

**ADOPTION OF ARTIFICIAL INTELLIGENCE IN INDIAN BANKING INDUSTRY**

Amrit Raj

amrit.raj.2021@sse.ac.in

Ashna Puri

ashna.puri.2021@sse.ac.inDOI: <https://doi.org/10.36676/irt.v10.i4.1526>

Accepted : 1/11/2024 Published: 04/11/2024

* Corresponding author

1. Introduction:**1.1 Background of the study**

Singh & Pathak (2020) defined the concept of artificial intelligence such as “ the ability of machines to think on their own and do a task without the help of human beings. Artificial Intelligence (AI), uses computers to simulate human intelligent behaviors and trains computers to learn human behaviors such as learning, judgment, and decision-making (**Xu et al., 2021**). AI has moved from an emerging technology to a popular tool for improving business efficiency. If well implemented, AI technology can promote socioeconomic and ecological developments (**Wamba et al., 2015**).

Businesses nowadays have access to an enormous amount of information. In this context, they put up much work to figure out how to use the data that is accessible. The amalgamation of Knowledge Management and Artificial Intelligence enables the development of technologies that respond to the expectations to extract implicit and explicit human and organizational knowledge to aggregate and amplify it. (**Quinio et al., 2017**). Organizations implementing AI are expected to attain added business value gains, such as increased revenue, cost reduction, and improved business efficiency (**Sheibani et al., 2018**). A recent *MIT Sloan Management Review* study found that more than 80% of businesses see AI as a calculated opportunity, and almost 85% see AI as a way to achieve comparative advantage (**Ransbotham et al., 2017**).

The banking sector provides financial support to the economy by providing loans, short-term credits, advances, issuing letters of credit, forex support, digital banking, and many more. (**Malali & Gopalakrishnan, 2020**). Artificial Intelligence is becoming increasingly integrated into many lives, and banks must employ AI at scale to stay relevant. McKinsey forecasted that AI solutions would increase the value of the global banking industry by up to \$1 trillion per year (**Biswas et al., 2020**). Banks perform numerous activities on a daily basis that must be performed precisely. Most activities necessitate a significant amount of time and effort on the part of employees, and there is also the possibility of human mistake in these actions. Some jobs entail investing money in equities, running financial operations, managing various properties, and so on (**Boustani, 2022**). The global financial industry is expected to reach USD 28.529 trillion by 2025-2030 at a CAGR of 6%, mainly because of the considerable use of AI in the alteration of banking operations, especially after recovering from COVID-19 (**Ross, 2021**).



Noreen et al. (2023), in their journal article, stated that the evolution of Banking can be divided into four parts: Banking 1.0, which is based on traditional and historical banking, evolved into Banking 4.0, which includes advanced technology employed in various sectors of banks, including the usage of AI technologies. Banks have been using innovative and cutting-edge technologies to stay relevant and in the competition's lead. For example, in the 1960s, automated teller machines (ATMs) were launched under Banking 2.0 and initiated by Barclays Bank. Rapid improvements in AI technologies facilitated cost reductions in data processing, storage, and speedier networking beginning in 2017 and are referred to as Banking 4.0.

There are around 340 private and public banks in India, making India the fifth-largest banking sector in 2020 (**Garg & Sachdeva, 2022**). The market share of AI in the Banking, Financial Services, and Insurance (BFSI) sector is only 9.6%, which has a high growth potential (**Jayaram, 2021**). Its adoption could have been more active than other sectors because banking is still a labor-intensive industry with operations requiring human involvement. Critical banking tasks such as fund transfers, cheque book requests, and passbook updating were carried out manually (**Fernandes & Pinto, 2019**). Users can now execute banking operations on their own. AI advancements in banking services have aided user convenience. Banks rely substantially on AI-driven banking services since people prefer these newly developed ones (**Payne et al., 2021**). Many of the top Indian Banks like ICICI Bank, HDFC Bank, and State Bank of India have already started implementing Artificial intelligence in their functional areas like fraud detection, customer support, risk management, security, digitization and automation, wealth management, and ATMs (**J & Namratha, 2019**)

1.2 Relevance of the Study

This study will be relevant for society as the adoption of AI in the banking sector is profound because Artificial Intelligence holds the power to revolutionize the way banks operate and interact with their customers. Through this research, society will become more aware of the presence of Artificial Intelligence in the banking industry and why it is critical for an individual's or a company's economic growth and financial stability, along with making sure that they remain entrusted in the banking system. This study's relevance extends beyond raising awareness about Artificial Intelligence in the Banking Industry. Moreover, it will also examine what fundamental factors are driving the growth of it in India. It is paramount for people living in India to understand that AI can potentially transform the banking industry and the world at large. Understanding the Use cases and drivers of AI is essential for staying informed and prepared for the technological changes shaping our future. This study's findings can be used to spark discussion in the future on how AI adoption can further empower the banking industry and how individuals can adapt to this AI-driven financial landscape.

1.3 Motivation of the Study

The motivation of this research is to investigate and grasp AI awareness, knowledge, and acceptance in India's banking industry. This study topic has enormous potential and relevance since it pertains to a fundamental shift in the way financial services are offered and accessed, affecting the lives of millions of people. As a result, the purpose of this study is to give significant insights that can be utilized to analyze the preparedness and awareness, in the adoption of AI in the Indian banking business.

2. Literature review

Through a review of studies conducted, this section provides an overview of the numerous use cases of AI in the Banking industry. The literature review will likely highlight gaps in previous research studies and



offer the researcher insights from various perspectives. The research primarily explores the diverse use cases of AI within the banking sector and aims to examine the factors of AI adoption in this industry.

2.1 Use Cases of AI

2.1.1 AI in Operational Efficiency

AI has emerged as a transformative force in the banking sector, revolutionizing the industry in numerous ways (**Schmelzer, 2023**). Automation in banking operations is one of the most prominent applications of AI. The integration of AI-driven chatbots and virtual assistants has led to streamlined and round-the-clock customer service (**Mogaji et al., 2021**). These AI-powered virtual agents handle a wide range of tasks, from answering customer inquiries to executing routine transactions, thereby reducing the burden on human staff. This not only expedites customer service but also minimizes errors, allowing the banks to function effectively (**Kumar M & Nagaraj, 2021**). Data analytics in banking is another critical area where AI is making significant inroads (**Cristi et al., 2023**). AI algorithms can process and analyze vast volumes of data in real-time, helping banks identify trends, customer behavior, and potential risks. This not only facilitates data-driven decision-making but also enables banks to offer personalized products and services to customers, thus improving customer satisfaction (**Lin & Lee, 2022**). Personalized recommendation systems powered by AI have become a valuable tool for banks to enhance their customer relationships (**Geetha, 2021**). By analyzing customer transaction history and behavior, AI systems can recommend tailored financial products and services. This not only leads to more sales but also helps in retaining customers, as they perceive a higher level of value and service quality from their bank (**Sheth et al., 2022**). Enhanced data security and privacy are of paramount importance in the banking sector. AI has significantly improved security measures by detecting unusual patterns and anomalies in transactions, thereby preventing fraudulent activities (**Mishra, 2023**). AI-powered algorithms can also monitor network traffic to identify potential threats and protect sensitive customer data (**Dosari et al., 2022**). By strengthening data security and privacy, banks can build trust with their customers, which, in turn, increases operational efficiency by reducing the risks associated with data breaches and fraud.

2.1.2 AI in Risk Management

Risk Management in the banking sector is a multifaceted challenge (**Sheedy & Lubojanski, 2018**) that AI addresses with remarkable efficiency. AI-powered risk models can swiftly evaluate vast datasets and identify potential threats and vulnerabilities, whether they are credit, market, or operational risks. This ability to analyze complex financial patterns and trends in real-time helps banks make data-driven decisions, ensuring more prudent risk assessment and mitigating potential financial crises (**Lindqvist & Khailtash, 2022**). Moreover, AI facilitates banks in meeting stringent regulatory requirements, significantly enhancing compliance. The ever-evolving political landscape demands precise monitoring, reporting, and adherence to complex rules. AI-powered compliance tools can automate these tasks (**Caixinha & Nunes, 2016**), ensuring banks operate within the legal framework. This minimizes the risk of regulatory fines and penalties, thereby improving the overall financial stability of the institution.

AI's role in bolstering AML and KYC processes is pivotal. Detecting money laundering and fraudulent activities requires the ability to analyze vast amounts of transaction data in real-time (**Han et al., 2020**). AI algorithms can uncover suspicious patterns and anomalies, helping banks identify and investigate potential risks more effectively (**Jullum et al., 2020**). Additionally, in the KYC process, AI assists in verifying the identity of customers swiftly and accurately, reducing the risk of fraud and ensuring that customers adhere to the bank's risk tolerance and policies. Furthermore, the protection of sensitive data and customer



information is paramount in the digital age. Cybersecurity threats are pervasive, and banks are a prime target for cyberattacks (Mishra, 2023).

2.1.3 AI in Credit Management

Artificial Intelligence (AI) has dramatically reshaped the domain of credit management, playing a pivotal role in both credit evaluation and credit provision. Credit Scoring, a cornerstone of credit management, has traditionally relied on a range of historical financial data and other variables to assess the creditworthiness of applicants (Elette et al., 2010). AI has revolutionized this process by incorporating advanced machine learning algorithms that can analyze an even broader spectrum of data, going beyond traditional factors. These algorithms can swiftly evaluate non-traditional data sources such as social media activity, online behavior, and more, providing a more comprehensive and nuanced assessment of an applicant's creditworthiness (Mishewa et al., 2021). Credit Lending, the act of extending credit to individuals or businesses (G., 2021), has also been greatly enhanced by AI. Through the automation of various aspects of lending, AI streamlines the loan origination process, reducing time and costs. AI algorithms can rapidly assess loan applications, using the data-driven insights gained from advanced credit scoring models to make lending decisions in real-time (Ates, 2017). Furthermore, AI allows for the personalization of lending terms and offers, tailoring them to the unique financial profiles and needs of borrowers.

2.1.4 AI in Wealth Management

Artificial Intelligence (AI) has emerged as a transformative force in the field of wealth management and asset management, revolutionizing the way financial institutions and individuals manage their investments. Wealth Management, a domain focused on the holistic financial well-being of high-net-worth individuals and families (Wohlner, 2023), has been significantly improved by AI. AI-driven financial planning tools can analyze an individual's entire financial landscape, taking into account income, expenses, investment portfolios, and long-term financial goals (Verma, 2022). These systems provide tailored recommendations for investment strategies, tax optimization, retirement planning, and more. Moreover, AI can continuously monitor the client's financial situation, making real-time adjustments to the financial plan as necessary, thus ensuring that wealth management strategies remain aligned with evolving objectives and market conditions. Asset Management, which primarily deals with managing investment portfolios (Gavrikova et al., 2020), has witnessed a profound transformation with the integration of AI. AI-driven algorithms are capable of analyzing vast datasets and historical market trends in real-time, allowing asset managers to make more informed investment decisions. These algorithms can identify patterns and anomalies that may not be discernible to human analysts, helping optimize asset allocation and investment strategies. As a result, AI enhances the performance of investment portfolios, ultimately leading to better returns for investors.

2.1.5 AI in Financial Inclusivity

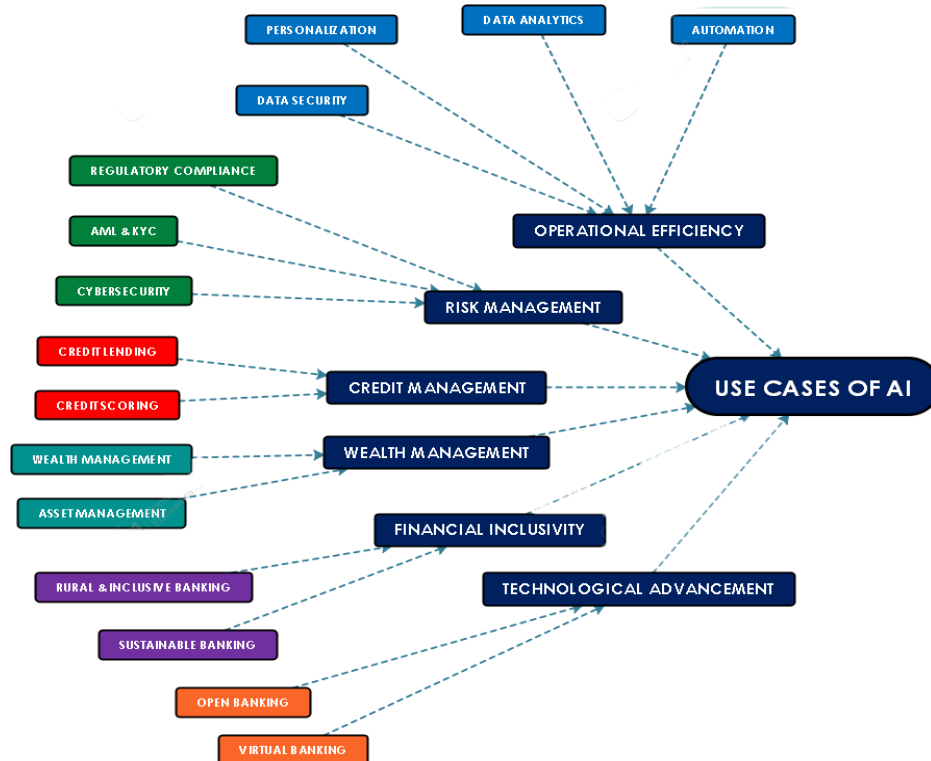
Artificial Intelligence (AI) has emerged as a powerful catalyst for enhancing financial inclusivity in the banking sector, promoting access to financial services in previously underserved areas and fostering sustainability in banking practices (Mhlanga, 2022). Rural & Inclusive Banking, which is dedicated to expanding access to financial services in remote and underprivileged areas, has witnessed significant advancements due to AI. AI-driven chatbots and virtual banking assistants have made financial interactions more user-friendly, eliminating the need for sophisticated financial knowledge to navigate complex banking processes. These AI tools can provide assistance, answer inquiries, and guide individuals through banking transactions, bridging the digital divide for those with limited access to traditional banking infrastructure (Huang & Lee, 2022). Additionally, AI-powered credit scoring models, capable of evaluating non-



traditional data sources, such as mobile phone usage and utility payment history (**Mishewa et al., 2021**), have empowered banks to assess creditworthiness even in regions where traditional financial documentation is scarce. By extending financial services to underserved rural areas, AI is contributing to economic development and poverty reduction. Sustainable Banking, a practice focused on environmentally and socially responsible banking, is also being transformed by AI. AI-driven algorithms can analyze vast datasets to assess the environmental and social impact of investments and lending practices. This enables banks to make informed decisions about funding projects that align with sustainable development goals, such as renewable energy initiatives and green infrastructure. AI also plays a pivotal role in risk management associated with sustainability, helping banks identify and mitigate potential environmental and social risks in their portfolios. Moreover, AI enables the monitoring of sustainability metrics, making it possible for banks to track and report on their progress in meeting sustainable finance goals, thereby promoting transparency and accountability.

2.1.6 AI in Technological Advancement

Artificial Intelligence (AI) is a driving force behind the technological advancement of banking institutions, enabling groundbreaking innovations in Open Banking and Virtual Banking. Open Banking, which is the practice of sharing customer financial data securely between banks and authorized third-party providers (**Araluze & Plaza, 2022**), has been made feasible and secure through AI. AI-driven data sharing platforms and APIs (Application Programming Interfaces) facilitate the seamless exchange of financial information, empowering customers to access a broader range of financial services from various providers (**Schmelzer, 2023**). AI's role is not only in the secure transfer of data but also in the analysis and processing of this information, banks can offer customers personalized financial advice, budgeting tools, and tailored product recommendations based on their transaction history and financial behaviors, resulting in a more holistic and customer-centric banking experience (**Mishra, 2023**). Virtual Banking, on the other hand, is revolutionizing the industry by eliminating the need for physical branch locations and traditional banking infrastructure. AI-powered virtual assistants and chatbots have become the face of these virtual banks (**Mogaji et al., 2021**). These assistants can conduct a wide array of tasks, from processing routine transactions to providing financial guidance and advice. Furthermore, AI-driven credit risk models can swiftly assess an individual's creditworthiness, enabling virtual banks to make instant lending decisions and offer competitive loan products. This not only simplifies and accelerates banking processes but also fosters a higher degree of financial inclusivity, as virtual banks can cater to a broader and often underserved customer base.



2.2 Framework for Adoption of AI in Indian Banking Industry

2.2.1 TAM

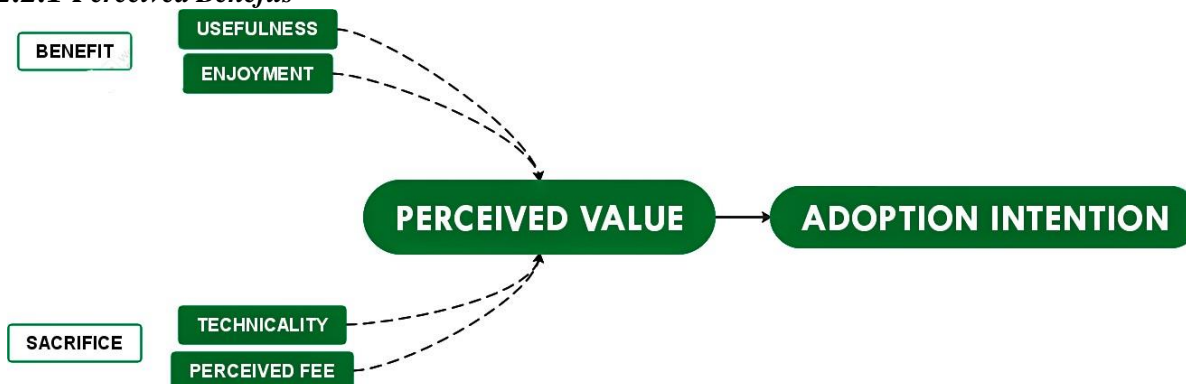
Marangunic & Granic (2015), in their article, talked about TAM, Technology acceptance model (TAM) which was developed by Fred Davis over a quarter-century ago became a popular approach in studying factors influencing users' acceptance of technology. It assumes that two variables, perceived ease of use and perceived usefulness, play a mediating function in a complex relationship between system attributes and potential system usage. Overall, TAM has gone through fifty developments and extensions over the years till 2013. TAM was originally developed to explain individual's adoption of traditional technology like spreadsheet & email in an organizational setup. However, in current examination adoption of AI, TAM has its limitations like not accounting for the unique characteristics of AI technologies and not explicitly accounting for the social and organizational factors that can influence AI adoption. TAM does not include a construct that represents an overall estimate of the adoption item. It simply uses two elements to describe adoption behavior: usefulness and ease of use. Some attempts have been made to add attitude into TAM. Attitude is a psychological inclination that is exhibited by assessing a specific entity favorably or negatively (**Eagly & Chaiken, 1993**).

2.2.2 VAM

(Kim et al., 2007) in his research on adoption of Mobile Internet introduced Value-Based Adoption Model (VAM) which also considered trade offs between total benefits received and total sacrifices. VAM is also able to capture the monetary sacrifice element and present adoption as a comparison of benefits and costs. It is a more comprehensive model for understanding AI adoption in banking in India.



2.2.2.1 Perceived Benefits



Usefulness is defined as the total value a user perceives from using a new technology (Rogers, 1995). Individuals evaluate the consequences of their behavior in terms of perceived usefulness and base their choice of behavior on the desirability of the usefulness. (Kim et al., 2007). The usefulness construct has been widely employed in information systems and technology research, and it has good empirical evidence as a significant predictor of technology adoption.

Individuals who derive immediate pleasure or joy from using a technology and perceive any activity involving the technology to be personally enjoyable in its own right apart from the technology's instrumental value are more likely to adopt and use it extensively than others (Davis et al., 1980). The extent to which the activity of using a product is regarded to be delightful in and of itself, aside from any performance effects that may be anticipated, is referred to as enjoyment.

2.2.2.2 Perceived Sacrifices

Technicality is determined by users' perceptions of ease of use, whether the system is free of physical, mental and learning effort (Davis, 1989). Excessive mental cost affects perceived overall cost to the user. (Jr. et al., 1997).

Perceived price symbolizes the incorporation of the objective selling price of product or service. Without any experience with new technology, customers cannot judge whether the fee quoted to them is high or low. Customers tend to possess internal reference prices instead of having perfect information about prices (Grewal et al., 1998).

2.3. Research Objectives

The proposed research aims to undertake a holistic study on AI, Banking and India. The specific objectives are as follows:

1. To assess the different use cases of AI in Banking Industry
2. To examine the adoption of AI in Banking Industry

3. Material & Methodology

3.1 Research Gap

The potential cost saving for banks from AI application is estimated to be \$447 billion by 2023, with the front and middle office accounting for \$416 billion of that total (Digalaki, 2019). The potential for value creation is one of the largest across industries, as AI can potentially unlock \$1 trillion of incremental value for banks (Biswas et al., 2020). While there is a growing body of research on AI adoption in banking, there is a lack of research that specifically examines the use cases of AI that are most relevant to Indian banks and their customers, and the knowledge of key drivers which are influencing the adoption of AI in the Indian



Context. This research gap is quite significant because it limits our understanding of how AI can be best used to improve banking in India. This research could help to fill the gap by providing a broad analysis of the use cases and key factors of AI in banking in India.

3.2. Study Design

The study will be both Quantitative and Qualitative in nature, where the use cases will be recognized through existing literature and will be qualitative in nature and the examination of adoption of AI in banking in India through cross-sectional primary research, where the data will be collected through a structured questionnaire using Likert scale method where we measure respondents's attitude, opinions, and perceptions along with other types of questions such as multiple choice or open ended questions.

3.3. Questionnaire and Data Collection

For conducting the present study, an online structured questionnaire will be used which will determine factors of adoption of AI in the banking sector.

The questionnaire will be divided into two sections. The first section will include demographic questions such as age, gender, education, and so on. The second section will include questions about perceived benefits and perceived sacrifices of the people while using banking services. The questionnaire will be administered online, and the sample size will be limited to national level. For all of the items in the second half of the questionnaire, a five-point Likert scale questionnaire may be created. For this research study, Purposive sampling will be employed to acquire data for this research topic. In this strategy, the researcher will draw a random sample of respondents from a specifically targeted group. The poll will be staged using an online survey technology for respondents aged above 18. The survey's final goal is to get around 200 responders.

3.4. Statistical Analysis

Multiple tools of descriptive statistics will be used to analyze the given data. For data analysis, software tools such as EXCEL, STATA, and SPSS will be utilized.

3.5 Tentative Chapter Scheme

Chapter 1: Introduction Chapter

2: Review of literature

Chapter 3: Research methodology

Chapter 4: Use cases of AI in Indian Banking

Chapter 5: Examination of adoption of AI in Indian Banking Chapter 6:

Summary and Discussion

Chapter 7: Conclusion

4. References

1. Araluze, G. K. B. d., & Plaza, N. C. (2022, October 3rd). Open banking: A bibliometric analysis-driven definition. <https://doi.org/10.1371/journal.pone.0275496>
2. Ates, M. (2017, August). Artificial intelligence in banking. *Artificial intelligence in banking — A case study about the introduction of a virtual assistant into customer service*. <https://www.diva-portal.org/smash/get/diva2:1238882/FULLTEXT01.pdf>
3. *Bank Efficiency Ratio : How AI can Help Ease the Process?* (2022, August 17).

AmyGB.ai. Retrieved October 23, 2023, from <https://www.amygb.ai/blog/bank-efficiency-ratio>

4. Biswas, S., Carson, B., Chung, V., & Thomas, R. (2020, September 19). *AI in banking: Can banks*



- meet the challenge?* McKinsey. Retrieved October 22, 2023, from <https://www.mckinsey.com/industries/financial-services/our-insights/ai-bank-of-the-future-can-banks-meet-the-ai-challenge>
5. Boustani, N. M. (2022, March 23). Artificial intelligence impact on banks clients and employees in an Asian developing country. *Journal of Asia Business Studies*, 16(2). <https://doi.org/10.1108/JABS-09-2020-0376>
 6. Caixinha, M., & Nunes, S. (2016, April). Machine Learning Techniques in Clinical Vision Science. 10.1080/02713683.2016.1175019
 7. Cristi, S., Birau, R., Shetty, S. K., & Filip, R. D. (2023, February). Impact of Artificial Intelligence in Banking Sector with Reference to Private Banks in India. https://www.researchgate.net/publication/368848498_Impact_of_Artificial_Intelligence_in_Banking_Sector_with_Reference_to_Private_Banks_in_India
 8. Das, R., & Sandhane, R. (2021). Artificial Intelligence in Cyber Security. 10.1088/1742-6596/1964/4/042072
 9. Davis, F. D. (1989, September). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly* 1989, 13(3). <https://doi.org/10.2307/249008>
 10. Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1980). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, 35(8). <https://doi.org/10.1287/mnsc.35.8.982>
 11. Digalaki, E. (2019, December 18). *The impact of artificial intelligence in the banking sector & how AI is being used in 2020*. Business Insider India. Retrieved October 22, 2023, from <https://www.businessinsider.in/finance/news/the-impact-of-artificial-intelligence-in-the-banking-sector-how-ai-is-being-used-in-2020/articleshow/72860899.cms>
 12. Dosari, K. A., Fetais, N., & Kucukvar, M. (2022, August 23rd). Artificial Intelligence and Cyber Defense System for Banking Industry: A Qualitative Study of AI Applications and Challenges. <https://doi.org/10.1080/01969722.2022.2112539>
 13. Eagly, A. H., & Chaiken, S. (1993). The psychology of attitudes. *Harcourt Brace Jovanovich College Publishers*.
 14. Elette, S. F., Yaseen, S. G., & Elrefae, G. A. (2010, March 31). Neuro-Based Artificial Intelligence Model for Loan Decisions. <https://doi.org/10.3844/ajebasp.2010.27.34>
 15. Fernandes, T., & Pinto, T. (2019, September). Relationship quality determinants and outcomes in retail banking services: The role of customer experience. *Journal of Retailing and Consumer Services*, 50, 30-41. <https://doi.org/10.1016/j.jretconser.2019.01.018>
 16. G., L. (2021). A Study on Impact of Lending Procedure on Credit Risk Analysis in Selected Private Sector Banks. <https://www.hilarispublisher.com/open-access/a-study-on-impact-of-lending-procedure-on-credit-risk-analysis-in-selected-private-sector-banks.pdf>
 17. arg, Y., & Sachdeva, K. (2022, August 05). ARTIFICIAL INTELLIGENCE IN INDIAN BANKING SECTOR: A GAME CHANGER. *Dogo Rangsang Research Journal*, 12(08). https://www.researchgate.net/publication/362871286_ARTIFICIAL_INTELLIGENCE_IN_INDIAN_BANKING_SECTOR_A_GAME_CHANGER
 18. Gavrikova, E., Volkova, I., & Burda, E. (2020, July). Strategic Aspects of Asset Management: An Overview of Current Resear. 10.3390/su12155955



19. Geetha, A. (2021, September 9th). A STUDY ON ARTIFICIAL INTELLIGENCE (AI) IN BANKING AND FINANCIAL SERVICES. <https://www.ijcrt.org/papers/IJCRTG020019.pdf>
20. Grewal, D., Monroe, K. B., & Krishnan, R. (1998). The effects of pricecomparison advertising on buyers' perceptions of acquisition value, transaction value and behavioral intentions. *Journal of Marketing*, 62(2). <https://doi.org/10.2307/1252160>
21. Han, J., Huang, Y., Liu, S., & Towey, K. (2020, January 12th). Artificial Intelligence for Anti-Money Laundering - A Review and Extensio. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3625415
22. Huang, S. Y.B., & Lee, C. J. (2022, April). Predicting continuance intention to fintech chatbot. 10.1016/j.chb.2021.107027
23. J, S., & Namratha, R. (2019). Impact of Artificial Intelligence in chosen Indian Commercial Bank –A Cost Benefit Analysis. *Asian Journal of Management*, 10(4), 377-384. <http://dx.doi.org/10.5958/2321-5763.2019.00057.X>
24. Jayaram, P. (2021, October 28). *India gets smart about Artificial Intelligence*. INDIAai. <https://indiaai.gov.in/article/india-gets-smart-about-artificial-intelligence>
25. Jr., J. C., Brady, M. K., Brand, R. R., Hightower, R., & Shemwell, D. J. (1997). A cross-sectional test of the effect and conceptualization of service value. *Journal of Services Marketing*, 11(6). 10.1108/08876049710187482
26. Jullum, M., Loland, A., Huseby, R. B., Anonsen, G., & Lorentzen, J. (2020, January 27th). Detecting money laundering transactions with machine learning. <https://www.emerald.com/insight/content/doi/10.1108/JMLC-07-2019-0055/full/html>
27. Kim, H. W., Chan, H. C., & Gupta, S. (2007). Value-based Adoption of Mobile Internet: An empirical investigation. *Decision Support Systems*, 43, 111-126. 10.1016/j.dss.2005.05.009 10.1016/
28. Kumar M, S., & Nagaraj, S. (2021, May). Applications of Artificial Intelligence on Customer Experience and Service Quality of the Banking Sector. https://www.researchgate.net/publication/351411351_Applications_of_Artificial_Intelligence_on_Customer_Experience_and_Service_Quality_of_the_Banking_Sector
29. Lin, R.-R., & Lee, J. C. (2022, January 5th). The supports provided by artificial intelligence to continuous usage intention of mobile banking: evidence from China. https://www.emerald.com/insight/content/doi/10.1108/AJIM-07-2022-0337/full/pdf?casa_token=ifN8a9E06_cAAAAA:x8vhb3CuFgegjm_rDhkXjmJppqYPF-aNrKLNy9WFRZH UwBOPkYIfuK7EzeZYPhuHIqOhek0YcZWS5iLk_R1qQ1F4XkQ6dLn1UJ3x1VGGgtQ GrkFegeC
30. Lindqvist, P., & Khailtash, D. (2022). The Impact of AI on Bank's Risk Management Approach. *A qualitative study on the effects of AI in the banking sector from a holistic perspective*. <https://kth.diva-portal.org/smash/get/diva2:1665977/FULLTEXT01.pdf>
31. Malali, A. B., & Gopalakrishnan, S. (2020, April). Application of Artificial Intelligence and Its Powered Technologies in the Indian Banking and Financial Industry: An Overview. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)*, 25(4), 55-60.
32. Marangunic, N., & Granic, A. (2015). . The technology acceptance model (TAM), introduced by Fred Davis more than a quarter century ago, became a dominant model in investigating factors affecting users' acceptance of the technology. The TAM presumes a mediating role of two variables



- called per. *Universal Access in the Information Society*, 14(1), 81-95. Marangunić, N., & Granić, A. (2014). Technology acceptance model: a literature review from 1986 to 2013. *Universal Access in the Information Society*, 14(1), 81–95. doi:10.1007/s10209-014-0348-1
33. Mhlanga, D. (2022, July 28th). Industry 4.0 in Finance: The Impact of Artificial Intelligence (AI) on Digital Financial Inclusion. <https://doi.org/10.3390/ijfs8030045>
 34. Mishewa, B. H., Osterrieder, J., Hirsra, A., Kulkarni, O., & Lin, S. F. (2021, March 2nd). <https://doi.org/10.48550/arXiv.2103.00949>
 35. Mishra, S. (2023, May 10th). Exploring the Impact of AI-Based Cyber Security Financial Sector Management. <https://www.mdpi.com/2076-3417/13/10/5875>
 36. Mogaji, E., Balakrishnan, J., & Nwoba, A. C. (2021, September). Emerging-Market Consumers' Interactions with Banking Chatbots. 10.1016/j.tele.2021.101711
 37. Noreen, U., Shafique, A., Ahmed, Z., & Ashfaq, M. (2023, February 16). Banking 4.0: Artificial Intelligence (AI) in Banking Industry & Consumer's Perspective. *Sustainability* 2023, 15(4). <https://doi.org/10.3390/su15043682>
 38. Payne, L. M., Peltier, J., & Barger, V. A. (2021, May). Enhancing the value co-creation process: artificial intelligence and mobile banking service platforms. *Journal of Research in Interactive Marketing*, 15(1), 68-85. <https://doi.org/10.1108/JRIM-10-2020-0214>
 39. Quinio, B., Skandrani, S., Marciniak, R., & Harfouche, A. (2017, December). A Framework for Artificial Knowledge Creation in Organizations A Framework for Artificial Knowledge Creation in Organizations. *International Conference on Information Systems* 2017. https://www.researchgate.net/publication/339081140_A_Framework_for_Artificial_Knowledge_Creation_in_Organizations_A_Framework_for_Artificial_Knowledge_Creation_in_Organizations
 40. Ransbotham, S., Kiron, D., Gerbert, P., & Reeves, M. (2017, September 6). *Reshaping Business With Artificial Intelligence*. MIT Sloan Management Review. <https://sloanreview.mit.edu/projects/reshaping-business-with-artificial-intelligence/>
 41. Rogers, E. M. (1995). *Diffusion of Innovations*. Free Press.
 42. Ross, S. (2021, September 30). *What Percentage of the Global Economy Is the Financial Services Sector?* Investopedia. <https://www.investopedia.com/ask/answers/030515/what-percentage-global-economy-comprised-financial-services-sector.asp>
 43. Sadok, H., Sakka, F., & Maknouzi, M. E. H. E. (2022, January 10th). Artificial intelligence and bank credit analysis: A review. <https://doi.org/10.1080/23322039.2021.2023262>
 44. Schmelzer, R. (2023, January 24). *The Top 5 Benefits of AI in Banking and Finance*. TechTarget. Retrieved October 23, 2023, from <https://www.techtarget.com/searchenterpriseai/feature/AI-in-banking-industry-brings-operational-improvements>
 45. Sheedy, E., & Lubojanski, M. (2018, April 16th). Risk management behaviour in banking. https://www.emerald.com/insight/content/doi/10.1108/MF-11-2017-0465/full/pdf?casa_token=tAdvN0IXxvEAAAAA:KsPxCvR_FI68IvR43A-x2bU7txzyrfSKb-4qxJQUJJqEbwSaaFndxmv3uo_hkvTXsHZGsslrareOKbMGZHERPwNOYnyJxgN-Ilhjtq4-5KAysqcdGW
 46. Sheibani, S. A., Cheung, Y., & Messom, C. (2018). Artificial Intelligence Adoption: AI-readiness at Firm-Level. *Twenty-Second Pacific Asia Conference on Information Systems, Japan*



- 2018.
47. Sheth, J. N., Jain, V., Roy, G., & Chakraborty, A. (2022, August). AI-driven banking services: the next frontier for a personalised experience in the emerging market. 10.1108/IJBM-09-2021-0449
48. Singh, T., & Pathak, N. (2020, June). JOURNAL OF CRITICAL REVIEWS EMERGING ROLE OF ARTIFICIAL INTELLIGENCE IN INDIAN BANKING SECTOR. [https://www.researchgate.net/journal/Journal-of-Critical-Reviews-2394-5125?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6Il9kaXJlY3QiLCJwYWdlIjoicHVibGljYXRpb24iLCJwb3NpdGlybiI6InBhZ2VIZWVkfZlIjX0, 7\(16\).](https://www.researchgate.net/journal/Journal-of-Critical-Reviews-2394-5125?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6Il9kaXJlY3QiLCJwYWdlIjoicHVibGljYXRpb24iLCJwb3NpdGlybiI6InBhZ2VIZWVkfZlIjX0, 7(16).)
49. Soni, V. D. (2019, January). ROLE OF ARTIFICIAL INTELLIGENCE IN COMBATING CYBER THREATS IN BANKING. https://www.researchgate.net/publication/343017498_ROLE_OF_ARTIFICIAL_INTELLIGENCE_IN_COMBATING_CYBER_THREATS_IN_BANKING
50. Verma, J. (2022, July). Application of Machine Learning for Fraud Detection – A Decision Support System in the Insurance Sector. 10.1108/978-1-80262-637-720221014
51. Wamba, S. F., Akter, S., Edward, A. J., Chopin, G., & Gnanzou, D. (2015). How ‘big data’ can make big impact: Findings from a systematic review and a longitudinal case study. *International Journal of Production Economics*, 165, 234-246. <https://doi.org/10.1016/j.ijpe.2014.12.031>.
52. Wohlner, R. (2023, July 27). *What Is Wealth Management And Do You Need It?* Bankrate. Retrieved October 23, 2023, from <https://www.bankrate.com/investing/financial-advisors/what-is-wealth-management/>
53. Xu, L.D., Lu, Y., & Li, L. (2021, July 1). Embedding Blockchain Technology into IoT for Security: a Survey. *IEEE Internet Things J Early Access*, 8(13), 10452-10473. <https://doi.org/10.1109/JIOT.2021.3060508>.