



THE ROLE OF AN ARTIFICIAL INTELLIGENCE ON BANKING SYSTEM

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ABSTRACT

This article explores the role of artificial intelligence (AI) in the banking system. It provides an overview of how AI is transforming the banking industry through various applications, including data analysis, fraud detection, cybersecurity, customer interactions, and risk management. The article discusses the benefits of AI in the banking system, such as improved operational efficiency, enhanced customer experience, and increased profitability, the implementation of AI in Uzbek banking system, its facing challenges.

Introduction

In modern conditions, when science and information and communication technologies are developing rapidly, in the developed countries of the world, state and public administration, economy, industry, social protection, education, medicine, employment, agriculture, defense, security, tourism and other areas of modern information technology and the widespread use of artificial intelligence is becoming a tradition.

In Uzbekistan, the primary task has been set to become one of the leading countries with innovative development by 2030 through the development of information communication technologies and the digital economy.

The Decree of the President of the Republic of Uzbekistan dated January 28, 2022 No. PF-60 "On the Development Strategy of New Uzbekistan for 2022-2026", Decisions PQ 4996 of February 17, 2021 "On measures to create conditions for the rapid implementation of artificial intelligence technologies" serve as the basis for the further development of an artificial intelligence in the banking financial system.

It is known that modern artificial intelligence consists of algorithms and software systems designed to perform various actions, and performs a number of tasks that the human mind can perform based on the information entered in the information base. Also, artificial intelligence is a "smart" technology capable of making logically consistent judgments and recommendations, including complex analytics and big data processing programs. Artificial intelligence is considered by experts as the basis of the fourth industrial revolution.

Also, in the world experience, when forming an artificial intelligence database in programs focused on the social sphere, data from national identification systems, population censuses and databases of taxpayers, medical, banking, insurance companies, buyers of shops



and markets, mobile telecom operators, as well as utilities are used. payments and debt, credit sources such as history, social media activity are used within the law.

It should be noted that privacy, storage and management of personal data are important when introducing artificial intelligence into social and other areas. Since the ethical aspects of the use of artificial intelligence are in the spotlight, especially in the US, UK, EU member states and leading international organizations, and the issue of human rights and personal data, as well as the danger of using artificial intelligence for political and destructive purposes, are urgent. In some countries, in particular China and Russia, there are accusations that artificial intelligence and information and communication technologies are used to restrict the personal rights and freedoms of citizens and for political purposes. Therefore, it is advisable to pay special attention to these issues when creating a legal framework for the use of artificial intelligence.

Artificial Intelligence (AI) has emerged as a transformative technology that is reshaping various industries, including banking. In the modern era of digitalization, banks are facing increasing pressure to improve operational efficiency, enhance customer experiences, and mitigate risks. AI is playing a pivotal role in addressing these challenges by offering advanced capabilities for data analysis, fraud detection, cybersecurity, risk management, and personalized customer interactions. In this article, we will explore the evolving role of AI in the banking system, its potential benefits, challenges, and future prospects.

In this article, we will explore the role of AI in the banking system, including its applications and challenges. We will delve into how AI is transforming the banking landscape and discuss the opportunities and considerations associated with its integration. Additionally, we will review relevant literature on the topic to provide a comprehensive understanding of the current state of AI in the banking system and its implications for the future.

Literature Review

In the literature review section of this article, we will consider the information presented by several foreign scientists in scientific journals about some methods and the importance of using artificial intelligence in the context of the transition of the banking system to a digital economy. Based on foreign experience, our goal is to eliminate a number of problems that arise in commercial banks and prevent their occurrence.

One of the key areas where AI is making a significant impact is data analysis. Banks generate massive amounts of data on a daily basis, and AI-powered algorithms can analyze this data to extract valuable insights for decision-making. For instance, AI can analyze customer data to identify cross-selling opportunities, optimize pricing models, and develop targeted marketing campaigns (Deloitte-research web site, 2021).

Another important area where AI is transforming the banking system is fraud detection and prevention. Fraud has become a major concern for banks, and AI is being used to enhance fraud detection capabilities. AI can analyze vast amounts of data, including transactional data, customer behavior patterns, and external data sources, to identify suspicious activities in real-time. AI-powered fraud detection systems can quickly flag potential fraud instances, reducing false positives and false negatives, and allowing banks to take timely action to prevent financial losses.



Moreover, AI is playing a critical role in strengthening cybersecurity in the banking system. With the increasing threat of cyber-attacks, banks need robust cybersecurity defenses, and AI is being used to continuously monitor and analyze data for signs of potential security breaches. AI-powered systems can detect anomalies in user behavior, network traffic, and system access patterns, helping banks identify and respond to potential security threats proactively (McKinsey, 2020). AI can also assist banks in developing predictive cybersecurity models that can anticipate and prevent cyber-attacks before they occur.

In addition, AI is being used to provide personalized product recommendations to customers. By analyzing customer data, including transaction history, spending patterns, and financial goals, AI can offer tailored investment options, loan products, or insurance plans that align with customers' financial objectives (Oliver Wyman, 2020). This level of personalization can enhance customer engagement, build loyalty, and drive customer satisfaction.

Several studies have highlighted the potential benefits of AI in customer service in the banking industry. A study by Yaqoob Khan (2020) found that chatbots can improve customer satisfaction by providing quick and personalized support, reducing waiting times, and increasing accessibility. A study by Yaqoob found that chatbots can improve the efficiency of customer service by reducing the workload of human agents and increasing the speed and accuracy of responses.

Furthermore, AI is enabling real-time risk management in the banking system. By analyzing market data, economic indicators, and other relevant factors in real-time, AI can assess risk and make timely decisions. For example, AI can analyze market trends and news in real-time to assess the impact on investment portfolios and trigger automated risk mitigation measures (Bain & Company, 2021). This real-time risk management capability can help banks proactively manage risks and optimize investment strategies.

Research Methodology

Despite the already existing software solutions with AI to ensure the cybersecurity of banks, their relative primitiveness and high cost should be noted. Only large banks and financial institutions have enough budget and staff to use AI technologies, while the quality of the tasks completed by the programs is still far from ideal. Currently, many transactions are carried out without the physical involvement of a bank employee, for example, when making online payments, other than advising customers, which requires physical interaction. In turn, the intensive development of information technology and the ongoing process of digitalization leads not only to process automation, but also to a fundamental reorganization of banking services, creating new business processes such as chat bots and robo-advisers.

Financial technologies are becoming a strategically important component in the field of banking services. For example, in banks, information and communication technology (ICT) costs account for approximately 15-20% of total costs, second only to employee salaries. Compared to other industries, the banking sector invests heavily in ICT, with banks 9.4%, insurance 3.3% and airlines 2.6% of total profits. The continuous development of ICT contributes to the fact that the role of artificial intelligence in the banking sector will increase.

According to Encyclopedia Britannica, artificial intelligence is the ability of a digital computer or computer-controlled robot to perform intelligent tasks. Artificial intelligence is



applied to the design of developing systems endowed with human-specific intellectual processes, such as the ability to reason, find meaning, generalize and learn from mistakes.

There are advanced and weak types of artificial intelligence. Advanced artificial intelligence has the superior intellectual ability of a human and performs any intellectual tasks on a par with it. But advanced artificial intelligence is still under development. Today, the existing artificial intelligences are poorly developed and are highly specialized, i.e. perform well-defined tasks.

Large foreign banks are gradually delegating large volumes of routine back office work to artificial intelligence. In addition, some functions of the front office, such as advising customers through digital channels, are also transferred to artificial intelligence to improve the quality of banking services. According to a survey conducted by the analytical company Accenture, the majority of banks are of the opinion that artificial intelligence will have a significant positive impact on improving the quality of banking services in the near future. Thus, 79% of respondents said that artificial intelligence will transform the process of collecting information and improve interaction with customers, 78% said that artificial intelligence will create simplified user interfaces that will allow customers to perceive artificial intelligence as human, and 76% think that banks will move to use of artificial intelligence as the main channel of communication with customers over the next 3 years.

Foreign banks are successfully using artificial intelligence both in the back office and in the front office. For example, the largest banks in North America such as Bank of America, JPMorgan Chase, Capital One, Master Card and American Express successfully implemented a chatbot platform in 2016. In particular, the largest bank in America, Bank of America, offers its customers the services of a chat bot assistant called Erica. Below is a drawing of Eric's chatbot from Bank of America, which does not use third party platforms such as Facebook Messenger but is designed as an independent application.

Since 2015, the popularity of chatbots and robo-advisers has been growing in the US and Europe. They act as financial advisors who analyze clients' income and expenses, then suggest ways to save money, save money, and replenish a savings account. Chatbot services abroad are provided through platforms such as SMS notification, Facebook Messenger, and Slack. For example, messaging apps have become popular channels for interacting with customers, overtaking social networks.

Results and Discussion:

The introduction of artificial intelligence in the banking sector of Uzbekistan faces many practical difficulties. Banks should determine the purpose of using artificial intelligence. For example, if banks pursue super-fast customer service through artificial intelligence, then the level of customer experience may suffer. The successful implementation of artificial intelligence technologies in the banking sector of Uzbekistan requires improving the quality of the customer database, cooperation with specialists from leading foreign fintech companies, and risk assessment.

First of all, appropriate algorithms should be developed. These algorithms work efficiently with a large amount of customer data. These databases should be centralized so that the source of information about the client's financial situation is one, and the chatbot provides clients with useful money management tips.



While banks in Uzbekistan have a database of customers, it is necessary to convert this data into a usable format. As a solution to this problem, foreign banks have implemented a unified Data Warehouse (DW) system, which is a data warehouse. The introduction of DW will allow banks to solve other limitations, such as replacing obsolete systems and real-time data processing. By updating data in real time, modern DWs allow instant notifications to be sent to clients. Thus, in order for banks in Uzbekistan to be able to provide chatbot and robo-advising services, it is necessary to have high-quality customer databases. Next, chatbots and roboadvisors must have access to quality information to provide adequate information to customers.

The next important condition for the introduction and development of chatbots and roboadvising in Uzbekistan is the establishment of close cooperation with specialists from leading fintech companies. Another important condition for the successful implementation of chatbots and roboadvising is planning and assessing potential risks. The successful implementation of the AI implementation plan will increase the efficiency of banks, reduce costs and improve the quality of service.

Artificial intelligence technology is complex. Therefore, improper implementation of project steps will create significant risks and may cause harm to clients. To minimize these risks, all stakeholders, in particular bank employees working with clients, and ICT specialists, should participate in all stages of the design and implementation of chatbots and roboadvising. Before launching a project, it is necessary to conduct thorough testing to identify and assess risks.

Before introducing chatbots and robo-advising, banks should carefully study the security issues of these technologies. As you know, these technologies process and store customer databases to formulate responses to possible requests. Therefore, banks should first of all develop an algorithm of rules and processes regarding the storage and processing of data. The security of chatbots is provided by technologies identical to those used in mobile applications. These include two-factor and biometric authentication, behavior analysis technologies, and other more advanced artificial intelligence technologies. For maximum security, communication with the chatbot must be encrypted.

Conclusion

Despite the already existing software solutions with AI to ensure the cybersecurity of banks, their relative primitiveness and high cost should be noted. Only large banks and financial institutions have enough budget and staff to use AI technologies, while the quality of the tasks completed by the programs is still far from ideal. The next point concerns the vulnerability of AI to malicious data manipulation (creation of fake data, massive increase in data, slowing down processing processes). As a result, AI tools will make decisions based on false assumptions and discredit (to the point of discrimination) certain subjects. Another problem may be the interconnectedness of systems connected to AI, as well as the use of AI in malware that infects bank information systems. As a result, the solution of all these problems lies in the plane of constant monitoring of specialists. As can be seen from the foregoing, ensuring cybersecurity in the context of the introduction of AI depends on a number of conditions, both technical and organizational and legal. Along with the problems of protecting the rights and legitimate interests of subjects of banking and financial relations, there are



problems of determining the type and limits of liability in the case of outsourcing of certain processes and services, as well as issues of risk assessment and management.

In Uzbekistan, banks are actively starting to implement chatbots. For example, the National Bank of Uzbekistan (NBU) is developing a chatbot for the Telegram messenger, which is a popular application among smartphone users. The NBU chatbot will allow the bank to improve the quality of remote services. So, for example, bank customers will be able to instantly receive online consultations, learn about new products and promotions for customers. In addition, the NBU chatbot will reduce the workload of the call center and the cost of maintaining it.

Thus, chatbots and roboadvising are a new business model that can transform the banking sector in Uzbekistan. These technologies will provide a number of benefits for banks, in particular, improve the quality of service, retain the existing customer base and attract new ones. These technologies can help in the fight against fraudulent activities. Based on the above arguments, it is safe to say that chat bots and robo-advising have a huge development prospect in the banking sector of Uzbekistan.

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