A REVIEW STUDY OF THE ROLE OF ARTIFICIAL INTELLIGENCE IN ENHANCING BANKING INNOVATION

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Abstract

The purpose of the current review study is to reveal the role of artificial intelligence in promoting banking innovation, and technology is one of the main factors shaping the business environment in the modern era, as it is the cornerstone of enhancing opportunities for survival, growth and sustainability. As a result of the rapid and continuous development in modern technologies, which have helped to innovate new means and methods in providing banking services to customers, artificial intelligence programmes have emerged that are based on advanced modern technologies. Accordingly, the problem of the study was formulated with an important question: to what extent can artificial intelligence promote banking innovation? This was explored through a review of current literature and previous research in this field. With the increasing reliance on technology in various aspects of life, we find that the adoption of artificial intelligence in making credit decisions within the banking sector constitutes a major shift towards more innovative, efficient and accurate financial services. With the promise of mitigating risk, reducing costs and improving the customer experience, AI-powered credit decision-making is not just a passing trend, but a fundamental development in banking.

Keywords: Artificial Intelligence, Distribution Channels, Banking Innovation.

Introduction

Artificial intelligence applications are characterised by their ability to radically transform various aspects of our daily lives, as this field has recently attracted huge investments, and its implementation rates have increased significantly. The first step in linking artificial intelligence and the banking industry was the American bank "Ally", which introduced an automated chatbot system bearing the bank's name, and responds to inquiries and text and voice requests from customers. Many global banks have followed this strategy, such as IPAL, Erica, SIA, and SBI, as well as a number of other major banks in the United States and other countries, which have begun to adopt AI-based conversational technologies. The developments were not limited to this, but the artificial intelligence sector related to the banking industry has witnessed a significant increase in the volume of investments, and this trend is expected to continue to escalate in the future (UKPONG, 2022).

The banking sector is an essential element in any economy, as it contributes to facilitating the movement of funds between surplus and deficit individuals, which provides the necessary

financing for various investments and contributes to promoting economic development and increasing growth rates in diversified economies. In addition, AI has accelerated automation within the banking sector, enhancing the efficiency of operations and improving the quality of services provided (Paramesha et al., 2024).

The banking sector is currently facing a host of challenges posed by new technologies, and artificial intelligence is one of the most influential elements in this context. Artificial intelligence has brought about fundamental changes in customer interaction patterns within the banking sector, which calls for a reassessment of the strategies of the services provided (Abbas et al., 2024). Therefore, banks have moved from providing traditional services to paying attention to multiple areas in providing their banking services in search of adapting their products to market requirements, taking advantage of the latest methods and technologies that help them bring more customers and partners and reduce the risks they are exposed to, and this has helped them to improve banking performance and adapt to contemporary changes and keep pace with them, as the degree of demand for them indicates the degree of economic progress of the country (Manser Payne et al., 2021).

• **Study Problem**

Although accountants have relied on computers and automated technologies for many years to improve the efficiency and effectiveness of their business, technology has not been able to replace the knowledge and experience that professionals possess in decision-making, which most organisations need. Despite the significant influence that prices have on regulating operations, attaining quality, and cutting costs, banks have recently resorted to automating their operations in order to adapt to the right environment and ensure their survival. However, this influence is still restricted to routine or low-skilled tasks.

As a result, banks have turned to new technologies such as artificial intelligence, which works to automate non-routine cognitive tasks performed by accountants and requires high skills. Companies of all sizes and sectors can benefit from artificial intelligence technology, which saves accountants and professional business owners significant time and effort on daily financial and service tasks. In addition to its ability to use historical experience to predict potential future effects, artificial intelligence elicits both positive and negative reactions. While there are many advantages, there are also numerous risks, particularly when manipulating these systems, particularly accounting systems. However, the advantages of using artificial intelligence outweigh the risks, especially in business applications. From this perspective, the problem of the study can be formulated as an important question: What is the role of artificial intelligence in promoting banking innovation?.

• **Importance of Study**

The importance of the study in its application to the banking sector can be summarised as follows:

1. It provides a database of banking institutions related to customers' evaluations of the level of banking services provided to them and their satisfaction with these services, as well as their expectations regarding the quality of banking services, thereby contributing to increased competitiveness among banks.

2. It identifies the most significant factors that customers attach high relative importance to, particularly in relation to the quality of those banking services.

3. It highlights the importance of artificial intelligence in effecting fundamental transformations within the banking sector specifically, and across various fields in general.

4. The success of the bank is primarily linked to the promotion of innovation in the delivery of banking services.

- **Objectives of Study**

The main objective of the research is to identify the role of artificial intelligence in promoting banking innovation, and the main objective emanates from the following sub-objectives:

1. Identify the benefits of artificial intelligence in banks and its most important uses.

2. Measuring the contribution of artificial intelligence to the banking sector.

3. Educating banks on the need to progress and rely on everything new and get out of the traditional side.

4. Reaching a set of results and recommendations that help bank officials on delivering the benefits of artificial intelligence and its impact on promoting banking innovation.

- **Literature Review**

Rapid developments in technology and the digital world in the past thirty years have led to significant changes and transformations in the economic and financial spheres (Abbas et al., 2024). Adaptation, assimilation, or rejection behaviours of technological developments and new applications also vary between generations. As new generations grow with technology, the rate of access to technology by the middle class and the increase in the number of active users in social networks have radically changed the business environment and the way companies conduct their business (Demirel & Topcu, 2024). The focal point of change and transformation is the upgrading of legacy products or services, the addition of newer models, and the use of AI systems in the production of products and services. In this context, traditional corporate marketing strategies and systems have had to shift to a modern digital marketing approach in which big data is processed. Companies are becoming more "connected" to their customers through digital platforms and the internet. The main reason behind this is the popularity of social media and the rapid spread of smartphones to the lower strata of society (Andrew, 2017).

Based on a variety of cognitive disciplines, including computer science, mathematics, biology, philosophy, and engineering, artificial intelligence (AI) is thus described as a science and technology. These fields seek to create computer functions that mimic human intelligence (Jiang et al., 2022). According to Sultan et al. (2024), artificial intelligence is the capacity of a machine to mimic human mental processes and methods of operation, such as thinking, learning, and drawing on prior experiences. Systems and computers that are made to function in ways that can be regarded as intelligent are referred to as artificial intelligence. This includes technological patterns that mimic human performance by learning and making unique deductions. This includes conversing with people, comprehending complex material, improving human cognitive function, and even taking the place of people in both routine and non-routine tasks (Huynh et al., 2023). AI is defined as computer-based solutions to tackle

more complex problems through human-like application processes (Bharadiya, 2023). Innovation in banking products is reflected in the ability of the financial institution to innovate and introduce new products, or to develop existing products in order to meet customer needs (Indriasari et al., 2022). Innovation in the development of banking products is a strategic necessity that contributes to achieving the bank's competitive advantage and continuity, by providing new opportunities and enhancing the bank's competitive position compared to the main competitors in the market (Popelo et al., 2021). The innovation process in banking services aims to develop and expand these services, as it is a comprehensive and integrated process related to the research and development activity in the financial institution (Li et al., 2022). This process is necessary and important in the context of increasing competition, which motivates the bank to innovate and develop its banking services to meet the new needs of customers and attract more new customers, while ensuring the retention of existing customers (Jasim et al., 2024). This contributes to the competitive position of Commercial Bank, leading to an increase in its profitability in the long run. This is achieved when the bank can convince its customers that it is a banking institution distinguished in terms of the quality and diversity of services provided, as well as its quick response to meet the requirements of customers in the banking market (Guang-Wen & Siddik, 2023). Table 1 illustrates a set of previous studies.

Table (1) Previous studies related to the role of artificial intelligence in enhancing banking innovation

Study	Objective of study	Type of study	Study sample	Study results
Biallas& O'Neill,2020	Measuring the role of AI innovation in financial services	Survey	Financial services companies	The findings demonstrated how artificial intelligence technologies are influencing banks' financial services divisions globally. Financial service providers can further innovate banking by implementing these technologies in emerging markets.
Ghandour,2021	Identify, evaluate and summarize existing evidence on the opportunities and challenges related to the use of artificial intelligence in the banking sector	Review study	Banking sector	Artificial intelligence in the banking sector contributes to improving financial technology, which improves services and smart wallets for customers
Herrmann& Masawi,2022	Defining the role of artificial intelligence in banking, financial services and insurance.	Developmental study	Banks and insurance companies	The success of artificial intelligence applications contributes to supporting innovation in banking services, which contributes to improving investment, market making, and enhancing customer relations, as well as risk management and compliance with laws.

Diab,2022	Determine the role of artificial intelligence in improving the performance of banking services	Applied study	Commercial banks in some Arab countries	The need for Arab banks and financial institutions to focus on developing legal frameworks for payment institutions that contribute to the development of technological financial products and help generalize financial inclusion services by enabling marginalized segments to access the payment system.
Doumpos et al.,2023	Operational research and artificial intelligence methods in banking	Survey study	Commercial banks	The results showed that artificial intelligence contributes to enhancing the capabilities of commercial banks in predicting efficiency, which improves financial stability.
Rabbani et al.,2023	demonstrating how artificial intelligence can be used to adapt creative financial procedures for the banking industry	Applied study	Banking industry in Pakistan	The results showed that policy makers in the funding business in Pakistan need to reflect upgrading their financial process system through innovation and awareness of the use of artificial intelligence among their existing employees as well as their banking clients.
Paramesha et al.,2024	The findings demonstrate how crucial artificial intelligence is to boosting innovation and decision-making skills in banks.	Comprehensive study	Financial markets	The findings demonstrated that combining artificial intelligence with innovative banking practices promotes digital transformation in the sector and helps develop new financial services and products. Additionally, the study explores how emerging technologies like quantum computing might be used to tackle challenging computational issues in the financial industry, such as risk management, cryptography, and portfolio optimization. The study makes a contribution by highlighting important research areas, offering viewpoints on various approaches and applications of AI, and suggesting fresh lines of inquiry to investigate the incorporation of AI in banking and finance.

Demirel& Topcu,2024	Measuring the impact of artificial intelligence applications on digital banking in the Turkish banking industry	Field study	Turkish banks	Artificial intelligence applications contribute positively to expanding mobile banking services.
Saqr&Ismail,2024	The role of artificial intelligence in improving service innovation	Applied study	Clients of Egyptian commercial banks	There is a positive relationship between AI and improving service innovation in Egyptian commercial banks, as well as a positive correlation between the dimensions of artificial intelligence and service innovation.
Qarsh,2024	Know the role of legal regulation of artificial intelligence in the banking sector	Analytical study	Commercial banking clients	The application of artificial intelligence in many areas of banking services has helped develop the performance of banks by improving the quality of banking service, controlling costs, mitigating risks, increasing revenues, and raising the level of competition.

- **Discussion of Results**

This systematic literature review's objective of examining how AI can promote innovation in the banking industry has been accomplished. Sales, marketing, accounting, finance, customer service, fraud prevention, anti-money laundering, physical security, product development, governance, and compliance are just a few of the banking operations that AI tackles. AI revolutionizes business procedures and boosts banks' operational effectiveness through these uses. Despite this, the banking industry still faces a number of obstacles that could prevent artificial intelligence technologies from being successfully implemented and used. Potential employee apathy, deteriorating skills, a loss of creativity and adaptability, privacy issues, high implementation costs, and inequality are some of these difficulties. In addition to concentrating on banking education and banking performance, the article also identified significant methods for managing and developing scientific research on artificial intelligence, including the analysis and collection of data and support aimed at utilising the information network. From this perspective, it can be asserted that studies on artificial intelligence constitute a key pillar in enhancing and developing administrative behaviours and risk-taking for cities, thereby promoting artificial intelligence and machine learning methods.

According to the study, banks are increasingly providing internet and mobile banking solutions based on artificial intelligence technologies in the current digital era in order to facilitate transactions around-the-clock. Large volumes of customer and business data must be gathered, analyzed, and stored in order to develop these solutions. The use of machine

learning tools improves the thorough and precise analysis of that data, allowing for the integration of various data sources to derive insightful information. However, there is a greater chance of expensive data leaks and privacy violations. Enhancing information security and privacy protection in banking can be achieved through the application of artificial intelligence techniques like anomaly detection, deep learning, and predictive analysis. However, implementing and maintaining AI-based cybersecurity systems can entail high costs. Moreover, with the increasing use of customer analysis tools and social media analysis, there is a need to foster continuous collaboration between banks and regulators with the aim of improving cybersecurity and protecting privacy.

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