Risks and Prospects for the Development of Artificial Intelligence in the Banking Sector

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Annotation. This article is devoted to the essence of artificial intelligence, the forms of AI in the banking and financial sector, the barriers to the use of AI, the risks of AI in the banking sector and how to manage them, the prospects for the development of AI in the global banking practice.

Keywords: Artificial intelligence, chatbots, innovation, risk, technology, optimization, robo-advisers, economic effect.

I. Introduction

The banking sector, thanks to its penchant for technological innovation, has become one of the first sectors of the economy to actively implement artificial intelligence (AI) technologies. AI technologies are powerful tools for profound transformation of banking activity and provoke major shifts in the structure of financial markets and their regulation. The use of AI technologies is leading to radical changes in the business model of traditional banks, their corporate structure and competitive drivers, as well as the emergence of completely new operating models, methods and tools for interacting with customers. Banks around the world, including Uzbekistan, are using AI to improve customer experience and understand their needs, increase revenue, reduce operating costs and, ultimately, strengthen their competitive position in the markets.

II. ANALYSIS OF THEORETICAL VIEWS ON THE TOPIC

Artificial intelligence will play a central role in the economy of the future and serve as a growth driver.

The applications of artificial intelligence are manifold, from predictive analytics and chatbots to fraud prevention and compliance. Bank investments in machine learning technologies are growing annually by an average of 46.2%.[1]

In recent years, the pace of AI adoption has accelerated. The volume of corporate investment in AI technologies in the world, according to Stanford University scientists, increased by 40% in 2020 compared to 2019, despite the pandemic and economic downturn, i.e. from $48.9 billion to $67.9 billion. This was a sharp jump in AI investment compared to the dynamics of this indicator in 2017-2019. (in 2017, corporate investment was about $44 billion) [2].

The main commercial applications of artificial intelligence technologies in banks are (fig.1).

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Fig.1. Key Applications of AI[3]

AI in banking has accelerated access to products for many customers and automated some steps in internal processes, which also affected the speed of service. Another reason for using AI: cost optimization. For example, in 2020, the introduction of AI brought a financial effect of □ 100 billion to Sberbank— this is both earned and saved money. In 2021, this figure was already □ 200 billion [3].

Organizations that use artificial intelligence (AI) and other emerging technologies in finance and operations are growing their annual profits 80% faster [4].

Organizations that adopt new financial management technologies are seeing far greater benefits than they originally thought. For example:

• The number of errors in the work of finance departments decreased by an average of 37%.

• 72% of AI-using organizations reported having a clearer picture of overall business performance.

• 83% of executives believe that within five years, AI will make financial close completely automatic.

• Digital assistants increase productivity by 36% and allow you to perform financial analysis 38% faster [5].

III. ANALYSIS AND RESULTS

In 2018, banks earned about $41.1 billion thanks to the use of artificial intelligence. This amount includes both direct revenues from the introduction of such technologies, as well as the amount of reduced costs and the benefit from increased efficiency of financial institutions (compared to if they left the same processes and infrastructure).
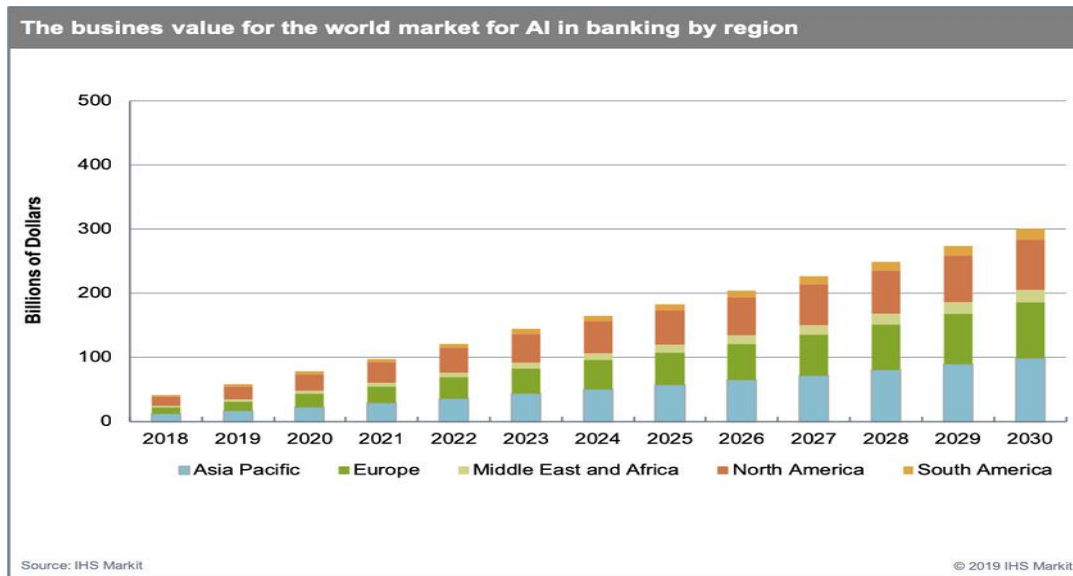
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Fig.2.The business value for the world market for AI in banking by region[6]

According to experts, by 2030 commercial AI projects will bring banks a total of $300 billion (Fig. 2) [6].

Artificial intelligence is revolutionizing the banking sector by detecting financial fraud based on a predefined set of rules.
How can AI be applied in banking?

Table 1
AI Use Cases [7]

#№	Operation	Characteristic	Effect
11.	Customer scoring	Automatic decision making on customer applications for loan products	Consideration of the application within 7 minutes, the percentage of delay is reduced to zero
22.	Voice assistants and chat bots	They are used when a client contacts a call center or a bank chat to reduce service time and optimize the work of employees.	Thanks to the use of Oleg's voice robot in the call center of Tinkoff Bank, clients began to receive advice 40 seconds faster on average, and the bank saves over □ 30 million per month
33.	Anti-fraud and financial monitoring	AI is used to counter financial fraud by analyzing atypical behavior of individuals and legal entities.	Increases the security of operations and reduces the risk of losses
44.	ATM service	AI predicts ATM occupancy and reduces cash collection costs	Reduces collection costs
55.	Documentprocessing	With the help of AI, it automatically processes and enters customer data when opening accounts and performing banking operations where identity verification is required.	Artificial intelligence recognizes more than 70 details from scans and photos of documents for each client in 2 seconds and performs about 15 automatic data checks

North America remains the largest market for the use of AI solutions in the banking sector: companies there earned $14.7 billion on such technologies in 2018. By 2030, the economic effect of the introduction of artificial intelligence in the region will jump to $79 billion (fig.3).
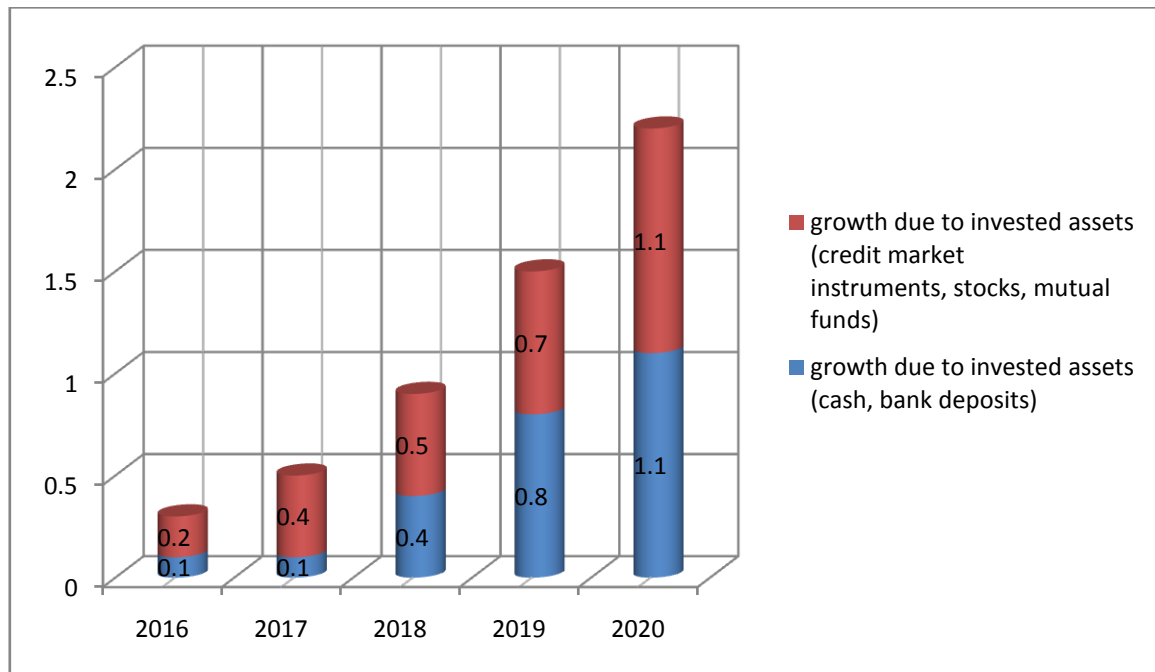

Fig.3. Forecast of assets managed by robo-advisers in the USA (trillion US dollars)[8]

However, by 2024, the Asia-Pacific region will break out into the lead, where banks will earn and save about $50.6 billion thanks to AI against $11.5 billion in 2018. By 2030, the figure will rise to $98.6 billion, largely due to demand in countries such as China (including Hong Kong), Japan, South Korea and Singapore.

IV. CONCLUSIONS AND OFFERS

The main barriers to the development of AI technologies today are:

1. This is the possibility of collecting and exchanging depersonalized data for learning solutions in compliance with all legal norms and protecting citizens' data;

2. Lack of qualified specialists: data scientists (who are able to convert large amounts of data and apply them to solve specific problems), specialists in AI, data analysis and machine learning, etc.;

3. This is the presence of a trusted infrastructure that will allow you to create and train AI solutions, because such an infrastructure is quite expensive, since the video card market is overheated due to the cryptocurrency hype.
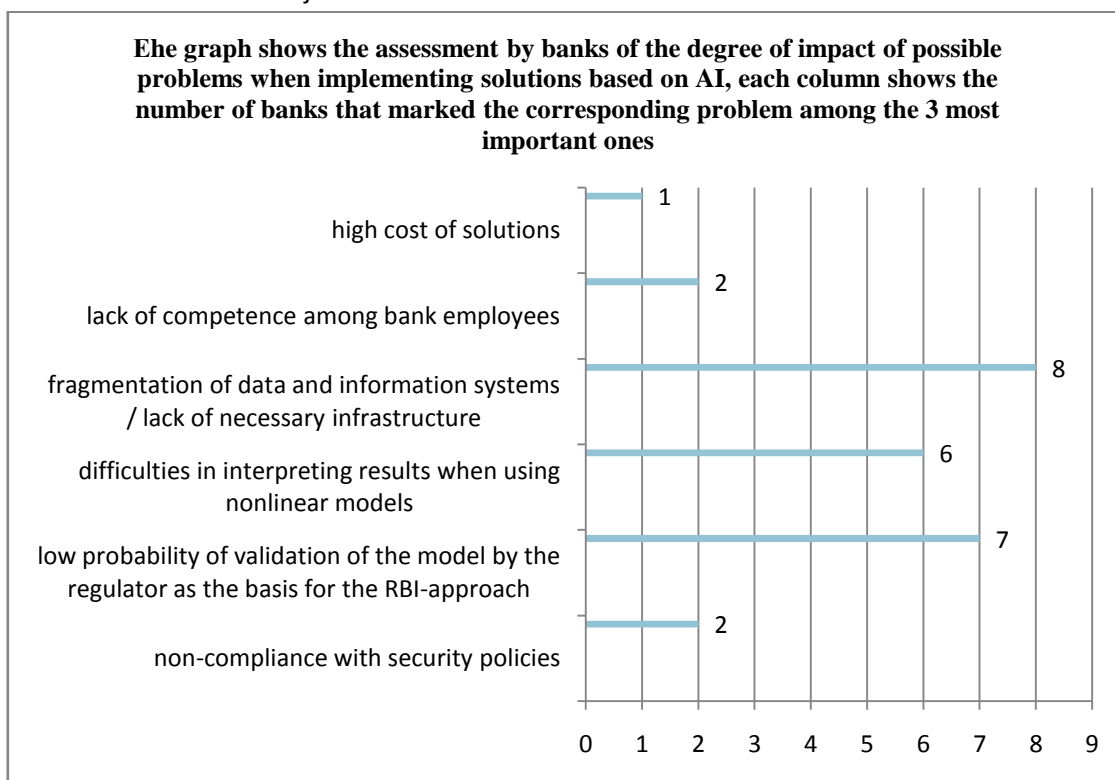
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Ehe graph shows the assessment by banks of the degree of impact of possible problems when implementing solutions based on AI, each column shows the number of banks that marked the corresponding problem among the 3 most important ones

high cost of solutions — 1

lack of competence among bank employees — 2

fragmentation of data and information systems / lack of necessary infrastructure — 8

difficulties in interpreting results when using nonlinear models — 6

low probability of validation of the model by the regulator as the basis for the RBI-approach — 7

non-compliance with security policies — 2

0 1 2 3 4 5 6 7 8 9

Fig.4. Factors limiting the use of AI in banks [3]

Also relevant are issues related to the safety of the use of artificial intelligence, the ethics of its use and the economic consequences associated with AI.

After all, the introduction of artificial intelligence technologies in the banking industry also has negative consequences - job cuts and redeployment of personnel due to the improvement in the productivity of financial companies due to AI technologies.

Analysts predict that artificial intelligence will impact tens of millions of jobs in the global financial industry.

In the USA, for example, this will affect 1.3 million people by 2030, and in the UK - 500 thousand.

Despite the existing difficulties, in the context of the digitalization of the world economy, the introduction of AI technologies is one of the most important conditions for increasing the level of competitiveness of the domestic banking system. Currently, without the use of AI, financial institutions cannot survive in the market. It is clear that when implementing AI-based innovations, difficulties and challenges cannot be avoided. Therefore, one should strive to minimize the risk of error, for example, by preliminary testing of a business idea, a thorough study of consumer preferences and the successful experience of competitors, a deep analytical study of the project, calculations of its payback, etc. Artificial intelligence must be objective, fair in making a decision, controlled by a person.

To mitigate these risks, every commercial bank must adopt AI ethics principles.

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