

The Role of Financial Technology in the Transformation of Financial Services: Analysis of Artificial Intelligence (AI) and Efficiency of Operating Expenses in Banking Companies

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Abstract

This study aims to analyze the role of financial technology and artificial intelligence (AI) in improving operational efficiency in banking companies. The main focus of this research is on how the application of AI can optimize operational processes, reduce costs, and improve the quality of financial services. This study presents an in-depth analysis based on existing literature as well as case studies on several financial institutions that have implemented this technology. The results show that Financial Technology and AI significantly improve the efficiency of banking processes, reduce reliance on human resources, and reduce operational costs.

Keywords: Financial Technology, Artificial Intelligence, Operational Cost Efficiency, Banking Companies, Financial Services.

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1. Introduction

The development of digital technology has caused the financial sector to undergo a major transformation over the past few decades. Financial Technology is a major driver of transformation in financial services. Through technological advances, especially in the field of Artificial Intelligence (AI), the financial sector has experienced significant changes in the way it operates and interacts with customers. AI has been applied in various aspects of financial services, from investment management, risk assessment, fraud detection, to customer service.

Throughout this transformation AI has become a critical component in improving customer experience, risk management, and credit decisions, relying on machine learning algorithms and big data analytics to deliver faster and more accurate services (Chen et al., 2020).

Banks can automate various financial service processes by utilizing AI technology in Financial Technology, such as fraud detection, risk management, and customer data analysis. They can also offer customer service through chatbots and virtual assistants. Banks use AI to improve customer experience and optimize the company's operational burden. Banks can use AI capabilities to process data quickly and accurately.

Along with the increasing need for efficient and more accessible financial services, banking in Indonesia is starting to shift to digital solutions that use AI to improve work process efficiency, accelerate product innovation, and increase competitiveness in facing challenges coming from non-bank Financial Technology companies.

Pressure from customers for transparent, fast and secure transactions continues to increase. This transformation is full of challenges. Regulation and data security are the main issues faced. Banks must use AI carefully to avoid data leaks, protect customer privacy and the threat of cyber attacks. Banks must also balance technology investment and resource management.

In the 2024 Annual Member Survey (AMS) published by the Indonesian Fintech Association (AFTECH), it is stated that Literacy is related to the knowledge, skills, beliefs and behavior of individuals in managing certain aspects, for example about finance or digital. The 2024 National Survey of Financial Literacy and Inclusion conducted by the OJK recorded the financial literacy index of the Indonesian population at 65.43%, while the financial inclusion index was 75.02%. Furthermore, the Katadata Insight Center (KIC) published the Indonesian financial literacy index in 2023 at 69.7%.

This decline shows the level of digital skills and knowledge of people in Indonesia who are not yet well literate. Digital literacy should be the main foundation supporting digital financial inclusion and the initial capital for the formation of a digital society in Indonesia.

Financial Technology is a term for innovation in financial services, where technology is the key, meaning the presence of technology is a major factor in the emergence of Financial Technology innovation. The innovation aims to introduce practicality, ease of access, convenience and economical costs (Hadad, 2017).

Research on Financial Technology that has been tested by researchers including JudiJanto et al. (2023) Efficiency and Accessibility One of the main positive impacts of Fintech on the banking business model is increased efficiency. The use of technologies such as artificial intelligence, big data analysis, and blockchain have enabled banking processes to become faster and cheaper. Next, research conducted by Demirkan and Delen (2013) also identified that AI and other intelligent technologies in the banking sector can increase productivity by reducing process time and increasing the accuracy of financial decisions.

By looking at this development, this research aims at the role of Financial Technology in the transformation of financial services showing that artificial intelligence (AI) plays an important role in improving operational efficiency and reducing the operational burden of companies.

2. Literature Review

2.1 Artificial Intelligence (AI) in Banking

Artificial Intelligence (AI) is an intelligence that has been added or inserted into a machine or technology by humans developed by humans for scientific contexts and other things (Rumahorbo & Dewayanto, 2023). Artificial Intelligence (AI) refers to the ability of machines to imitate human intelligence. Its applications are widespread in various industries globally.

2.2 Operational Load Efficiency

The application of technology in the banking sector aims to achieve operational efficiency. According to research by Fuster et al. (2021), the use of AI in banking not only increases operational efficiency through the automation of routine tasks but also helps banks face competition with Financial Technology companies. Automation of processes such as customer data analysis and risk management through AI allows for reduced operational burdens without sacrificing service quality.

2.3 Financial Technology

The development of Financial Technology has changed the way banking businesses provide services by emphasizing innovation, increased efficiency, and better customer experience. According to Arner et al. (2016), Financial Technology is a combination of innovative technologies such as mobile banking, digital payment systems, and application-based investments, which facilitate modern financial services by minimizing third-party involvement. This has led to conventional banking that relies on physical infrastructure to a more digital model.

This enables financial institutions to automate many processes, including transactions, identity verification, and credit granting, all of which can improve operational efficiency (He Jingrong et al., 2024)

3. Methodology

This study uses a descriptive method with a qualitative approach, utilizing existing literature and relevant case studies to describe how Financial Technology and AI affect the operations of banking companies. Data were obtained from scientific journals, research reports, and case studies related to the use of AI and Financial Technology in the banking sector.

4. Results and Discussion

4.1 The Use of Financial Technology in Increasing Profitability

The use of technology in the banking industry has brought about significant transformations in bank operations, efficiency, and profitability. One of the main benefits is increased operational efficiency. With technologies such as internet banking, mobile banking, and automated teller machines (ATMs). So that banks can increase profit margins by providing better and cheaper services and increasing the number of customers without geographical limitations, increasing transaction volumes, and increasing revenue (Wang et al., 2021).

Innovations that occur in the banking sector through the development of Financial Technology services are not disruptions, but opportunities for profitability optimization. Banks that invest in Financial Technology are able to improve their financial performance by utilizing technology to achieve operational efficiency and improve customer service (Nugroho & Sugiyanto, 2022). Overall, technology optimization in banking brings tangible benefits in terms of efficiency, product diversification, and risk management, all of which contribute to increasing bank profits.

4.2 Benefits of Using Financial Technology

- a. **New Products and Services:** Financial Technology provides Banks with access to develop new, more innovative products and services tailored to customer needs, such as online loans, digital payments, and personal financial management.
- b. **New Market Penetration:** Market segments that were previously difficult to reach, such as MSMEs and the younger generation, can be reached more widely through Financial Technology.
- c. **Increased Non-Interest Income:** Banks can earn income from various non-interest sources, such as commissions, transaction fees, and sales of digital products, thanks to Fintech.

4.3 The Impact of Using AI on Banking Operational Cost Efficiency

The influence of Financial Technology and AI on banking transformation is very large, especially in creating more adaptive and efficient services. Research by Gomber et al. (2018) states that technological innovation brought by Financial Technology and AI has changed the way banks operate and interact with customers. Banks have been able to provide faster and more personalized services through accurate and targeted data analysis. This transformation requires banks to continue to innovate in order to remain competitive in the digital era.

Research by Brynjolfsson & McAfee (2017) emphasizes that the use of AI can reduce operational costs and increase the speed and accuracy of decision making in banking services. AI also helps banks predict customer behavior, speed up data processing, and reduce the risk of human error.

5. Conclusion and Recommendations

The use of financial technology in the banking world provides great potential to increase profits through efficiency, improved services, and product diversification using AI. This technology can increase the amount of work done by the banking business. However, things to note are high initial costs, increased data security and privacy risks, and the adaptation of flexible and competitive business models in the digital era.

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