but to significantly improve the customer experience and move from transactional banking to advisory banking. We are looking to grow revenue and expand the business, while maintaining a reasonable cost-to-income ratio."[5].

It is also noted that large financial companies in Uzbekistan plan to actively implement AI-based technologies. However, 53% of financial market companies do not have an approved strategy for AI development. Residents and respondents are convinced that they are ready to implement AI projects. Moreover, 65% of financial market companies have already implemented AI technologies in core processes. However, in order to move from point automation of processes to full-scale use of the potential of AI technologies, a full-fledged strategy is required, which has been approved by only 35% of the surveyed companies, another 12% have included AI application issues in other strategic documents of the organization. Despite the fact that 80% of companies have one or more data analysis departments, only 17% of organizations have centralized, dedicated structures that

specialize in working with AI solutions. The trend towards increasing internal AI competencies is obvious[6].

However, a large number of Uzbek fintech companies have not yet formed a centralized unit for AI development: 39% of respondents have their expertise in working with AI technologies decentralized and distributed across different units of the company. Only 17% of organizations have dedicated AI competence centers. Leaders of the financial market of Uzbekistan have already invested about $ 1.5 billion in AI development over the past 10 years. Market leaders invest about $ 200 million per year in the development of AI-based solutions as of July 2024. At the same time, the return on investment reaches up to $ 520 million per year. Medium and small domestic financial companies invest in AI on average 500 times less than large organizations: from $ 80 to 400 thousand per year. 95% of fintech companies in Uzbekistan consider improving decision-making support processes to be the key driver of AI implementation. The observation is in line with the global trend towards decision intelligence. According to Gartner, in the next two years, one third of large organizations will use this approach to make management decisions more structured. 84% of respondents are implementing AI solutions to attract IT talent and improve employer branding[6].

At the same time, direct economic effects, namely, reducing costs and increasing revenues, remain an important priority for Uzbek financial technologies. The key barrier to the implementation of AI is the shortage of specialized specialists. 83% of companies noted that they are experiencing a personnel shortage. Market participants identify three categories of the most in-demand specialists in the field of AI: data scientists, data engineers, and data analysts.

In accordance with the Digital Uzbekistan 2030 strategy and the decree of the President of Uzbekistan, a set of measures will be applied to digitalize various sectors of the economy and social sphere. Important areas are the gradual digitalization of government data in the areas of justice, communications, finance, archiving, education and healthcare.

Limited use of artificial intelligence has already begun to solve problems such as image recognition, navigation systems and automated control in large enterprises. In order to accelerate the development of AI and its widespread use in Uzbekistan, measures are envisaged to create AI development strategies, develop a regulatory framework and implement pilot projects in such areas as agriculture, banking, finance, transport, energy, healthcare and pharmaceuticals.[7].

These measures are aimed at creating a domestic ecosystem of innovations in the field of AI, access to digital data, development of investment attractiveness and international cooperation.

Conclusion

The introduction of artificial intelligence (AI) in Uzbekistan opens up broad prospects for the transformation of various sectors of the economy and society as a whole. In the context

of rapid technological development and global digitalization, AI is becoming not only a tool for increasing efficiency, but also a key factor in competitiveness in the international arena. To successfully implement AI in these areas, it is necessary to create a favorable ecosystem, including infrastructure development, personnel training, and the formation of a legal framework. It is also important to ensure cooperation between government agencies, the private sector, and educational institutions to share knowledge and experience.

Uzbekistan has every chance to become one of the leaders in the field of artificial intelligence implementation in Central Asia if it actively develops its initiatives and uses its available resources. Investments in AI technologies not only contribute to economic growth, but also improve the quality of life of citizens, creating new opportunities for future generations.

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