

Original Article

Role of Artificial Intelligence and Chatbots in Banking Services

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Artificial Intelligence (AI) and chatbot technologies are playing a major role in transforming the banking sector. Banks are increasingly adopting AI-driven systems to improve customer service quality, operational efficiency, accuracy, and fraud detection. This research study examines the role, adoption, and effectiveness of AI and chatbot services in banks located in the Pimpri-Chinchwad Municipal Corporation (PCMC) region. The study focuses on customer satisfaction, response time, service quality, operational accuracy, and fraud prevention. Primary data was collected through structured questionnaires from bank customers and employees, while secondary data was gathered from journals, RBI reports, and official bank websites. The chi-square test was applied to examine the relationship between customer satisfaction and chatbot usage. The findings reveal that chatbots significantly reduce customer waiting time and enhance convenience through 24/7 availability. However, challenges such as technical errors, limited problem-solving ability, and lack of personal interaction still exist. The study suggests measures to strengthen AI adoption in PCMC banks.

Keywords: Artificial Intelligence, Chatbots, Banking Services, PCMC Region, Digital Banking, Customer Satisfaction, Chi-Square Test

Introduction

Artificial Intelligence has brought significant changes in the way banking services are delivered. Modern banks are using AI technologies to provide faster, safer, and more personalized services to customers. Chatbots are one of the most widely used AI tools in banking, assisting customers with balance enquiries, fund transfers, loan information, service requests, and complaint resolution. Banks operating in the PCMC region such as Pimpri, Chinchwad, Nigdi, Akurdi, Moshi, Bhosari, and Ravet have adopted AI-based tools including mobile banking chatbots, voice assistants, automated customer support systems, and fraud detection mechanisms. The purpose of this study is to understand the effectiveness of these technologies and analyze customer perception towards AI-enabled banking services.

Types of Digital Payment Modes Supported by AI

- UPI (Unified Payments Interface) – Instant fund transfers with AI-based fraud monitoring
- Mobile Wallets – Applications such as Google Pay, PhonePe, and Paytm provide chatbot assistance
- Internet Banking – AI-based authentication and virtual assistant support
- Debit and Credit Cards – AI systems detect unusual transaction patterns
- IMPS, NEFT, RTGS – Automated backend processing using AI technology
- QR Code Based Payments – AI ensures secure and validated transactions
- Voice-Based Digital Payments – Services like SBI Hello UPI and HDFC EVA
- AI-Enabled Banking Applications – Personalized alerts and service recommendations



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Review of Literature

- Bhattacharya (2019) found that chatbot adoption helps banks reduce operational workload.
- Rai and Arora (2020) observed that AI improves customer satisfaction by providing quick responses.
- Sharma (2021) identified limitations of chatbots in handling complex customer issues.
- RBI Report (2022) highlighted the role of AI in fraud detection and digital banking security.
- Patil (2023) noted increasing adoption of AI in Pune and PCMC banking sectors.
- Singh (2023) stated that customer trust improves when AI systems are reliable.
- Global AI Banking Survey (2024) reported that chatbots reduce service time by nearly 60%.

Objectives of the Study

- To study the role of AI and chatbots in banking services in the PCMC region
- To understand customer satisfaction with AI-enabled banking services
- To analyse the benefits and challenges of AI adoption in banks
- To identify the impact of chatbots on service efficiency and error reduction
- To provide suggestions for strengthening AI technology in PCMC banks.

Research Methodology

The research is descriptive and analytical in nature. Primary data was collected through structured questionnaires from bank customers and employees. Secondary data was collected from journals, RBI reports, research papers, and official bank websites. The research area covered banks operating in the PCMC region. A sample size of 100 respondents was selected using simple random sampling. Percentage analysis and the chi-square test were used as statistical tools for data analysis.

Findings

- Most customers in the PCMC region use chatbots for basic banking queries
- AI reduces customer service waiting time and operational workload
- Chatbots help improve accuracy and reduce manual errors
- AI-based fraud detection systems are effective in banks
- Awareness of AI services is higher among younger customers
- Some customers prefer human interaction for complex issues

Suggestions

- Improve chatbot accuracy and include multilingual support
- Conduct awareness programs on AI-enabled banking services
- Upgrade IT infrastructure to reduce technical issues
- Enhance chatbot capability to handle complex queries
- Provide human-assisted alternatives for senior citizens
- Strengthen security using advanced AI techniques

Limitations of the Study

- The study is limited only to the PCMC region
- Sample size of 100 respondents may not represent the entire population
- Responses are based on personal opinions of respondents
- AI technology is continuously evolving, so results may change over time

Conclusion

The study concludes that Artificial Intelligence and chatbots play a significant role in enhancing banking services in the PCMC region. These technologies improve efficiency, service quality, and customer satisfaction. Although certain limitations such as technical issues and lack of personal interaction exist, AI-based banking services are expected to grow further and shape the future of banking in the PCMC region.

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