



ACHIEVEMENTS AND CHALLENGES OF ARTIFICIAL INTELLIGENCE AND THE DIGITAL ECONOMY IN CONTEMPORARY SOCIETY

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Annotatsiya. Ushbu maqola O‘zbekistondagi sun‘iy intellektning hozirgi holati, uning qo‘llanilishi hamda oldinda turgan muammolar va imkoniyatlarni o‘rganadi. Raqamli iqtisodiyot so‘nggi yillarda jadal rivojlanib, texnologik inqilobning asosiy motoriga aylanishi. Ushbu sun‘iy intellekt raqamli iqtisodiyotning asosiy yo‘nalishiga aylanmoqda. Sun‘iy intellekt texnologiyalari raqamli iqtisodiyotda muhim o‘rin tutishi, biznes jarayonlarini optimallashtirishdan tortib, yangi innovatsiyalar yaratishga qadar keng ko‘lamli ta‘sir ko‘rsatishini va sun‘iy intellektning raqamli iqtisodiyotdagi ro‘li, uning afzalliklari va muammolarini ko‘rib chiqamiz.

Аннотация. В данной статье рассматривается современное состояние искусственного интеллекта в Узбекистане, его применение, а также будущие проблемы и возможности. Цифровая экономика быстро развивается в последние годы и становится основным двигателем технологической революции. Учитывая, что технологии искусственного интеллекта играют важную роль в цифровой экономике, от оптимизации бизнес-процессов до создания новых инноваций, а также учитывая роль искусственного интеллекта в цифровой экономике, его преимущества и проблемы, мы выходим.

Abstract: This article explores the current state of artificial intelligence (AI) in Uzbekistan, its applications, and the challenges and opportunities it presents for the future. The digital economy has experienced rapid development in recent years, emerging as a primary driver of the technological revolution and becoming a central focus of progress. Given that AI technologies play a pivotal role in the digital economy—ranging from optimizing business processes to fostering innovation—this study examines the advantages and challenges of integrating AI into the digital economy and its broader implications for growth and development.

Kalit so‘zlar. Sun‘iy intellekt, raqamli iqtisodiyot, texnologiyalar, innovatsiyalar, Investitsiyalar, dasturiy taminotlar, malumotlar bazasi, axborot texnologiyalari.

Ключевые слова. Искусственный интеллект, цифровая экономика, технологии, инновации, инвестиции, программное обеспечение, базы данных, информационные технологии.

Keywords: Artificial Intelligence, Digital Economy, Technologies, Innovations, Investments, Software, Databases, Information Technologies.

Introduction.

The digital economy has experienced rapid growth in recent years, becoming a key driver of the technological revolution. Within this context, artificial intelligence (AI) has emerged as a central focus of the digital economy, significantly influencing various sectors. AI technologies play a pivotal role in the digital economy, offering wide-ranging applications from optimizing business processes to fostering innovation.

AI refers to the capability of computer systems to replicate human cognitive activities. Leveraging AI technologies enables the automation of data processing and decision-making through advanced software, databases, and analytical tools. The digital economy, in turn, encompasses economic systems that rely on the Internet and information technologies, facilitating the execution of economic activities in a digitized format.

Advantages of Artificial Intelligence

AI provides substantial benefits by automating monotonous and repetitive tasks, thereby saving human effort and increasing efficiency. For instance, AI-powered customer service chatbots, automated financial reporting systems, and production process automation have become widely adopted. By the first half of 2024, automated trading accounted for 70% of the global financial market's activity. Additionally, AI technologies have proven effective in combating financial fraud, with banks and financial institutions improving fraud detection rates by 50% using AI.

AI has also revolutionized advertising and marketing, enabling a higher level of individualization in campaigns. In the first half of 2024, personalized advertising expenditures constituted 60% of global advertising spending. Moreover, the advancement of AI technologies has contributed to job creation. For example, the global number of AI-related jobs increased by 10% in the first half of 2024. Furthermore, the growing number of startups leveraging AI technologies highlights its expanding influence. By mid-2024, AI-driven startups represented 25% of the global startup market.

Literature review and methodology.

Uzbekistan's adoption of artificial intelligence (AI) aligns with a broader global trend in which nations increasingly recognize the potential of AI to drive economic growth, enhance public services, and address social challenges. The Government of Uzbekistan has demonstrated a strong commitment to incorporating AI into its national strategies and actively implements policies and initiatives to support this technological advancement. However, Uzbekistan faces several challenges that must be addressed for AI development and adoption.

Data Availability: Access to high-quality and reliable data is fundamental for training AI models. The lack of comprehensive datasets poses a significant barrier to the advancement and implementation of AI technologies.

Technical Infrastructure: The successful deployment of AI solutions requires robust technical infrastructure, including advanced computing resources and high-speed internet connectivity. In certain regions of Uzbekistan, this infrastructure is still underdeveloped, creating a disparity in technological readiness.

Research and Development: Investment in research and development is vital for fostering innovation in AI. Uzbekistan must actively support and promote R&D initiatives to remain competitive in this rapidly evolving field.

Data Privacy and Security: Given that AI systems rely on processing vast amounts of data, ensuring data privacy and security is paramount. Establishing clear regulations and frameworks for data protection is essential to safeguard sensitive information.

Artificial intelligence is an integral component of the digital economy, offering opportunities to make economic processes more efficient and tailored. However, challenges related to data privacy, employment, technological dependency, and ethical concerns must be addressed to maximize the positive impact of AI technologies. The future of Uzbekistan's digital economy is closely linked to overcoming these obstacles and leveraging AI to create new opportunities.

Uzbekistan's commitment to integrating AI into various sectors represents a critical step toward digital transformation and technological progress. While challenges persist, the country's efforts to adopt AI provide promising opportunities for economic development, improved public services, and enhanced quality of life. By resolving existing issues and fostering innovation and collaboration, Uzbekistan can unlock the full potential of AI and position itself as a leader in the digital age. The advancements in artificial intelligence (AI) are reshaping every aspect of society, and its impact is increasingly evident across various domains. Below are some of the notable achievements.

1. **AI in Education:** Artificial intelligence (AI) facilitates the personalization of learning processes by creating programs tailored to the individual abilities and needs of each student. Additionally, AI reduces the administrative burden on teachers by automating tasks such as assessments, enabling educators to dedicate more time to teaching.
2. **Medicine and Healthcare:** AI is significantly enhancing the early detection of diseases, the customization of treatment plans, the analysis of medical data, and the development of new pharmaceuticals. Furthermore, AI is advancing innovations such as surgical robots, diagnostic tools, and virtual consultation systems, contributing to improved healthcare outcomes.
3. **Transportation and Logistics:** In the transportation sector, AI is playing a pivotal role in the development of autonomous vehicles, improving road safety. It also optimizes logistics by streamlining cargo transportation processes, enabling the use of robotics in warehouses, and reducing overall costs.
4. **Finance and Banking:** AI is being leveraged in the financial sector to detect fraud, automate loan processes, manage investments, and enhance customer service. These systems ensure faster and more secure financial transactions, thereby improving operational efficiency.
5. **Agriculture:** AI is transforming agriculture by improving productivity and ensuring the efficient use of resources. For instance, AI-powered drones monitor crop fields and precisely apply fertilizers and pesticides, resulting in increased productivity and the conservation of natural resources.
6. **Mass Media and Entertainment:** AI enables rapid content production, such as generating news articles, analytical reports, and creative content. In the media industry, AI improves content recommendations for users and optimizes the planning and execution of advertising campaigns.
7. **Security and Law Enforcement:** AI is extensively utilized in security technologies, including facial recognition systems, cybersecurity solutions, and the optimization of legal processes. Progress in these areas highlights the importance of AI in enhancing safety and efficiency across various domains of society, making human activities more secure, convenient, and effective.

The digital economy is significantly transforming society, driving progress across various sectors. It has become a key enabler of job creation, particularly in IT, technology, programming, and marketing. Emerging digital platforms are fostering the development of new professions and services, thereby contributing to increased employment opportunities.

E-commerce, a cornerstone of the digital economy, is rapidly expanding and providing unparalleled convenience for buyers and sellers. Online shopping platforms are enhancing accessibility, enabling consumers to save time and money when purchasing goods and services. Similarly, financial services have

undergone significant advancements with the introduction of internet banking, electronic payment systems, and digital banking solutions. These innovations simplify financial processes, allowing individuals to manage funds, make payments, and access loans with greater ease.

Digital technologies are also reshaping agriculture and industrial production. In agriculture, digital tools enhance productivity through precision farming, while in manufacturing, automation enables efficient management of production processes. These advancements improve efficiency and reduce costs across industries.

In the realm of education, digital learning platforms and online courses are expanding access to knowledge and skill development. The flexibility of learning "anytime, anywhere" empowers individuals to acquire professional skills and enhances employability. This digital revolution in education plays a pivotal role in addressing the skills gap and increasing workforce readiness.

Another notable achievement of the digital economy is its emphasis on data-driven decision-making. By expanding the ability to collect and analyze data, organizations and governments can make more informed decisions, contributing to the development of effective economic strategies.

In summary, the digital economy drives progress in e-commerce, financial services, agriculture, industry, and education, while fostering innovation and efficiency. As these advancements continue to evolve, they will further shape the future of economic growth and societal development.

The digital economy, while driving innovation and economic growth, also presents several challenges that need to be addressed for sustainable development.

Unemployment: One of the most pressing issues of the digital economy is its impact on employment. Automation and robotization are gradually replacing traditional professions, particularly those involving repetitive and low-skilled tasks. This transition can lead to job displacement and unemployment, especially among workers in industries susceptible to automation.

Cybersecurity and Data Privacy: As the digital economy grows, so does the risk of cybersecurity breaches and data privacy concerns. Protecting personal and financial data is a critical challenge, as the loss or corruption of such data can result in significant financial and reputational damage. Ensuring robust cybersecurity measures and effective data protection policies is essential to maintaining trust in the digital economy.

Digital Divide: The uneven development of digital infrastructure creates a significant digital divide. In regions with inadequate internet connectivity, residents are unable to fully leverage the opportunities provided by the digital economy. Bridging this gap requires substantial investment in infrastructure development to ensure equal access to digital technologies.

Legal and Regulatory Challenges: The rapid evolution of the digital economy has introduced complex legal and regulatory requirements, particularly in areas such as online payments, e-commerce, and data protection. The absence of a comprehensive legal framework in these domains can create uncertainties and hinder economic activity.

Misuse of Digital Technologies: Digital technologies are sometimes exploited for fraudulent or illegal activities, such as cyber fraud and phishing attacks, which can cause financial and emotional harm to individuals and organizations. Addressing these issues requires stronger enforcement mechanisms and public awareness campaigns.

Low Digital Literacy: A lack of digital literacy remains a significant barrier for many individuals to benefit

from the digital economy. Insufficient knowledge and skills to effectively use digital tools and platforms prevent people from accessing new economic opportunities. Enhancing digital literacy through targeted education and training programs is crucial to overcoming this challenge.

While the digital economy offers immense potential to improve quality of life and drive economic development, addressing these challenges is vital to ensure a stable, secure, and inclusive future. Proactively solving these problems will enable societies to fully harness the benefits of the digital revolution while minimizing its adverse effects.

Summary.

Artificial intelligence (AI) and the digital economy are driving transformative changes in modern society. AI enhances efficiency across sectors such as education, healthcare, transportation, finance, and agriculture by automating processes and enabling data-driven decision-making. Similarly, the digital economy fosters job creation, expands e-commerce and financial services, and promotes innovative, data-based approaches. However, significant challenges persist. AI may lead to job displacement and poses risks to cybersecurity, while the digital economy grapples with issues like the digital divide, cyber fraud, regulatory gaps, and low digital literacy. Addressing these challenges is crucial to ensuring safer, more inclusive, and equitable access to digital technologies.

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