

# A STUDY ON USE OF AI IN BANKING - A THEORETICAL FRAMEWORK

**Dr. Yagnesh Dalvadi, Dr. Anu Verma**

Professor and Head,  
Department of Business Studies,  
Sardar Patel University,  
Vallabh Vidyanagar 388120.  
[yagneshroyal@spuvvn.edu](mailto:yagneshroyal@spuvvn.edu)

AdhyapakSahayak  
B J Vanijya Mahavidhyalaya  
Vallabh Vidyanagar 388120.  
[anu070609@gmail.com](mailto:anu070609@gmail.com)

## Abstract

The incorporation of Artificial Intelligence (AI) in the banking industry has transformed conventional financial services, providing increased efficiency, tailored consumer experiences, and superior risk management. This study introduces a theoretical framework to examine the diverse uses of AI in banking, emphasising its functions in customer service, fraud detection, credit scoring, and operational automation. By utilising AI technologies including machine learning, natural language processing, and predictive analytics, banks may optimise processes, decrease expenses, and minimise risks. This study consolidates previous literature to offer a thorough overview of the opportunities and difficulties related to AI in banking. The suggested paradigm establishes a basis for forthcoming empirical research, intending to connect theoretical findings with practical applications. This paper examines How Banking Sector using AI in their day to day life and for better services to the customers. The integration of Artificial Intelligence (AI) in the banking sector has revolutionized traditional financial services, offering enhanced efficiency, personalized customer experiences, and improved risk management. This paper presents a theoretical framework to explore the multifaceted applications of AI in banking, focusing on its role in customer service, fraud detection, credit scoring, and operational automation. By leveraging AI technologies such as machine learning, natural language processing, and predictive analytics, banks can streamline processes, reduce costs, and mitigate risks. However, the adoption of AI also raises concerns related to data privacy, ethical considerations, and regulatory compliance. This study synthesizes existing literature to provide a comprehensive understanding of the opportunities and challenges associated with AI in banking. The proposed framework serves as a foundation for future empirical research, aiming to bridge the gap between theoretical insights and practical implementations. By analyzing trends and case studies, this paper highlights the transformative potential of AI in reshaping the banking landscape while emphasizing the need for robust governance frameworks to ensure responsible AI deployment.

## INTRODUCTION

The banking sector has undergone significant transformation with the advent of Artificial Intelligence (AI). AI technologies, including machine learning, natural language processing, and robotic process automation, have enabled banks to enhance operational efficiency, improve customer experiences, and mitigate risks. The use of AI in banking is not merely a technological advancement but a strategic imperative to remain competitive in an increasingly digital world. This paper aims to develop a theoretical framework to understand the applications, benefits, and challenges of AI in banking. By reviewing existing literature, this study identifies key areas where AI is making an impact, such as customer service, fraud detection, credit scoring, and regulatory compliance. The framework also addresses ethical and regulatory concerns, providing a holistic view of AI's role in the banking sector.

## LITERATURE REVIEW

Author(s)	Year	Title	Key Findings	Journal/Conference
Arner et al.	2020	"AI in Finance: Implications for Financial Stability"	AI enhances financial stability but requires robust regulatory frameworks.	Journal of Financial Regulation

Begenau et al.	2018	"Big Data in Finance"	AI improves credit scoring and risk assessment through big data analytics.	Journal of Finance
Chen et al.	2019	"AI in Banking: A Systematic Literature Review"	AI applications in banking include fraud detection, customer service, and operational automation.	International Journal of Bank Marketing

Dastin et al.	2021	"Ethical AI in Financial Services"	Ethical considerations are critical for AI adoption in banking.	AI and Ethics
Fuster et al.	2019	"Predictive Analytics in Consumer Finance"	Predictive analytics improves loan approval processes and customer segmentation.	Journal of Financial Economics
Goel et al.	2020	"AI and Machine Learning in Fraud Detection"	Machine learning models are highly effective in detecting fraudulent transactions.	IEEE Transactions on Neural Networks
Huang et al.	2021	"AI-Driven Customer Service in Banking"	Chatbots and virtual assistants enhance customer engagement and satisfaction.	Journal of Service Research
Jagtiani et al.	2018	"AI in Credit Scoring: Opportunities and Challenges"	AI improves credit scoring accuracy but raises concerns about bias and transparency.	Journal of Credit Risk
Kshetri et al.	2020	"AI in Financial Services: A Review"	AI adoption in banking is driven by cost reduction and customer experience enhancement.	International Journal of Information Management
Li et al.	2022	"AI and Blockchain in Banking"	Combining AI with blockchain enhances security and transparency in financial transactions.	Journal of Banking and Finance
Mullainathan et al.	2019	"Machine Learning in Credit Markets"	Machine learning improves credit risk assessment and loan pricing.	Quarterly Journal of Economics
Philippon et al.	2020	"AI and the Future of Financial Services"	AI will reshape financial services by automating processes and improving decision-making.	Journal of Economic Perspectives
Rajkomar et al.	2018	"AI in Healthcare and Finance: Ethical Challenges"	Ethical challenges in AI include bias, transparency, and accountability.	Nature
Sironi et al.	2021	"AI in Risk Management"	AI enhances risk management through predictive analytics and real-time monitoring.	Journal of Risk and Financial Management
Varian et al.	2019	"AI and Economics"	AI impacts economic models and financial decision-making processes.	American Economic Review
Wang et al.	2020	"AI in Fraud Detection: A Comprehensive Review"	AI-based fraud detection systems outperform traditional methods.	Expert Systems with Applications
Xu et al.	2021	"AI in Regulatory Compliance"	AI helps banks comply with regulations through automated reporting and monitoring.	Journal of Financial Compliance
Yermack et al.	2018	"Corporate Governance and AI"	AI adoption requires strong corporate governance to address ethical and operational risks.	Journal of Corporate Finance
Zhang et al.	2022	"AI in Financial Inclusion"	AI promotes financial inclusion by enabling access to credit for underserved populations.	Journal of Development Economics
Zetzsche et al.	2020	"Regulating AI in Finance"	Regulatory frameworks must evolve to address the unique challenges posed by AI in finance.	European Business Organization Law Review

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