







A Study on Impact of Artificial Intelligence in Financial Services of Private Banks in Bangalore

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Abstract

This study looks into how private banks in Bangalore are using artificial intelligence (AI) to transform their financial services. Due to the rapid advancement of AI technology, private banking firms are increasingly implementing AI solutions to ensure strong risk management, improve client service, and increase operational effectiveness. This research aims to identify the specific artificial intelligence (AI) applications—such as fraud detection, automated customer support, predictive analytics, and customized financial advice—that private banks have put into place. The study thoroughly examines secondary data, questionnaires, and

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conversations with banking professionals to examine the benefits and challenges of implementing AI in banking. According to the findings, banking operations have been significantly improved by artificial intelligence (AI), which has reduced operating expenses and raised customer satisfaction. However, the paper also highlights concerns about data privacy.

Keywords: Artificial Intelligence. Banking industry. Financial Services. Technology and Private Banks.

1 Introduction

The financial services sector has grown significantly as a result of technological breakthroughs, especially in artificial intelligence (AI) (Han et al., 2023). Artificial Intelligence has emerged as a key player, transforming financial institutions' operations through increased accuracy, efficiency, and customer happiness (Narang, Vashisht, & Bajaj, 2024). Bangalore, a significant financial hub in India, is setting the standard for private banks by implementing AI-powered solutions to maintain their competitiveness and provide top-notch financial services. Artificial Intelligence (AI) technologies, including natural language processing, predictive analytics, and machine learning, are being used to personalize banking experiences, improve decision-making, and automate repetitive operations (Temara et al., 2024). Artificial Intelligence is revolutionizing the financial services industry with its sophisticated algorithms that detect fraudulent activities and chatbots that provide instant client help (Bello & Olufemi, 2024). AI-driven analytics also help banks anticipate market trends, better understand client behavior, and personalize financial solutions to match the needs of each customer. John McCarthy first developed the idea of artificial intelligence (AI) in the 1950s, defining it as the "science and engineering of creating intelligent machines" (Rajaraman, 2014). Technology has advanced to the point where artificial intelligence (AI) is becoming more and more well-known as a tool for banks to manage demands from the competition. The purpose of this study is to look into how AI is affecting financial services in Bangalore's private banks. It will center on determining the precise AI applications that are being used, evaluating their efficacy, and comprehending the benefits and difficulties associated with putting them into practice. This study will offer important insights into how artificial intelligence (AI) is changing Bangalore's private banking sector and suggest ways to optimize its potential while mitigating related dangers by utilizing both quantitative and qualitative research approaches. The Reserve Bank of India (RBI) named the top 10 private banks in the nation in 2019, emphasizing the banks' reputation for providing superior financial services, productive client relationships, and sound management. ICICI, Axis, HDFC, Kotak Mahindra, Yes Bank, Federal Bank, IndusInd Bank, RBL Bank, Karur Vysya Bank, and Bandhan Bank were among these banks.

These organizations have led the way in innovation, especially when it comes to implementing new technology to improve banking procedures and cater to clients' changing needs. The summary included important information about these banks, including their founding year, head office, organizational setup, and principal roles, highlighting their influence on the development of the private banking industry in India. These banks maintain their leadership positions by embracing customer-focused initiatives and integrating new technologies. Artificial intelligence (AI) has had a big impact on the financial industry by giving fintech companies a lot of benefits like better decision-making, more operational efficiency, and better customer service (Hidayat, Defitri, & Hilman, 2024). It empowers banks to evaluate enormous volumes of data, forecast patterns, and make well-informed choices through machine learning (ML) and natural language processing (NLP). AI's capacity to support decision-making by evaluating past data and changing trends is a crucial fintech application. This allows analysts to make both proactive and reactive decisions. Additionally, AI has changed the way the banking sector provides customer care by bringing in chatbots and virtual assistants as substitutes for conventional physical branches. In some areas, like the banking sector in Sweden, where AI is used to improve client interactions and customer service impressions, this has allowed banks to keep consumer engagement while minimizing the requirement for physical equipment.

The banking industry in India is gradually utilizing artificial intelligence (AI) as banks realize how critical it is to adopt cutting-edge technology to stay competitive and provide better services (Tewari et al., 2023). Artificial Intelligence has emerged as a crucial instrument for enhancing diverse banking processes, presenting substantial prospects for streamlining risk mitigation, delivering customized financial solutions, and augmenting overall efficacy. The associated technologies, especially ML and deep learning (DL), are becoming important to revolutionizing financial services by automating mundane processes, evaluating big datasets, and producing predicting insights. In contrast to conventional statistical techniques, machine learning (ML) emphasizes algorithms to enhance results, opening the door for more advanced financial services. AI will probably have a bigger impact on the financial sector as it develops, influencing future research and opening up more avenues for innovation.

1.1 Applications in Banking

- Analytics: Even without artificial intelligence, analytics has been a major area of attention for the financial industry for a number of years, greatly benefiting from technology developments. Significant advancements in data management and processing capacity have given human analysts more capable instruments for in-depth analysis.
- Chatbots: The chatbot is currently one of the most common uses of AI. A chatbot is an artificial intelligence (AI) service that converses via text or speech with users in a way

that sounds natural and human. In order to improve user interaction, some chatbots are built with personas—virtual agents having a name, avatar, and personality.

- **Robotic Process Automation (RPA):** RPA uses a range of techniques to more quickly, precisely, and efficiently automate repetitive human processes. At its foundation, robotic process automation (RPA) is the next step toward increasing the efficiency of back-office operations. RPA performs repetitive banking tasks that are normally handled by junior-level workers. RPA and AI integration make this possible.

1.2 AI Technology in Top 10 Leading Private Banks in India

- **HDFC BANK:** In banking, artificial intelligence (AI) has several uses. A plethora of use cases exemplify artificial intelligence’s potential to revolutionize the banking sector.
- **ICICI BANK:** With 200 robots completing 1 million transactions every day, ICICI Bank was the first bank in India and among the few worldwide to implement software robotics on a broad scale to optimize operations. Two years later, the bank increased the number of robots involved in its RPA program to over 750, managing roughly the same amount of daily transactions.
- **AXIS BANK:** In order to extract insights from unstructured data, Axis Aha! was developed and implemented using artificial intelligence (AI) approaches such as natural language processing (NLP), natural language understanding (NLU), and natural language generation (NLG) in conjunction with neural networks. These technologies aid with the interpretation of consumer intent, the selection of suitable actions, and the provision of user-friendly responses.
- **KOTAK MAHINDRA BANK:** Keya, the first bilingual voice bot powered by AI in India’s banking industry, was introduced by Kotak Mahindra Bank.
- **YES BANK:** YES ROBOT is a chatbot for personal banking that operates around-the-clock. Users are able to open Messenger on Facebook, search up YES ROBOT, and begin engaging with it to explore the different AI-powered banking services offered at YES Bank.
- **FEDERAL BANK:** Federal Bank has introduced a Virtual Agent, a digital chat service driven by AI. While every effort is made to ensure the accuracy of responses, the information provided through this service is not guaranteed to be fully accurate.
- **INDUSIND BANK:** IndusInd Bank launched an Alexa Skill, ‘IndusAssist’, which allows account holders to conduct both financial and non-financial banking transactions using Amazon’s virtual assistant, Alexa.
- **RBL BANK:** RBL Bank has strengthened its collaboration with the AI-based credit underwriting platform, Credit Vidya. This partnership leverages big data analytics and AI to enhance customer experience, offering personalized financial solutions to over 1.5 million clients.

- **KARUR VYSYA BANK:** Karur Vysya Bank (KVB) provides a variety of services, including personal, corporate, and agricultural banking, as well as offerings for NRIs and MSMEs. In personal banking, the bank uses AI to facilitate services such as home loans, personal loans, insurance, and fixed deposits.

2 Objectives of the Study

- To explore the impact of artificial intelligence on financial services.
- To examine the implementation of AI in private banks and assess how it has enhanced customer service in the sector.
- To understand the concept of artificial intelligence and its role in financial operations.

3 Data and Methodologies

The qualitative technique used in this study is descriptive in nature. Secondary data was gathered through a survey of the literature in order to investigate the current AI-facilitated banking sector services. The second goal is to examine the current AI-enabled banking services offered by the chosen institutions using information gathered from websites, books, journals, and literature reviews. The third goal is to examine and analyze how the top 10 banks in India and around the world employ artificial intelligence (AI) for primary data utilizing questionnaires and statistical tools like Excel, chi-square test software, reliability testing, and correlation.

4 Empirical result

The satisfaction of customers with banking services plays a crucial role in shaping their future decisions. By employing statistical tools like correlation analysis and the chi-square test, banks can gain valuable insights into the relationships between service quality and customer retention. These analyses allow banks to identify patterns, such as whether specific features—like personalized customer support or online banking ease—contribute to higher satisfaction levels. Table 1 illustrates the link between bank account holders and the quality of services they experience. The data not only reveals the importance of maintaining consistent service standards but also highlights areas for improvement, which can influence strategic decisions and foster long-term loyalty. Through this process, banking institutions can predict customer behavior, adapt their offerings, and ultimately secure a competitive edge.

Table 1. The bank account holders and quality of services

Particulars	Do you have bank account	If 1 then in which bank you have account	If 2 bank then in which bank do you have account	What do you feel about overall in 2 bank	Which attribute of the bank do you value the most	Do you trust the employees providing banking services
Correlation coefficient	-0.060	-0.035	0.062	-0.026	-0.154	-0.208*
Sig. level	0.517	0.704	0.502	0.778	0.091	0.023
N	121	121	121	121	121	120
	1	-0.141	-0.140	-0.106	0.173	0.017
		0.123	0.126	0.245	0.057	0.856
	121	121	121	121	121	120
	-0.141	1	-0.136	-0.209*	-0.012	-0.016
	0.123		0.137	0.021	0.899	0.863
	121	121	121	121	121	120
	-0.140	-0.136	1	0.179*	0.118	0.056
	0.126	0.137		0.050	0.197	0.542
	121	121	121	121	121	120
	-0.106	-0.209*	0.179*	1	0.395**	0.198*
	0.245	0.021	0.050		0.000	0.030
	121	121	121	121	121	120
	0.173	-0.012	0.118	0.395**	1	0.153
	0.057	0.899	0.197	0.000		0.096
	121	121	121	121	121	120
	0.017	-0.016	0.056	0.198*	0.153	1
	0.856	0.863	0.542	0.030	0.096	
	120	120	120	120	120	120

5 Interpretation

As the values travel in the opposite directions, we identified a negative correlation between the bank account holders in each of the correlation coefficients shown above in the table 2. The two are more changeable in this instance and have no relationship. Every customer's opinion of the banks is getting worse.

Table 2. Gender versus attributes of the bank valued the most

Gender	Which attribute of the bank do you value the most					Total
	Quality	Technology	Trust	Bank	6.0	
Male	27	15	17	5	3	67
Female	10	25	14	2	3	54
Total	37	40	31	7	6	121

5.1 Hypothesis

Ho= There is no correlation between a bank's characteristics and gender. H1= There is a relationship between gender and the bank's characteristics

Table 3 the P-Value is 0.031, less than the critical value of 0.05, and the chi-square value is 10.613. Therefore, we adopt the different hypothesis that there is a relationship between the gender and the bank's features and reject the null hypothesis.

Table 3. Chi-Square tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.613 ^a	4	.031
Likelihood Ratio	10.858	4	.028
Linear-by-Linear Association	0.395	1	.530
N of Valid Cases	121		

^a 4 cells (40.0%) have expected count less than 5. The minimum expected count is 2.68.

6 Conclusion

There are many benefits that artificial intelligence may provide to the finance industry. Artificial intelligence is transforming client-facing services and business processes in India's banking sector. It is also used to verify individual financial soundness, identify extortion, and maintain administrative consistency. Artificial intelligence (AI) can be used to create more efficient business models, provide specialized services, and support larger goals like financial consideration. There's no denying that the traditional financial models are being rapidly impacted by the continuous push towards digitalization. However, it has also exposed the organizations to growing risks and weaknesses related to digital security. The banks are gradually looking at creating technologies like square chain and research to create a functional defense system against cybercrimes.

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