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Artificial Intelligence in Banking and Financial Services: A Study of AI Applications and Consumer Response in SBI Bank

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Peer Review Information	Abstract
<i>Submission: 1 Sept 2025</i> <i>Revision: 28 Sept 2025</i> <i>Acceptance: 12 Oct 2025</i> Keywords <i>Artificial Intelligence, Financial Banking, Financial Customer.</i>	The revolutionary effects of AI on the banking and financial services industries are the subject of this research, which primarily examines State Bank of India (SBI). This study shows how artificial intelligence (AI) applications like chatbots, predictive analytics, and risk assessment tools improve operational efficiency and consumer experience. In addition, it delves into client reactions to AI integration, shedding light on customer happiness, confidence in automated services, and overall impressions. According to the results, in order for banks to fully take use of AI's capabilities in the banking industry, they need to allay customers' fears about data security and privacy.

Introduction

Banking and financial services have reached a new juncture in their growth with the incorporation of artificial intelligence (AI), which has become a revolutionary force in several areas. Artificial intelligence (AI)-driven solutions are supplementing or even replacing conventional banking processes to improve efficiency, accuracy, and customer experience in response to the fast-paced technological evolution and ever-increasing complexity of financial operations. Leading the charge in this digital revolution, the country's biggest bank, the State Bank of India (SBI), has used artificial intelligence (AI) to enhance service delivery and simplify operations.

Decisions in the financial industry have always been based on statistics. Nevertheless, there are advantages and disadvantages to the massive

amounts of data produced in the modern digital era. Banking institutions may benefit from AI's advanced algorithms and machine learning methods by analyzing massive volumes of data and drawing useful conclusions that can guide strategy and operations. Financial institutions may gain a competitive advantage and boost their overall performance by using AI to improve risk assessment, fraud detection, client segmentation, and tailored marketing.

Chatbots and virtual assistants are among the most prominent examples of artificial intelligence (AI) in banking. In order to reduce the strain of human workers and increase customer satisfaction, these AI-driven technologies are built to manage client questions, provide rapid replies, and streamline transactions. Chatbots have been used by SBI to tackle common customer service inquiries like

checking account balances and transaction history. This frees up human agents to handle more intricate problems. Not only does this change make reaction times faster, but it also makes operational expense management easier. The banking industry also makes extensive use of predictive analytics. Financial institutions are able to foretell future market and consumer trends by examining past data for patterns. Because of this capabilities, banks may provide a more customized banking experience for their consumers by adapting their services to their unique demands. Take SBI as an example. By using predictive analytics, the bank can identify clients who would default on loans. Then, it can reach out to these consumers proactively and provide financial options to help reduce losses. Banking operations rely heavily on risk management, and AI is playing a key role in improving this process. With the help of AI algorithms, banks can more correctly evaluate borrowers' creditworthiness by analyzing a myriad of data in real time. In addition, by seeing suspicious trends in financial data, AI may detect possible instances of fraud. Banks may enhance their capacity to identify and thwart fraudulent actions by using machine learning methods to continually improve their models with fresh data. To keep its assets secure and its customers' faith, SBI has invested in risk assessment technologies powered by artificial intelligence.

Artificial Intelligence in Banking

In order to better serve their clients and assist them in making informed investment decisions, businesses in the banking and financial sectors are investing in technological upgrades. Financial institutions may learn about their customers' habits in order to create apps, products, and services that are better tailored to their needs. Both the front and back ends of this industry's use of AI are demonstrating significant advancements. The channels, which include branches, online banking, and mobile banking, make up the front end. These are the entry points for clients to get AI. The quality of these channels is steadily improving over time. Chatbots on mobile devices may now infer our wants and needs from our actions without our conscious input. Better methods to invest, spend, and save may be accessed by the user. Back end processes are undergoing rapid transformation due to emerging technology such as process automation, which may do an hour's worth of work in only one minute.

Accounts, credit decisions, fraud detection, investing, trading, consulting services, risk management, and many other facets of the

financial sector have all benefited from AI. Data management and speedier data retrieval are both aided by AI. Using AI in a variety of contexts has been an incredibly fruitful experiment for State Bank of India. The areas where SBI has conducted experiments are shown in the following figure.



Figure 1: AI In SBI: Experiments

Outcome of usage of Artificial Intelligence & Analytics in State Bank of India

State Bank of India's Team Analytics has grown from an Excel-only reporting unit in 2013 into an innovative team that uses cutting-edge software to provide tangible results. It has released forty or more models based on AI and ML across all domains supervised by the Bank. Businesses have benefited greatly from the State Bank of India's models, which have led to better operational efficiency, less risk, and massive growth.

Literature Review

Aggarwal, Ankur & Garg, Shubhra. (2022) For all of India's industries, the banking industry stands head and shoulders above the others. Lots of developments have happened in the last five to 10 years. Banking services are become a part of everyone's daily lives. It became an essential element of our lives when all the financial services were centered on wage workers. Banking services are responsible for the transmission of subsidies, salaries, and day-to-day remittances. As the number of banking functions has grown, so has the need to ensure the safety and security of financial services via regulation. This research builds on previous work that examined the potential of AI in the banking industry in India, namely in the areas of robotic process automation and customer experience. Researchers have polled consumers to find out whether they would prefer an AI-based service or if they would like to speak with a real person to resolve their issues. Banking services powered by artificial intelligence shown a strong association with the majority of customer experience metrics.

Ambika, et al., (2020) This article examines the effects of AI on the banking industry in Bangalore, specifically looking at private banks' financial services, the methods used by these banks to use AI, and the reactions of their customers. The ten most prominent private banks in India are the subject of this study. Based on the literature research, data is retrieved from secondary sources in order to determine the information used in the banking business. Customers' major data about AI application is gathered using a standardized questionnaire. The research found that private banks are utilizing a range of AI services for the benefit of their customers. This is in an effort to increase customer satisfaction with the banks' financial services and, more specifically, to address the dissatisfaction of some customers with those services. Additionally, it demonstrates that the public places a high value on embracing technology in accordance with the digital India government program. The findings also indicated that clients are more loyal to the bank as a whole after receiving cutting-edge training to enhance AI processes at work and Every customer using a bank's online banking services should be able to see an e-alert on every transaction.

Bholane, Kishor. (2023) With AI's superior data analytics, banks will be better able to fight fraudulent transactions and increase compliance. When compared to the hours or days needed by humans, AI algorithms can complete anti-money laundering tasks in a matter of seconds. With the help of AI, financial institutions can quickly process massive amounts of data and draw useful conclusions. Revenue goes up, expenses go down, and profits go up as a result of all this. Aiming to examine the current state of acceptance, potential uses, and obstacles of AI in Indian banking, this research paper sets out to accomplish just that. A review of AI in India was also included in this study.

Cristi, Spulbar et al., (2023) Some of them have been inaccessible since banks began using AI, and initially, customers weren't willing to take any chances. Data for the research came from both official and unofficial sources. The purpose of this research was to determine whether or not artificial intelligence (AI) had a positive effect on banking operations from the perspective of both customers and employees. In order to achieve the aims of providing useful suggestions that would ease the transaction for the consumer and the banker's workload, a number of hypotheses were devised and tested. For this research, we used primary and secondary sources of information. The majority

of the data comes from 170 consumer samples and 30 banker samples. Two hundred pieces of primary data were gathered for the research, one from the perspective of the consumer and one from the perspective of the lender. Primary data acquired from the perspective of bankers for axis bank, ICICI bank, Karnataka bank, HDFC bank, etc. Secondary sources, such as books, periodicals, and websites, were consulted for more details. Additionally, the test makes use of statistical methods such as chi-square, correlation, and regression.

R, Dr & Salman, Syed. (2024) John McCarthy, an emeritus professor at Stanford University, first used the phrase "Artificial Intelligence" in 1955. His definition was "the science and engineering of creating intelligent machines." Businesses greatly benefit from AI technology. Research and development in artificial intelligence (AI) is receiving funding from every major nation in the globe. The exponential growth of digital technology and the dramatic improvement in algorithmic skills over the last five years have led to a meteoric rise in the use of artificial intelligence. This research aims to evaluate the latest breakthroughs and applications by reviewing literature, articles, reports, websites, and newspapers to understand how this emerging technology is being used in Indian banking and financial services. Real-time examples will be provided.

Methodology

We were able to draw findings and provide recommendations based on the data we acquired, which consisted of qualitative primary and secondary sources. The majority of the information came from a study on AI in the banking and finance industry. The survey's questionnaire was prepared, and participants were chosen at random. Online resources such as websites, e-magazines, research papers, e-books, newspapers, and more were combed through for the secondary data.

Result And Discussion

Table 1 Gender of the Respondent

particulate	frequency	percentage
Male	80	72.7%
Female	30	27.3%
Total	110	100%

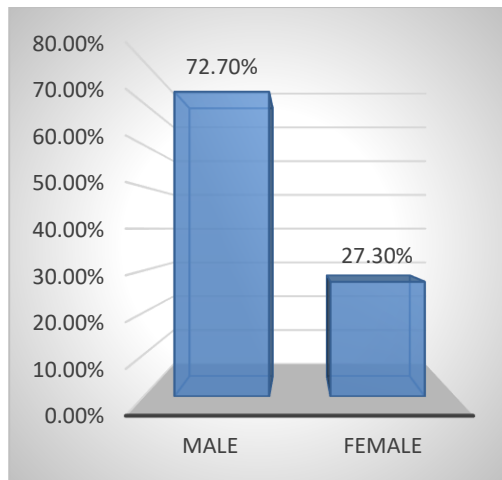


Figure 2: Gender of the Respondent

A large majority of the participants are male, with 80 persons (72.7%) identifying as male, as seen in the table that provides the gender distribution of respondents in the research. Females make up only 30 responders, or 27.3% of the total. The sample may not accurately reflect the viewpoints and experiences of female participants due to this imbalanced representation of the sexes, which might impact the overall results of the study. For the findings to be understood and the consequences to be considered for future research or activities that try to achieve a more equal representation, it is essential to understand this demographic imbalance.

Table 2: Multiple Response Analysis

	YES		NO	
	Frequency	%	Frequency	%
Chatbots	65	59.1	45	40.9
Voice Assistants	70	63.6	40	36.4
Authentication and biometrics	80	72.7	30	27.3
Fraud detection and Prevention	75	68.2	35	31.8
KYC/AML	68	61.8	42	38.2
Smart Wallet	60	54.5	50	45.5

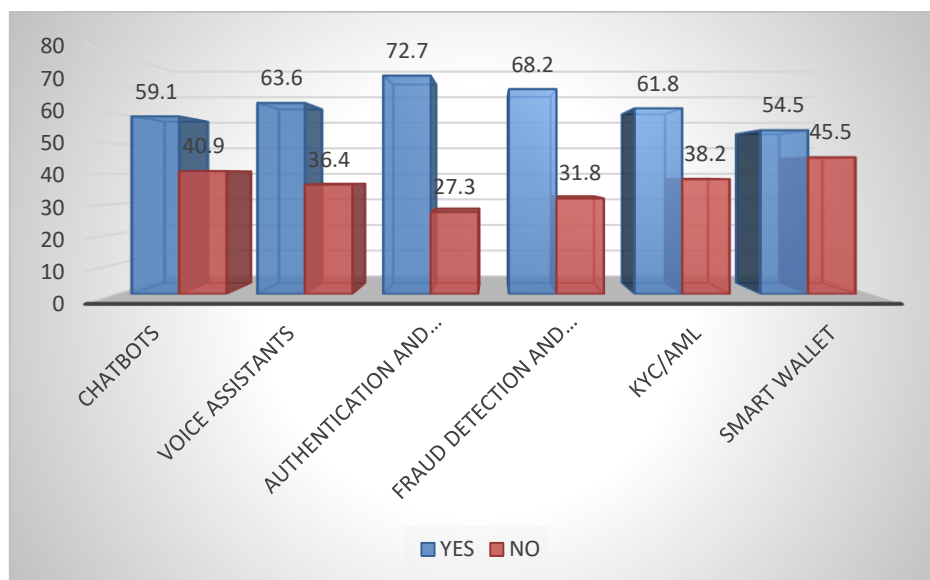


Figure 3: Multiple Response Analysis

According to the results of the multiple response analysis, people's views on various AI uses are all over the map. While 40.9% of people thought

chatbots were useless, 59.1% said they were helpful. With 63.6% considering voice assistants beneficial and 36.4% not, the favorable reaction

was somewhat higher for voice assistants. Among the most popular features, 72.7% said authentication and biometrics were helpful. Additionally, fraud detection and prevention had strong support, with 68.2% of people having a positive impression of it. While 54.5% of people thought smart wallets were beneficial, 61.8% said KYC/AML processes were useful. Nevertheless, a significant number of respondents were still not persuaded about KYC/AML and smart wallets.

Conclusion

Results show that respondents are generally in favor of AI applications, with the greatest level of acceptance given to those dealing with authentication and biometrics. Although most people had a positive impression of chatbots, voice assistants, and fraud detection, others were skeptical, especially when it came to smart wallets and KYC/AML procedures. This indicates that, despite widespread agreement on AI's promise, more education and publicity are needed to allay fears and boost adoption. In order to make progress and use AI in the future, it is crucial to understand these viewpoints.

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