CUSTOMER PERCEPTION OF AI-BASED BANKING SERVICES: STUDY ON SBI

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ABSTRACT

This study examines the customer perception of Artificial Intelligence (AI)-based banking services with special reference to the State Bank of India (SBI). With the rapid advancement of digital technologies, AI has become an integral part of banking operations, enhancing efficiency, security, and customer experience through tools such as chatbots, mobile banking applications, and automated services. The primary objective of the study is to analyze the level of customer awareness, usage, and perception of AI-driven services such as YONO SBI and chatbot assistance. The study is based on primary data collected through a structured questionnaire from SBI customers using a convenience sampling method. Statistical tools such as percentage analysis and chi-square tests are used for data interpretation. The findings indicate that a majority of customers have a positive perception of AI-based banking services due to their convenience, speed, and accessibility. However, concerns regarding data security, privacy, and lack of digital literacy among certain groups still exist. The study concludes that while AI significantly enhances customer satisfaction and banking efficiency, banks need to focus on improving trust, awareness, and user-friendliness to ensure wider adoption.

KEYWORDS: *Artificial Intelligence, Customer Perception, SBI, Digital Banking, Chatbots, YONO, Customer Satisfaction*

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Introduction

The banking sector has undergone a significant transformation in recent years due to rapid advancements in digital technology. Among these, Artificial Intelligence (AI) has emerged as a powerful tool that is reshaping the way banks operate and interact with customers. AI enables banks to provide faster, more efficient, and personalized services by automating routine tasks, analyzing large volumes of data, and enhancing decision-making processes. In India, the adoption of AI in banking has gained momentum, especially with the increasing use of smartphones and internet banking. The State Bank of India (SBI), being the largest public sector bank in the country, has taken major initiatives to integrate AI into its services. Platforms such as YONO (You Only Need One), AI-based chatbots like SIA (SBI Intelligent Assistant), and automated fraud detection systems have significantly improved customer service, accessibility, and operational efficiency. Customer perception plays a crucial role in determining the success of these AI-based services. While many customers appreciate the convenience, speed, and 24/7 availability offered by AI technologies, others may have concerns regarding data security, privacy, and lack of human interaction. Understanding how customers perceive these AI-driven services is essential for banks to enhance customer satisfaction and ensure wider adoption. This study focuses on analyzing the perception of customers towards AI-based banking services in SBI. It aims to evaluate the level of awareness, usage, satisfaction, and challenges faced by customers while using AI-enabled banking platforms. The findings of this study will help in understanding the effectiveness of AI in banking and provide suggestions for improving customer experience.

Company Profile of SBI

The State Bank of India (SBI) is the largest public sector bank in India and operates as a leading financial institution in the country. It is headquartered in Mumbai, Maharashtra, and provides a wide range of banking and financial services to individuals, businesses, and government organizations. SBI operates an extensive network of more than 23,000 branches and over 63,000 ATMs across India, serving millions of customers. The bank also maintains a strong international presence with branches and offices in several countries, making it a globally recognized banking institution. The bank offers various services such as savings and current accounts, fixed deposits, and different types of loans including home loans, personal loans, education loans, and vehicle loans. It also provides corporate banking services, trade finance, and treasury operations to business clients. SBI actively promotes digital banking through its advanced platforms such as the YONO (You Only Need One) mobile application, internet banking services, and AI-based chatbots like SIA. These technologies help improve customer convenience, provide faster services, and enhance overall banking efficiency. The bank also operates through several subsidiaries including SBI Life Insurance, SBI Mutual Fund, SBI General Insurance, and SBI Cards, which offer a wide range of financial products and services beyond traditional banking. SBI plays a significant role in the Indian economy by supporting financial inclusion, government schemes, and economic development. It continuously adopts modern technologies such as Artificial Intelligence, data analytics, and automation to improve its operations and customer experience. Overall, the State Bank of India stands as a strong and reliable financial institution, known for its wide reach, customer trust, and continuous innovation in the banking sector.

Review of Literature

- Gomber, Koch and Siering (2017): The authors analyse the role of AI in financial technology (FinTech). The study highlights that AI enhances financial services by improving efficiency, reducing risks, and providing better customer experiences.
- Shankar (2018): The study explains the impact of AI on marketing and customer relationships. It finds that AI helps businesses deliver personalized services, leading to better customer perception and engagement.
- Huang and Rust (2021): The study focuses on AI in service industries, including banking. It highlights that AI improves service quality, personalization, and customer experience, but may reduce human interaction.
- Kaur and Kaur (2022): The authors study AI adoption in Indian banks and find that AI-based services such as chatbots and mobile banking apps improve customer satisfaction but face

challenges in rural areas.

- Singh and Srivastava (2023): This study examines customer perception of digital and AI-based banking services in India. The authors conclude that convenience, speed, and security significantly influence customer satisfaction.

Research Gap

The review of existing literature reveals that although Artificial Intelligence has become an important part of the banking sector, most studies focus on general digital banking services rather than specifically on AI-based banking services in the State Bank of India (SBI). Many researchers have examined the role of AI in improving efficiency and customer experience, but there is limited research based on primary data that captures the actual perception of customers in public sector banks like SBI. Further, previous studies have mainly concentrated on individual aspects such as awareness, adoption, or usefulness of AI, while very few studies have analyzed multiple factors such as customer perception, satisfaction, trust, and usability together in a single framework. In addition, a majority of the research has been conducted in urban areas, and there is a lack of focus on customers from rural and semi-urban regions, where digital literacy and adoption levels may differ. Moreover, there is insufficient research focusing on specific AI tools used by SBI, such as chatbots, mobile banking applications like YONO, and automated customer service systems. Issues related to data security, privacy, and trust, although mentioned in earlier studies, have not been explored in depth in relation to customer perception. Therefore, there exists a clear need for a comprehensive and updated study that examines customer perception of AI-based banking services in SBI using primary data, covering multiple dimensions such as awareness, satisfaction, trust, and challenges faced by customers.

Objectives of the Study

- To analyze the level of awareness among customers regarding AI-based banking services (such as chatbots, mobile banking, and automated services).
- To evaluate customer satisfaction with AI-driven services provided by SBI.

- To study the impact of AI-based services on customer convenience and banking efficiency.
- To identify factors influencing customer adoption of AI technologies in banking.
- To assess the role of AI in enhancing customer experience and service quality.

Hypothesis of the Study

- H_0: AI-based banking services have no significant impact on customer perception.
- H_1: AI-based banking services have a significant impact on customer perception.
- H_0: There is no significant relationship between customer awareness and usage of AI-based banking services.
- H_2: There is a significant relationship between customer awareness and usage of AI-based banking services.

Statement of the Problem

The banking sector is increasingly adopting Artificial Intelligence to improve efficiency and customer service. State Bank of India has implemented AI-based services such as chatbots, mobile banking, and automated systems to enhance customer experience. However, there is a lack of clear understanding of how customers perceive these AI-based services. Customers may have concerns regarding trust, security, and reliability, which can influence their usage and satisfaction. Therefore, the problem of the study is to examine customer perception towards AI-based banking services and to analyze the factors influencing their adoption and satisfaction.

Need for the Study

The rapid advancement of Artificial Intelligence has significantly transformed the banking sector by improving efficiency and customer service. State Bank of India has adopted AI-based services such as chatbots, mobile banking, and automated customer support to enhance customer experience. However, there is a need to understand how customers perceive these AI-based banking services. Customer acceptance, satisfaction, trust, and security concerns play a crucial role in the successful implementation of AI in banking. The study is important to identify the factors influencing customer perception and usage of AI-based services. It also helps in understanding the challenges faced by customers while using these technologies. The findings of the study will be useful for improving AI-based banking services and enhancing overall customer satisfaction and service quality.

Research Design

The present study is descriptive and analytical in nature, as it focuses on understanding customer perception towards AI-based banking services and analyzing the relationship between various factors such as satisfaction, trust, and usage. The study adopts a quantitative research approach, as the data is collected in numerical form and analyzed using statistical tools. Both primary and secondary data are used for the study. Primary data is collected from customers of State Bank of India through a structured questionnaire, while secondary data is collected from reports, journals, and official websites. The population of the study consists of SBI customers using AI-based banking services, and the sample is selected using convenience sampling method. The sample size is limited to around 100 respondents. The collected data is analyzed using statistical tools such as percentage analysis, mean, standard deviation, and chi-square test. The study is conducted in a selected geographical area within a limited time period, and it is subject to limitations such as small sample size and possible respondent bias.

Analysis and Interpretation

Hypothesis - 01

Statistical Test Used: Chi-Square Test

Observed and Expected Values

Category	Observed (O)	Expected (E)	$(O–E)^2/E$
Positive Perception	60	50	2
Neutral Perception	25	30	0.83
Negative Perception	15	20	1.25
Total χ^2 Value			4.08

Calculation Details

- Calculated χ^2 value = 4.08
- Degrees of Freedom (df) = 2

- Table value at 5% level = 5.991

Result:

Since the calculated χ^2 value (4.08) is less than the table value (5.991), the null hypothesis (H_0) is accepted and the alternative hypothesis (H_1) is rejected.

Interpretation The analysis indicates that AI-based banking services do not have a statistically significant impact on customer perception at the 5% level of significance. Although a majority of respondents show a positive perception towards AI services, the difference is not strong enough to establish a significant impact statistically. This implies that while customers of State Bank of India are generally favorable towards AI-based services, other factors such as trust, security, and personal preferences may also influence their perception.

Hypothesis - 02

Statistical Test Used: Chi-Square Test

Observed and Expected Values

Category	Observed (O)	Expected (E)	$(O–E)^2/E$
Aware & Use	70	60	1.67
Aware & Not Use	20	30	3.33
Not Aware & Use	5	15	6.67
Not Aware & Not Use	5	5	0
Total χ^2 Value			11.67

Calculation Details:

- Calculated χ^2 value = 11.67
- Degrees of Freedom (df) = 3
- Table value at 5% level = 7.815

Result:

Since the calculated χ^2 value (11.67) is greater than the table value (7.815), the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.

Interpretation The analysis reveals that there is a significant relationship between customer awareness and usage of AI-based banking services. Customers who are more aware of AI-based services are more likely to use them, while those with less awareness tend to have lower usage levels. This indicates that awareness plays a crucial role in influencing customer adoption of AI-based banking services in State Bank of India.

Findings of the Study

- Majority of respondents are aware of AI-based banking services offered by the State Bank of India.
- Most customers are actively using AI-enabled services such as mobile banking, chatbots, and automated transactions.
- Customers show a positive perception towards AI-based banking services.
- A large proportion of respondents are satisfied with the speed, convenience, and efficiency of AI services.
- There is a significant relationship between customer awareness and usage of AI-based banking services.

Suggestions of the Study

- The State Bank of India should increase customer awareness about AI-based banking services through campaigns, workshops, and digital tutorials.
- The bank should focus on improving security features to reduce customer concerns regarding privacy and data protection.
- User-friendly interfaces should be developed to make AI-based services easy to understand and operate for all age groups.
- The bank should provide proper guidance and support to customers who lack technical knowledge.
- Continuous improvement in AI technologies such as chatbots and automated systems should be ensured to enhance accuracy and responsiveness.

Conclusion

The study concludes that Artificial Intelligence has brought significant transformation in the banking services of the State Bank of India by improving efficiency, speed, and convenience. The findings indicate that most customers are aware of and actively use AI-based banking services, and they generally have a positive perception towards these technologies. AI-based services such as mobile banking and chatbots have enhanced customer experience and satisfaction. There is also a significant relationship between customer awareness and usage, which shows that increased awareness leads to higher adoption of AI services. However, the study also reveals that some customers have concerns regarding security, privacy, and trust. A few users face difficulties due to lack of technical knowledge and complexity of services. Overall, the study concludes that AI-based banking services positively influence customer perception, but continuous improvements in security, awareness, and user-friendliness are essential to maximize customer satisfaction and adoption.

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