ARTIFICIAL INTELLIGENCE TO RESHAPE BUSINESS: CASE OF BANKING

Abstract:
Modern banks are creating their own ecosystems, which are providing the digital transformation of the entire banking business. This paper examines the change in the business model of large Russian banks through the introduction of Artificial Intelligence technologies.

Keywords:
Artificial Intelligence, AI, business model transformation, automation, banking industry, banks in Russia

Banks have long played a critical role in the economy, collecting deposits from individuals and businesses and providing credit to meet financial needs. The classical banking system has been the backbone of the financial sector for decades. However, with the rapid development of technology, particularly Artificial Intelligence (AI), the banking business is undergoing a transformational change.

We are just at the beginning of the journey of changing the world with AI technology, so there are not many articles with detailed analyses of AI-enabled business models. Basically, many of the papers boil down to the fact that AI helps increase profits by minimizing costs and automating business processes. In addition, McKinsey highlights the following trends in the banking sector:

1. Rising customer expectations as adoption of digital banking increases.
3. Digital ecosystems are disintermediating traditional financial services.
4. Technology giants are entering financial services as the next adjacency to their core business models.

The relevance of the research topic is due to the fact that artificial intelligence technology is more actively implemented in business processes, and the recent release of ChatGPT has led many to think about how much will change because of Artificial Intelligence technologies. Some researchers suggest that the “AI revolution” is the current significant transformation in the entrepreneurship field and economic productivity. Knowledge, ideas, innovation and technological changes are important factors in business.

The purpose of this paper is to study the changes in banking services and the business system of the banking sector.

The objects of the research are 4 largest banks in Russia, which actively use artificial intelligence and machine learning technologies in their business tasks.

The subject of the research is the application of artificial intelligence technologies in banking activities. The objectives of the study are to collect information on the application of artificial intelligence in banks and to study their implementation in various processes and the effect of application.

The method chosen for the study is a case study, which describes the processes of digitalization and the application of artificial intelligence technologies in the banking industry. The paper also uses Business Model Canvas, which will be used to investigate changes which happened after AI-technology implementation.

Sberbank and VTB as the 2 largest banks in which the state is the majority shareholder, as well as Alfa-Bank as the largest private bank and Tinkoff-Bank as one of the best banks in Eastern Europe within the implementation of digital technologies were selected as cases.

Value proposition. The value proposition of banks seeking to become AI, coincide - to provide quality services at the expense of personalization with a minimum of complexity and maximum comfort for the client.
Customer relations. Despite the similarities in the value proposition, each bank tries its own ways to build good relationships with customers. Table 1 shows examples of how each bank tries to do this.

<table>
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<th>Bank</th>
<th>Customer relations</th>
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| SBER         | ● Reducing time to fill out a form for credits for corporate partners to 7 minutes, and for individuals for a few minutes [3]  
               | ● Improved customer journey in products by 4-10 times after starting using AI in the analysis of credit cards (100% of cases), consumer (90%) and mortgage (50%) [3]  
               | ● Implementation of AI into chatbot for increasing the number of customer questions resolved at first contact [3] |
| VTB          | ● Using AI to make decisions on loans, in voice assistance, the call center, chatbots and in marketing tasks, for high level of customer protection from fraudsters [4], [5]  
               | ● Using AI to open new branches and renovating existing ones for maximum customer comfort [4], [5]  
               | ● Loyalty program with different partners  
               | ● Using omnichannel strategy [4], [5] |
| Alfa bank    | ● Phygital model - combining digital innovations with an effective network of presence [6]  
               | ● Using AI to identify customers and give them personalized offers in phygital offices by Face ID [6]  
               | ● Gamification, loyalty program, rewards [7]  
               | ● Using AI to make credit decisions the retail segment and to detect fraudulent schemes [8] |
| Tinkoff bank | ● Digital ecosystem with a big range of other functions (mobile network, buying of cinema, theater tickets, booking hotels for travels etc.) [9]  
               | ● Loyalty program with cashback system, gamification with rewards  
               | ● Using voice assistant Oleg with opportunities to set individual characteristics for many tasks [10]  
               | ● High degree of remote banking |

Channels. AI technologies are high-tech technologies that use data for solutions. That's why AI banks focus on interacting with the audience online. For example, Alfa Bank has about 80% of its daily audience using mobile banking [11]. VTB, Sberbank and Tinkoff use a strategy of creating omnichannel and ecosystems so that the user interacts with the bank not only directly in the app, but also in other services in the ecosystem, and that this interaction is with minimal complexity.

Key resources. It is safe to say that data is the main resource that banks are fighting for, because the results of AI technologies will depend on the quantity and quality of data. However, equally important are specialists in data analysis, machine learning, artificial intelligence and other IT specialists who can organize all the necessary structure and teams.

Key activities. The basic banking functions remain the same, but are now augmented with big data analytics and more process automation. Banks are also actively involved in developments and research on AI. For example, Sberbank holds an annual AI Journey conference and VTB holds a Data Fusion conference with a competition in machine learning and data analysis.

Key partners. To drive digital transformation, banks are actively partnering with IT companies, as well as creating separate IT departments focused on AI research. For the same purpose, banks cooperate with universities, creating joint departments, educational programs, scholarships, competitions and conferences on artificial intelligence. And, of course, there is the cooperation with the state, which is developing a regulatory framework for the development and use of artificial intelligence.

Customer segments. The structure of the target audience of banks is changing in the direction of digital natives - people who grew up in the digital world since childhood. The more of them there will be over time, the more it will affect the bank's strategy.

Cost structure. Building an AI bank requires a reliable infrastructure for data storage and processing, so AI banks will incur significant costs to purchase and maintain IT-infrastructure and hire specialists. In addition, banks in the new business model spend money on conferences, competitions, supporting talented students and creating their own
laboratories for research. In particular, Sber is ready to invest 150 billion rubles in the development of AI technologies [12].

Revenue streams. Since AI technologies allow optimizing business processes, banks reduce their staffing costs. Sberbank has already cut more than 14,000 employees (4.6%) and has announced that it plans to cut staff in half by 2025 because of process automation [3]. Automation helps increase the efficiency of current business processes. Sber has estimated the effect of AI implementation at 230 billion rubles and VTB at 305 billion rubles in 2022 [13], [14].

In the digital business model of AI banks, data is the main resource. Their quality determines what the bank's revenue will be, how many customers it will have. In this regard, banks invest in retraining their employees, cooperate with IT companies and create separate departments within themselves responsible for R&D in the field of artificial intelligence, which makes the bank, to some extent, similar to IT companies. Another important component is the creation of an ecosystem: AI banks go beyond traditional loans and deposits and offer a wider range of products, including ticket purchases, hotel reservations, game mechanics, etc. And lastly, automation, which optimizes processes, reduces costs, increases efficiency to increase customer satisfaction, resulting in a cumulative increase in banks' profits.

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