Chapter 19
Adoption Potential and Challenges of Artificial Intelligence in Banking

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ABSTRACT

The proliferation of artificial intelligence (AI) evolved new business models through disruptive innovations. Recent technology developments and quicker data accessibility have moved it closer to commercial applications in financial industries. The study focused on exploring the significance and emergence of AI in the banking industry. This chapter depicting the adoption of AI in the banking sector also discusses the ground-level challenges in its large-scale implementation. Exploratory research was undertaken to examine the applications and factors that support and hinder the effective adoption of AI in the banking industry. Conventional banks are adopting AI due to the emergence of FinTech start-ups in their operations to improve productivity and customer services. The findings suggest that organizational resistance due to the high cost of implementation, skill, and lack of regulatory framework creates hurdles in its fuller adoption, and trust in financial technology is the critical indicator from the user's perspective.

1. INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Implementation of artificial intelligence is a boon for finance sector and fostering sustainable finance alternatives. AI is pioneering in niche segmentation consistently enhancing customer experiences by catering personalized services, chat-bot based virtual assistant, risk management, fraud detention, novel and accurate credit risk assessment. Optimization of operational efficiency of financial institutions are achieved through automation of repetitive nature of tasks, cost reduction, real-time analytics and predic-

tive insights are gained by AI. Furthermore, AI set benchmark by integrating environment, social and governance integration by automation of reporting and compliance, along with the identification sustainable investment. With all these endeavors, AI in banking is expected to expand upto 64.03 billion USD by 2030 with a compounded annual growth rate of 32.6% from 2021 to 2030. According to Deloitte, by implementing Generative AI, the front operations departments of the 14 largest international investment banks can increase their efficiency by 27% to 35% by adopting generative AI. By 2026, this would add an average of US$3.5 million in income per front-desk worker. The capacity of robots to mimic or improve human intelligence, such as reasoning and experience-based learning, is known as artificial intelligence (AI) (Kumar & Kaur, 2022). The widespread adoption of artificial intelligence (AI) has resulted in developing novel business models brought about by disruptive actions. Recent technological advancements and manifold increases in data collection and assessment speed have brought it closer to commercial applications of AI in the financial industry. Numerous traditional industries like pharmaceutical, manufacturing, supply chain, media, traveling and financial sectors are starting to reshape their business models with the emergence of AI (Abu Daqar et al., 2020), cloud computing, the internet of things, and machine learning (ML) (Jagtiani & Lemieux, 2019; Janiesch et al., 2021). Conventional businesses, including well-established and new digital start-ups, are forced to respond strategically. Advanced AI technology enables corporate computational intelligence and integrates analytics into apps to support organizational tasks. This includes speedier data processing, more reliable data outputs, and high-level staff actions. Recently, AI-based technologies have been beneficial and practical. But company leaders lack AI strategy knowledge. As per research by (Ransbotham et al., 2017) 85% company executives recognized AI as a crucial tool for creating a sustainable competitive advantage, but only 39% had a strategic AI plan due to an absence of AI application competence (Huang et al., 2020). It is simple to overlook that artificial intelligence is not a recent science because of how much attention it has received. Depending on whether the goal was to demonstrate logical theorems or use neurology to replicate human mind, AI has gone through a number of distinct phases (Sharma et al., 2017). The application of digital technology may present fresh chances for productivity improvements, close client relationships, and development. This requires adapting new digital practices by introducing structural changes and a positive mindset to gain competitive advantage and value. Nowadays, it becomes necessary to equip themselves with these disruptive technologies in the digital era. AI and blockchain are deployed in the financial sector for investment purposes, stock trading, wealth management, risk management, automation of banking operations through verification of large-scale data, alternative ways of credit evaluation by tracking mobile phone data through digital footprint and personalized banking through virtual voice control assistant and chatbots.

Recent years have seen a boom in the use of ML and AI in banking and other financial institutions. These organizations have capitalized on their full potential by providing commercial models for public dealing operations and back-end operations to boost. This article will outline how financial institutions are making use of AI to enhance the way they operate. It will deliver an assessment of these technologies' value to various departments. Fintech companies, which embraced AI for a long time, contribute their innovation to financial intelligence, while conventional financial institutions are rapidly keeping up with artificial intelligence techniques with services like Chatbot. It is safe to state that AI innovations are taking over the banking industry, and we have no choice but to accept this. The following figure 1 is depicting the usage methods of AI in banking.

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