



Impact of Artificial Intelligence on the Albanian Banking System

Monika Kolleshi¹

Ela Golemi²

¹MSc in Finance, Senior Accountant,
Consulcesi Group, Albania

²Assoc. Prof. Dr.,
Department of Economic Sciences,
'Aleksander Moisiu' University of Durrës,
Durrës, Albania

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Abstract

This paper investigates the impact of Artificial Intelligence (AI) within the Albanian banking sector by exploring the dynamic landscape shaped by the fusion of advanced technologies and financial services. The research paper handles a comprehensive approach encompassing technological applications and the ensuing socio-economic consequences. Additionally, the paper emphasizes the role of AI in automating daily processes, enhancing customer experiences, and fortifying security measures. Through a qualitative and quantitative analysis, the research aims to provide a detailed overview of the AI landscape in Albanian banking. In conclusion, this paper sheds light on the multifaceted impact of AI in the Albanian banking system, offering a comprehensive understanding of the evolving landscape. As financial institutions embark on the journey of digital transformation, this study endeavours to guide strategic decisions, inform regulatory policies, and pave the way for a resilient and technologically adept banking sector in Albania.

Keywords: AI, Banking system, Fintech, Risk Management

1. Introduction

In recent years, the rapid advancement of Artificial Intelligence (AI) has sparked intense debate regarding its increasingly pervasive influence on various aspects of modern life. This phenomenon has not only captured the attention of scholars and practitioners across diverse fields but has also raised profound questions about the future trajectory of humanity. In particular, the banking industry stands at the forefront of this technological revolution, grappling with both the challenges and opportunities presented by AI integration. As AI continues to reshape traditional banking practices, a critical inquiry emerges: What implications does this evolving landscape hold for the roles and perceptions of banking personnel? This article delves into these questions, specifically focusing on the perceptions of clients and employees in Albania, shedding light on their perspectives amidst the ongoing technological transformations.

1.1 Research questions

- 1) What are the perceptions of Albanian bank customers regarding the impact of AI technologies on service

- quality, security, and overall banking experience?
- 2) How do employees within Albanian banks perceive the integration of AI technologies in their work environment, and what are their attitudes towards the potential benefits and challenges associated with AI implementation?

1.2 Study Hypotheses

- 1) In the conditions of the isolations caused by the COVID-19 pandemic, the Albanian Banking system went more through AI technologies.
- 2) Customers of Albanian banks who perceive their knowledge about AI technologies in banking as limited are less likely to trust or embrace AI-powered services compared to those who feel well-informed about the implementation and benefits of AI.
- 3) Employees in Albanian banks who have positive perceptions of AI technologies, believing they enhance efficiency and streamline processes, are more likely to support the integration of AI into their work routines and embrace training opportunities for AI-related skills.

1.3 Objective of the study

The objective of this study is to investigate the perceptions and attitudes of both customers and employees within the Albanian banking system regarding the impact of Artificial Intelligence (AI). Specifically, the study aims to assess customers' awareness and understanding of AI technologies implemented in Albanian banks and to explore employees' beliefs regarding the future role of AI in the banking sector. By examining these perspectives, the study seeks to identify potential barriers to AI adoption and opportunities for enhancing trust and acceptance of AI-powered solutions in the Albanian banking system.

1.4 Literature and related contributions

Identifying, measuring, and evaluating the impact of Artificial Intelligence (AI) in the banking sector is a very important issue for various researchers. The literature on this issue is growing rapidly, and encompasses a diverse array of perspectives from renowned scholars and researchers. For instance, Rahmani, and Zohuri et al. (2023) delve into AI's multifaceted influence across crucial domains, spanning customer experiences, security protocols, risk management, operational efficiency, return on investment, and regulatory compliance. Noreen et al. (2023) propose that the banking industry can leverage AI-based methods to enhance both customer service quality and the banks' performance indicators. Additionally, Mhlanga et al. (2020) delved into the impact of Artificial Intelligence on advancing digital financial inclusion, underscoring the significance of elements like chatbots, fraud detection, and cybersecurity in enhancing the service standards for bank clients. Furthermore, the article of Truby, Brown, Dahdal et al. (2020) offer valuable insights into the ethical and regulatory challenges associated with AI adoption in banking, stressing the necessity for transparent governance frameworks and robust data protection mechanisms to safeguard consumer interests and ensure regulatory compliance.

Collectively, these seminal contributions underscore the multifaceted implications of AI on the banking sector, highlighting its potential to drive innovation, enhance customer experiences, and reshape traditional banking paradigms while also underscoring the importance of addressing ethical, regulatory, and operational challenges to maximize its benefits effectively.

1.5 AI definition and the history of AI in the banking system

"Artificial Intelligence means a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments."¹

The journey commenced in the 1950s with Alan Turing's proposal of the Turing Test, a pivotal moment in AI history, immortalized in the film "The Imitation Game," which sheds light on his contributions during World War II, particularly his role in cracking the German Enigma code. Subsequently, in the mid-1950s, John McCarthy coined the

¹National Artificial Intelligence act of 2020' U.S. Department of State.

term "artificial intelligence," with the Dartmouth conference serving as AI's formal genesis as an academic discipline.

The 1960s witnessed the emergence of Eliza, one of the pioneering chatbots, heralding the advent of conversational AI by simulating the role of a therapist. Progressing into the 1980s and 1990s, banks made strides in credit scoring and fraud detection through the utilization of machine learning techniques, notably neural networks, thereby optimizing loan approval processes.

The dawn of the 21st century saw the burgeoning popularity of chatbots in banking, propelled by advancements in AI and natural language processing (NLP), evolving into sophisticated virtual assistants. Throughout the 2010s, machine learning revolutionized banking operations, bolstering various facets such as credit scoring, fraud detection, and customer experiences. As the 2020s unfolded, the banking sector intensified its focus on cybersecurity and blockchain technology, grappling with challenges like ransomware and phishing attacks. Simultaneously, AI emerged as a potent tool for defence against cyber threats, while blockchain transcended its initial association with cryptocurrencies, finding applications in cross-border payments and identity verification.

In recent years, the proliferation of big data and the rise of deep learning methodologies have further propelled AI's integration into banking operations, empowering institutions to extract actionable insights from vast reservoirs of financial data and augment decision-making processes.

1.6 AI utilization global trends

In recent years, the banking sector has witnessed a surge in Artificial Intelligence (AI) adoption, driven by its potential to revolutionize operations and enhance customer experiences. Key trends include the widespread use of machine learning for predictive analytics, Natural Language Processing (NLP) for customer service automation, and AI-powered chatbots for personalized interactions. Advancements in computer vision have also enabled applications like fraud detection and biometric authentication. Ethical AI principles and regulatory compliance are increasingly emphasized to ensure responsible deployment.

New research by IBM and Morning Consult reveals a pivotal moment in AI adoption worldwide.

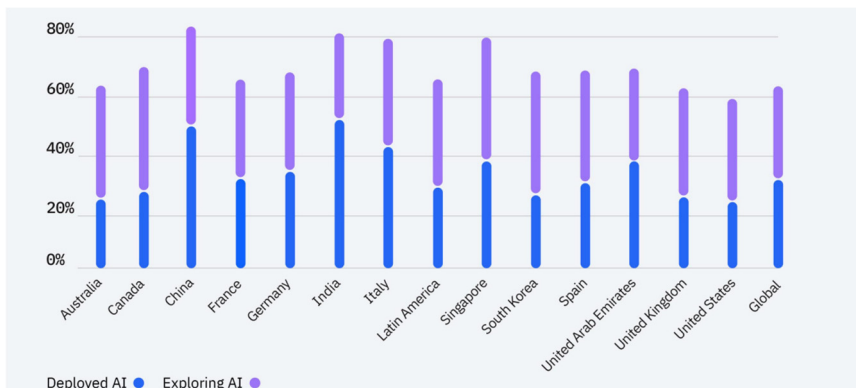


Chart 1. AI adoption rates around the world

Source : IBM

The global adoption rate of AI is steadily increasing with a global average of 53%, with widespread use in certain industries and countries. Larger companies tend to embrace AI more than smaller ones. China and India lead in AI implementation, particularly in automotive and finance sectors. Over half of IT professionals have accelerated their AI utilization in the last two years.

1.7 Generative AI and Traditional AI

Last year, BCG published an article 'Generative AI in the Finance Function of the Future.' including both traditional and generative approaches, each with distinct advantages and applications.

Traditional methods, like machine learning algorithms and statistical models, are prevalent in risk assessment, credit scoring, and fraud detection, drawing insights from historical data for decision-making. Generative AI techniques, such as deep learning and neural networks, excel in creating new data based on learned patterns. In finance, they're utilized in algorithmic trading, portfolio optimization, and scenario analysis, facilitating synthetic data generation and alternative investment strategies.

Combining both approaches yield synergistic benefits, enhancing risk management, personalizing financial recommendations, and offering real-time market insights. The trajectory of Generative AI adoption in finance follows an S-curve, starting with gradual growth, accelerating rapidly, and eventually plateauing as the technology becomes mainstream. As firms recognize its potential, they invest in talent, infrastructure, and compliance to maximize its benefits. Understanding this adoption model allows stakeholders to anticipate and leverage Generative AI's potential effectively.

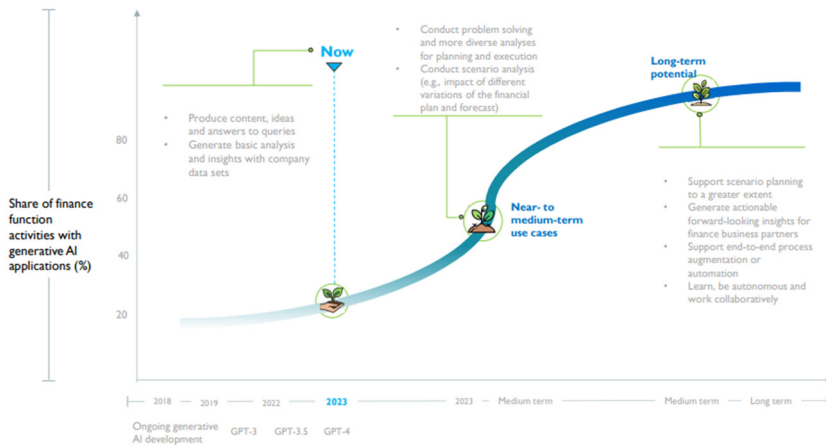


Chart 2. Generative AI adoption in Finance will likely follow an S-curve.

Source: BCG

1.8 AI on the Albanian Banking System

The integration of Artificial Intelligence (AI) into the Albanian banking system marks a transformative shift from manual processes to advanced, data-driven solutions. Historically reliant on labour-intensive operations and face-to-face interactions, the sector has progressively embraced digitalization, culminating in the current high-tech era dominated by AI-driven innovations. With AI and data analytics, banks in Albania can enhance operational efficiency, bolster security measures, and deliver personalized services to customers.

However, the deployment of AI technologies is not without challenges. Issues such as limited digital infrastructure, skill shortages, data quality concerns, regulatory uncertainties, and cultural acceptance barriers pose significant obstacles to widespread adoption. Overcoming these challenges requires concerted efforts from stakeholders to invest in infrastructure, foster talent development, refine regulatory frameworks, and cultivate a culture conducive to technological innovation.

1.9 AI applications and socio-economic implications in Albania

In the Albanian banking sector, AI applications are transforming operations and customer interactions. AI-powered chatbots and virtual assistants streamline customer service, providing 24/7 support and reducing operational costs. Machine learning algorithms enhance fraud detection by analysing transaction patterns and identifying anomalies in real-time, which strengthens security and builds customer trust. Additionally, AI-driven credit scoring models offer more accurate risk assessments, enabling banks to extend credit to underserved populations, thus promoting financial inclusion.

The socio-economic implications in Albania are profound. The adoption of AI can lead to significant cost savings

for banks, which may translate into lower fees and better interest rates for customers, making banking services more accessible. Enhanced fraud detection and risk management foster a more secure financial environment, which can increase both local and foreign investments. AI's ability to provide personalized financial advice and products can help individuals better manage their finances, leading to improved financial literacy and stability among the population.

Furthermore, the increased efficiency and reduced operational costs can enable banks to expand their services into rural and underbanked areas, thus driving financial inclusion and supporting the economic empowerment of marginalized communities. By facilitating easier access to credit, AI helps small and medium-sized enterprises (SMEs) grow, stimulating job creation and economic development. Overall, the integration of AI into the Albanian banking system has the potential to not only modernize the financial sector but also to drive broader socio-economic progress by fostering an inclusive, secure, and dynamic economic environment.

However, the implementation of these technologies in Albania is not yet at the optimal level. Several factors, including limited digital infrastructure, insufficient investment in AI development, and a shortage of skilled professionals, hinder the full potential of AI integration. There is a need for substantial investment in technology and education to build the necessary infrastructure and human capital. Addressing these challenges is crucial for Albania to fully realize the benefits of AI in banking, thereby driving broader socio-economic progress by fostering an inclusive, secure, and dynamic economic environment.

1.10 Introduction to Questionnaires

The present study sought to investigate the perceptions and attitudes of both bank customers and employees regarding the increasing impact of Artificial Intelligence (AI) in the banking sector. To achieve this, two separate questionnaires were administered, one targeting bank customers and the other aimed at bank employees. The rationale behind surveying both stakeholders was to gain a comprehensive understanding of the multifaceted implications of AI adoption in banking, considering perspectives from both service users and industry insiders. It should be said that the timeline available for these questionnaires was short and that these initial results are preliminary. Further research will be conducted after this work.

2. Methodology

A total of 290 bank customers and 104 bank employees participated in the study, with a diverse range of demographic characteristics represented. The questionnaires were distributed electronically over a short period, and participants were asked to respond to a series of Likert-scale questions and open-ended prompts. Measures were taken to ensure the validity and reliability of the questionnaires, including pilot testing and expert review.

2.1 Questionnaire Findings

Both surveys reveal similar demographic patterns, predominantly within the 26-35 age bracket, consisting mainly of individuals with university and post-graduate education, and with a notable representation of women. These preliminary findings offer valuable insights into the target demographic, underscoring the necessity for further investigation and analysis. Moreover, the results indicate that the prolonged isolation resulting from the COVID-19 pandemic has spurred an uptick in the utilization of AI among both customers and employees within the banking sector.

While a significant portion of customers express a preference for expedited banking services with minimal procedural complexities, many also admit to having limited understanding of AI technologies, facing difficulties in their comprehension and utilization. These findings can be attributed to various factors, including the prioritization of technology within the country, inadequate information and education on the benefits and risks of AI, and a lack of transparency regarding the handling of customer data by banks. Additionally, deficiencies in accountability and personal data protection within the banking system may foster distrust and resistance towards emerging technologies like AI among customers. Despite recognition of AI's potential to enhance banking services through automation, lingering uncertainties stemming from information gaps and transparency issues persist among some customers.

To address these concerns, banks must prioritize transparency and embark on comprehensive customer education initiatives concerning the advantages and risks associated with AI. Presently, many bank employees in Albania predominantly utilize 'CHATGPT' and engage in 'Big Data' analysis. Employees acknowledge both the potential benefits and challenges associated with AI integration, citing advantages such as enhanced efficiency and customer experience,

alongside obstacles like ethical considerations, implementation costs, and technological limitations.

A notable portion of employees speculate that AI may eventually replace human workers, while others remain ambivalent or disagree. Identified challenges in AI implementation for Albanian banks include development and implementation costs, technological and human resource constraints, and customer readiness. Employees express particular interest in the future development of AI applications such as automated data processing, virtual banking assistants, and chatbots for customer support. Perceived benefits of AI adoption among employees include heightened operational efficiency, enhanced customer experience, and cost reduction. While there is substantial interest among both clients and employees in embracing technological advancements, apprehensions rooted in fear continue to fuel scepticism and distrust.

3. Discussion of Implications

These preliminary findings have significant implications for the banking industry, underscoring the importance of balancing technological innovation with human-centric values. While AI presents opportunities for efficiency gains and improved customer experiences, it also raises ethical and social considerations that must be addressed. By incorporating the perspectives of both customers and employees, banks can develop AI strategies that prioritize transparency, accountability, and inclusivity, ultimately fostering trust and confidence in AI-driven banking solutions.

3.1 Limitations and Future Research

It is important to acknowledge the limitations of the study, including brief timeframe for the questionnaires, potential sample bias and the reliance on self-reported data. Future research should explore more in-depth methodologies and track long-term trends to capture the evolving impact of AI in the Albanian banking system.

4. Conclusion and Recommendations

In conclusion, the findings of this study highlight the complex interplay between technology and human values in the banking sector. By engaging with diverse stakeholders and integrating their perspectives into decision-making processes, banks can harness the full potential of AI while safeguarding against unintended consequences. Moving forward, a collaborative approach that prioritizes ethics, empathy, and innovation will be essential in shaping a future where AI serves as a catalyst for positive change in banking and beyond.

Artificial Intelligence (AI) is becoming a pivotal factor in the development of the banking system in Albania, bringing new opportunities to enhance efficiency and provide more personalized services for customers. Following the global trend, banks in Albania are investing in AI applications such as chatbots and process automation systems to improve customer experience and reduce operational costs. However, progress in AI utilization faces significant challenges, including data privacy regulations, technological infrastructure, and the need for specialized personnel in the field of AI. While some banks, have begun experimenting with AI applications, it is still early to assess the full impact of these technologies on the Albanian banking system. Close collaboration between banks, academic institutions, and regulatory authorities is crucial to harness the potential of AI in improving the banking system and addressing challenges on the path to full digitization of the financial sector in Albania.

Studies indicate that Albanian customers are generally receptive to the use of new technologies in their banks, including AI applications. They appreciate the streamlining of processes and the more personalized services offered through AI technology. As acceptance of AI grows among customers, their assessment of data security and privacy remains a significant concern. Banks must be transparent and assure customers that their data is protected and used appropriately.

Bank employees in Albania may face changes and resistance to the use of artificial intelligence due to fears of job loss or technology displacement. However, investing in training and raising awareness among employees about the benefits and risks of artificial intelligence can help facilitate the successful adoption and utilization of this technology in banking environments.

AI integration in the Albanian banking sector has the potential to enhance efficiency, security, and financial inclusion, driving significant socio-economic benefits. The socio-economic implications are significant: improved efficiency and security foster trust in the banking system, while increased financial inclusion supports economic growth by empowering individuals and small businesses. These advancements contribute to a more robust and inclusive financial

ecosystem in Albania, positioning the country to better integrate into the global digital economy. However, the current implementation is hindered by limited digital infrastructure, insufficient investment, and a shortage of skilled professionals. To fully realize these benefits, it is recommended to invest in modernizing digital infrastructure, fostering partnerships for AI development, and establishing training programs to build human capital. These steps are crucial for creating a robust environment for AI integration, which can promote economic growth and inclusivity in Albania.

Overall, to ensure the success of artificial intelligence utilization in Albanian banks, it is important for banks to understand and address the perceptions and concerns of their customers and employees appropriately, providing adequate support and training for all stakeholders involved.

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