

THE ECONOMIC CONTENT OF ARTIFICIAL INTELLIGENCE AND DIGITAL  
TECHNOLOGIES AND THEIR APPLICATIONS IN BANKING PRACTICES

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**Abstract.** This article reveals the economic content of artificial intelligence and digital technologies, and studies the areas of their application in banking practice. The study is based on the essence of artificial intelligence and digital technologies as an economic category, their role as a new factor of production, and their role in creating added value and reducing transaction costs. The application of these technologies in the banking system in such main areas as credit scoring, risk management, fraud detection, customer service, and process automation is systematically classified. The economic efficiency of these technologies is also analyzed, and scientific and practical proposals for the development of the industry are developed.

**Keywords:** artificial intelligence, digital technologies, economic content, banking practice, credit scoring, risk management, transaction costs, financial technologies, digital economy, automation.

**Annotatsiya.** Mazkur maqolada sun'iy intellekt hamda raqamli texnologiyalarning iqtisodiy mazmuni ochib berilib, ularning bank amaliyotida qo'llanilish yo'nalishlari tadqiq etilgan. Tadqiqotda sun'iy intellekt va raqamli texnologiyalarning iqtisodiy kategoriya sifatidagi mohiyati, ishlab chiqarishning yangi omili sifatidagi o'rni hamda qo'shimcha qiymat yaratish va transaksion xarajatlarni kamaytirishdagi roli asoslangan. Bank tizimida ushbu texnologiyalarning kredit skoringi, risklarni boshqarish, firibgarlikni aniqlash, mijozlarga xizmat ko'rsatish va jarayonlarni avtomatlashtirish kabi asosiy yo'nalishlarda qo'llanilishi tizimli ravishda tasniflangan. Shuningdek, ushbu texnologiyalarning iqtisodiy samaradorligi tahlil qilinib, sohani rivojlantirish bo'yicha ilmiy-amaliy takliflar ishlab chiqilgan.

**Kalit so'zlar:** sun'iy intellekt, raqamli texnologiyalar, iqtisodiy mazmun, bank amaliyoti, kredit skoringi, risklarni boshqarish, transaksion xarajatlar, moliyaviy texnologiyalar, raqamli iqtisodiyot, avtomatlashtirish.

**Аннотация.** В данной статье раскрыто экономическое содержание искусственного интеллекта и цифровых технологий и исследованы направления их применения в банковской практике. В исследовании обоснованы сущность искусственного интеллекта и цифровых технологий как экономической категории, их роль в качестве нового фактора производства, а также значение в создании добавленной стоимости и снижении транзакционных издержек. Систематически классифицировано применение данных технологий в банковской системе по основным направлениям — кредитный скоринг, управление рисками, выявление мошенничества, обслуживание клиентов и автоматизация процессов. Также проанализирована экономическая эффективность этих технологий и разработаны научно-практические рекомендации по развитию сферы.

**Ключевые слова:** искусственный интеллект, цифровые технологии, экономическое содержание, банковская практика, кредитный скоринг, управление рисками, транзакционные издержки, финансовые технологии, цифровая экономика, автоматизация.

**Introduction.** In the context of the digital transformation of the global economy, artificial intelligence and digital technologies are becoming one of the leading driving forces of economic development. These technologies are fundamentally changing the financial and banking system, along with the production, trade and service sectors. Banks are widely introducing artificial intelligence and digital solutions to ensure their competitiveness, improve the quality of services and effectively manage risks.

A deep study of the economic content of artificial intelligence and digital technologies allows us to correctly assess their role and significance in the economic system. These technologies are not only technical tools, but also a factor that changes economic relations. Therefore, revealing their economic essence and systematically analyzing the areas of application in banking practice is of urgent scientific and practical importance.

In recent years, Uzbekistan has been implementing large-scale reforms to digitize the economy, develop artificial intelligence technologies and modernize the banking system. The country has adopted a strategy for the development of artificial intelligence technologies, and special attention is being paid to the introduction of digital solutions in the financial sector. This expands the possibilities of using innovative technologies in banking practice.

The purpose of this article is to reveal the economic content of artificial intelligence and digital technologies, classify their main areas of application in banking practice, and develop scientifically based proposals for the development of the industry based on an assessment of their economic efficiency.

Level of study. The economic content of artificial intelligence and digital technologies and their role in the financial and banking system have been studied by many foreign scientists, including Russell S., Norvig P., Goodfellow I., Sanga B., Aziakpono M., Guo Y., Liu X., Zhang M., and local researchers Madjitova M., Gayratova R., Umarova I.S., Aymukhamedov B. [1–10]. Although existing scientific works mainly cover the technical aspects of artificial intelligence or general issues of FinTech, comprehensive studies that analyze the economic content of these technologies in combination with their application in banking practice have not been sufficiently developed.

Research methodology. The study used the methods of a systematic approach to scientific knowledge, classification, comparative analysis, generalization, and economic and statistical analysis. The economic content of artificial intelligence and digital technologies was theoretically analyzed, and their areas of application in banking practice were systematically classified. The information base of the study was formed by international scientific sources, scientific articles, and analytical data related to the banking and finance sector.

Main part. Artificial intelligence is a set of technological systems that perform the functions of learning, analysis and decision-making inherent in human intelligence. Digital technologies represent a system of tools that provide collection, storage, processing and transmission of data in digital form. From an economic point of view, these technologies are manifested as a means of creating added value, increasing labor productivity and efficient use of resources.

The economic content of artificial intelligence and digital technologies is revealed in several aspects. First, they increase the efficiency of traditional capital and labor resources as a new factor of production. Second, they reduce information asymmetry and increase the validity of economic decisions through rapid analysis of large volumes of data. Third, they significantly reduce transaction costs by automating processes. Fourth, they form qualitatively new sources of economic growth by creating new products and services.

In the financial sector, these technologies allow reducing the costs of financial intermediation, expanding the scope of services and increasing financial inclusion. In banking, artificial intelligence and digital technologies are used in many areas, such as lending, risk management, payment systems, and customer service. The table below categorizes the main areas of application of these technologies in banking, the technologies used in them, and their economic impact (see Table 1).

As can be seen from the table, artificial intelligence and digital technologies are used in almost all areas of banking, each of which provides its own economic impact. In credit scoring and risk management, these technologies serve to justify decisions and reduce losses, while in fraud detection and regulatory compliance systems, they provide security and compliance. In customer service and process automation, they reduce operating costs and improve service quality.

**Table 1**

**Main areas of application of artificial intelligence and digital technologies in banking practice<sup>1</sup>**

No.	Application Area	Technologies Used	Economic Impact
1	Credit scoring and creditworthiness assessment	Artificial intelligence, machine learning, big data	More accurate risk assessment and reduced lending costs
2	Risk management	Big data, predictive analytics	Early identification of market, credit, and operational risks
3	Fraud detection (anti-fraud systems)	Machine learning, anomaly detection algorithms	Reduction of financial losses and enhanced system security
4	Customer service and support	Chatbots, Natural Language Processing (NLP)	Reduced service costs and 24/7 customer support availability
5	Automation of banking processes	Robotic Process Automation (RPA), cloud technologies	Increased operational efficiency and reduced human errors
6	Personalized financial services	Big data analytics, predictive modeling	Higher customer satisfaction and improved bank profitability

<sup>1</sup>O'tkazilgan tadqiqotlar asosida mualliflar ishlanmasi.

7	Payment and settlement systems	Blockchain, digital platforms	Faster and more transparent transactions with reduced transaction costs
8	Regulatory compliance (AML/Compliance)	AI-based monitoring systems	Ensured regulatory compliance and reduced penalty risks

The use of these technologies will bring a number of positive economic effects to the banking system. First of all, the speed of service provision will increase and operating costs will decrease. The accuracy of credit risk assessment will also increase, which will lead to a reduction in the share of problem loans. In addition, the expansion of digital services will increase financial inclusion and expand the opportunities for the population and business entities to use financial services. Personalized services, in turn, will increase customer satisfaction and the profitability of the bank. At the same time, there are a number of problems in introducing artificial intelligence and digital technologies into banking practice. Cybersecurity threats and issues of personal data protection are among the most pressing problems. In addition, the “black box” nature of artificial intelligence models can limit the transparency of the decision-making process. The lack of qualified specialists, the uneven development of technological infrastructure, and the incomplete formation of the regulatory framework are also factors limiting the widespread introduction of these technologies.

**Conclusions and recommendations.** The results of the study show that artificial intelligence and digital technologies are an important driving force of the modern economy, and their economic content is manifested in creating added value, reducing transaction costs and reducing information asymmetry. The use of these technologies in banking practice serves to increase the efficiency of the financial system, reduce risks and expand financial inclusion.

An analysis of the areas of application of technologies in banking practice confirmed that they provide significant economic benefits in areas such as credit scoring, risk management, fraud detection, customer service and payment systems. At the same time, it is necessary to pay attention to security and transparency issues along with the development of these technologies.

Based on the results of the study, the following proposals were developed:

- wide introduction of artificial intelligence and digital technologies in the banking system and systematic assessment of their economic efficiency;
- ensuring transparency of artificial intelligence models and introducing interpretable artificial intelligence (AI) approaches;
- strengthening cybersecurity and personal data protection systems;
- developing integrated approaches to increasing the economic effectiveness of digital technologies;
- training qualified personnel in the field of IT and artificial intelligence and improving the digital competencies of bank employees;
- improving the regulatory framework regulating the use of artificial intelligence and digital technologies.

In general, a deep study of the economic content of artificial intelligence and digital technologies and their consistent implementation in banking practice is of strategic importance in modernizing the country's economy, increasing the efficiency of the financial system, and developing the digital economy.



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