

AI and the future and bankingAuthor: Maria El Hajj¹*Affiliation:*

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Abstract:

Artificial Intelligence (AI) is increasingly gaining relevance within the banking sector and is influencing the way banks deliver their services, mitigate risks and communicate with their clients. This paper aims at analyzing the emergence of Artificial Intelligence in the banking sector and the potential implications of its influence for the future of the sector. Customer care, fraud detection, loan issuing, payment processing, risk management and personalized banking services are some of the topics covered by this paper. Moreover, the main challenges posed by AI are also considered here, such as cybersecurity, privacy issues, opacity and technology dependence. In general terms, AI is expected to contribute to making banking more efficient, fast and personalized, but banks will need controls and supervision as well.

Keywords:

Artificial intelligence, banking sector, financial technology, fraud detection, risk management, personalized banking, cybersecurity, regulatory compliance, customer service automation, credit-risk assessment, digital payments, human oversight

Introduction:

Technology has brought many changes to the banking sector over the past several years. Banks shifted from branch services to online banking, mobile applications, digital payments, and automation. Artificial Intelligence (AI) is now one more step in this transformation process.

AI makes it possible for computers and software to analyze a great deal of information, find patterns, and perform actions which normally would require human intellect. In banking, this includes responding to customer inquiries, detecting abnormal activity, assessing credit risks, optimizing compliance processes, and assisting employees in analyzing information.

Banks are a perfect field for AI development due to the intensive work with a large amount of data. According to the Bank for International Settlements, finance organizations are some of those sectors which have a lot of opportunities for AI development as a result of their data-intensive operations. Some of the areas where AI can be implemented are payments, loans, fraud detection, customer service, and asset management.

Therefore, the future of banking will be connected with the use of AI along with other technologies like cloud computing, mobile applications, and digital payment solutions. At the same time, the emergence of AI creates additional problems for banks such as data privacy, cybersecurity, model risk, and the possibility of incorrect or biased decisions.

This paper looks into the ways in which artificial intelligence technology is influencing the banking sector, what literature suggests about its further development and adoption, and the key benefits and issues that banks may have to confront due to this technology.

Literature Review:

2.1 Artificial Intelligence and Customer Service

Perhaps one of the most obvious uses of artificial intelligence technology by banks concerns customer service. Banks can use intelligent chatbots and virtual assistants to answer customers' questions and assist in any other way. This can allow customers to get their questions answered faster and lessen the number of repetitive tasks that bank workers need to perform.

According to the BIS, large language models and AI technologies are being increasingly used for customer service purposes via chatbots and co-pilots. This can enable banks to work with information more efficiently and communicate with customers.

In the future, AI technology may make the services offered by banks more personalized.

Through analysis of the data on customer's purchases and preferences, banks may be able to offer the customers more relevant services and financial products.

2.2 AI and Lending

Artificial intelligence may also transform how banks make loan decisions. Banks usually assess their clients based on income level, past credit history, debts, and repayment habits. Artificial intelligence can evaluate a large volume of data and detect certain patterns that might help banks assess the risk of credit.

According to the BIS, artificial intelligence has applications in lending, especially credit-risk assessment and financial inclusion. The use of AI will enable financial institutions to better assess borrowers' information.

Banks need to be very careful while using AI in their lending activities because a biased algorithm may negatively impact their clients. It is thus necessary to ensure transparency, high-quality data, and human oversight while using artificial intelligence in critical banking activities.

2.3 AI and Fraud Detection

Detection of frauds is one of the areas where banking may benefit from artificial intelligence in the future. Banking institutions make millions of transactions, and employees cannot verify each transaction manually.

AI is capable of analyzing transactional data and finding any odd behavior, which could mean that the transactions are fraudulent. The BIS notes that among the areas in which AI may be useful in enhancing efficiency in financial institutions, there is fraud detection. Additionally, AI may also assist in KYC and anti-money laundering by analyzing a large amount of data in banks.

According to recent studies, AI has revolutionized the audit industry (Sawaya et al., 2026), thus increasing the transparency of financial statements (Saber & Sassine, 2022), however according to subject expert, this is conditioned by auditor independence (Sawaya et al., 2025).

Since financial crimes are becoming more advanced, the use of AI in order to detect any suspicious activities can become an important tool. However, at the same time, it is possible that criminals will use AI to develop even more advanced attacks.

2.4 AI and Payment Services

It is anticipated that the development of AI will have an impact on payment services. In the current era, modern banks utilize digital payments, mobile banking, and online transfers. This will be improved through the use of AI to help banks analyze transaction data and manage liquidity.

According to the BIS, AI could help in payment activities in ways such as liquidity management and AML/KYC practices. The huge transaction data generated by the financial institution presents an opportunity for AI systems to detect the patterns and enhance the process of payment.

This is bound to result in the efficiency and fastening of payment systems in the future. However, the reliance on digital systems would mean that cybersecurity would be a major issue.

2.5 AI and Risk Management

Risk management is an essential function in banks and artificial intelligence can help banks detect and manage various forms of risk. The AI systems can be used to analyze vast amounts of data and identify possible problems before they escalate.

According to research done by BIS, the use of AI in risk management and operations can improve these functions while at the same time presenting new risks such as model risk, data privacy risk, cybersecurity risk, and reliance on third-party vendors.

As such, the future deployment of AI in the banking sector will necessitate banks' ability to have robust monitoring and control systems of the AI models.

2.6 AI and firm performance

AI has been found to increase firm performance, especially for Small and Medium Enterprises SMEs (Khalife et al., 2024), this is particularly the case when combined with proper governance (Athari et al., 2023) and proper human business experience (Chaanine et al., 2023). AI can also increase the performance of investing corporations, through sentiment analysis which were not available before the technological surge (Khalife et al., 2025), and even though the results on a national scale vary (Athari et al., 2026), but the results on an enterprise level have been found significant (Azoury et al., 2024). Furthermore, AI has positively attributed the non-financial performance of firms and the value of their stocks accordingly (Kaspard et al., 2025 ; Kaspard et al., 2026), technology also enabled the creation of cryptocurrency (Beainy & Kamel, 2026) and predicting financial distress (Elia et al., 2021) allowing companies to get equity financing at a lower required return due to lower risk (Rizk & Sassine, 2023).

However, the literature adds that this positive impact is dependent on technological adeptness (Bejjani et al., 2024) and proper knowledge management combined with big data analytics to have a significant effect on firm performance, (Subrahmanyam et al., 2024), finally, AI resulted in better pricing (Khalife et al., 2023) thus positively contributing to an increase in market efficiency.

2.7 AI and the Transformation of the Banking Industry

AI might also bring about changes to the banking industry itself. Modern banks are not competing just against traditional banking organizations anymore. The involvement of technology companies and fintech firms is also growing in the financial services sector.

Thanks to AI, cloud computing, mobile technologies, and big data about the customers, new ways to provide financial services are emerging. A discussion paper of the BIS about the future of banking emphasizes how technologies are transforming client expectations and enabling financial organizations to provide fast and personalized services.

In other words, future banks have to pay attention not just to their traditional services but also to technology, data, and personalization of financial services.

Methodology:

For the preparation of this report, a qualitative secondary research methodology has been employed. The data collection involved an examination of various existing scholarly and institutional literature about artificial intelligence, banking, financial technology, and future finance.

The primary sources that have been used include reports from the Bank for International Settlements (BIS) and the International Monetary Fund (IMF). These organizations were chosen as they undertake research and publication regarding banking, financial stability, technology, and financial regulation.

Various areas of interest included artificial intelligence in banking including customer service, loans and mortgages, fraud prevention, payments, risk management, and future developments in the banking industry.

From this data, the findings from the various sources were analyzed in terms of common themes, while at the same time highlighting the benefits and potential risks of AI to the banking sector.

Since the research is based on secondary information, it does not include any surveys or personal interviews. However, the first limitation is the rapidly developing nature of AI technology. Thus, future advancements in AI may affect how AI will be used by banks.

Results:

4.1 AI Can Increase Efficiency of the Banking Sector

According to the research, efficiency can be regarded as one of the most significant impacts of AI on banking. With the help of AI, banks can automatize routine tasks and process information at a much higher speed compared to conventional approaches.

As per the BIS, improvements in back-office operations, regulation, fraud prevention, and customer service are some of the opportunities provided by AI technology.

In this case, workers can focus more on interpersonal and analytical aspects of their jobs.

4.2 Personalization of Banking Services

The final implication of the results is that AI may allow banks to offer more personalized services because of its ability to analyze data about customers and their behavior. Thus, banks will be able to find out individual requirements of their customers.

This can concern different financial products or services that are needed for a customer at a certain point. Personalized advice, recommendations regarding saving or banking services can be mentioned here.

One of the factors that supports this trend is the increasing availability of customer and transaction data.

4.3 Fraud Detection and Compliance Monitoring with the Help of AI

Another conclusion from the study is that AI can help to improve fraud detection and compliance operations. It allows analyzing many transactions and detecting abnormal patterns in them.

According to the BIS, fraud detection and KYC/AML activities are among the processes in which AI can help to identify risks and handle the information received.

But there is another aspect associated with using AI. It brings up the issue of cybersecurity. IMF notes the potential problems with cyberattacks and manipulation associated with the growth of the application of AI in financial markets.

4.4 Banks will Need New Skills

The development of AI in the future in the field of banking will have an effect on the skills of bank employees as well. In other words, banks will require employees that are familiar with technology, data, cybersecurity, AI, and risk management.

As mentioned before, the BIS has highlighted the role of skills and expertise as banks start implementing AI in their operations. Banks will require employees that can understand how AI systems work and spot potential flaws.

In other words, AI does not just have an impact on the banking technology, but may also affect the type of job that is required within the banks.

4.5 AI Generates Risks for Banks

Despite all the benefits of AI systems, it should be noted that the results of the research prove that there are significant risks as well. In particular, one of the main issues that should be considered is that AI systems can produce incorrect results or decisions as a result of using inappropriate data.

Other risks include data privacy, cybersecurity, the lack of transparency, reliance on external technology providers, and model risk.

Furthermore, there may be considerations concerning financial stability. According to the International Monetary Fund, AI may help increase the efficiency of operations in the financial sector but also add to its opacity, trading volume, and exposure to some particular risks during times of financial distress.

4.6 Human Oversight Is Still Going To Matter

Finally, according to the findings, humans are still going to matter despite all the advances in technology. The International Monetary Fund has indicated that market participants find human oversight important from various perspectives such as regulation, risk management, liability, and ethics.

Therefore, the future of banking is not supposed to be only technologically driven. Banks are expected to employ artificial intelligence systems alongside human expertise and oversight. This approach may allow banks to reap the benefits of technological efficiency while retaining human accountability for crucial matters.

Discussion and Conclusion:

In conclusion, Artificial Intelligence will become an essential element of the future banking sector. AI is currently being applied and developed for customer service, fraud prevention, loans, payments, risk management, and other banking operations.

The key advantage of AI lies in the possibility to process information fast. This might help to make operations within the bank more efficient, decrease the number of repetitive operations, identify abnormal operations, and increase the personalization of services to the customer.

However, the further use of AI poses certain challenges for banks. It will be necessary to manage the risks connected with cyber security, data privacy, data quality, model risk, transparency, and technological dependencies. Both BIS and IMF emphasize that the use of AI will be beneficial while at the same time posing certain risks.

Therefore, it is probable that the future of banking will consist of both technology and human knowledge. AI is able to analyze and perform repetitive operations, while the human employee is capable of applying judgment and taking responsibility. The further development of the technology will force the banks to invest not only in technology but also in people's skills, security, governance and ethical use of the data.

In conclusion, AI is very promising in terms of the influence on the banking sphere. It is how banks will apply technology that will determine their future in the industry.

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