

Influence of Digital Banking and Artificial Intelligence on Customer Satisfaction in Nagpur City

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Abstract:

The rapid adoption of digital banking has transformed the delivery and consumption of banking services in India. This study examines the influence of digital banking and artificial intelligence (AI)-enabled banking services on customer satisfaction in Nagpur City. A descriptive; mixed-method approach was adopted using responses from 300 banking customers and 10 semi-structured interviews. The study considered digital banking experience through perceived usefulness, ease of use, system availability, security, responsiveness, and the performance of AI-enabled chatbots. Findings indicate very high adoption of UPI and strong satisfaction with mobile banking interfaces, 24/7 availability, and security alerts. However, satisfaction with AI chatbots was considerably lower, particularly when customers faced transaction disputes or complex service requests. The findings suggest a clear satisfaction gap: customers value digital speed and convenience but continue to expect human intervention, empathy, and effective escalation when technology fails. The study concludes that banks in Nagpur should pursue a phygital service model that combines efficient digital channels with accessible human support, stronger vernacular and contextual AI capabilities, transparent communication, and reliable service recovery mechanisms.

Keywords: *Digital Banking; Artificial Intelligence; Customer Satisfaction; UPI; Chatbots; Trust; Phygital Banking; Nagpur City.*

1. INTRODUCTION

Digital transformation has fundamentally changed the way customers interact with banks. Mobile banking applications, Unified Payments Interface (UPI), automated security alerts, and AI-enabled customer service have reduced dependence on conventional branch-based transactions. In urban India, these technologies have become an important part of everyday financial activity. Nagpur provides a relevant setting for examining this transformation because the city combines established commercial communities, expanding digital infrastructure, technology-oriented employment clusters, and customers with diverse levels of digital familiarity. Although digital banking has improved speed and convenience, increased digitisation does not automatically result in higher customer satisfaction. Customers may appreciate instant transactions but become dissatisfied when applications fail, transactions remain pending, fraud alerts are incorrectly triggered, or automated chatbots cannot understand the problem. Such experiences are particularly important in banking because financial transactions involve risk, trust, privacy, and emotional sensitivity. The present study therefore investigates how customers in Nagpur perceive digital banking and AI-enabled services and identifies the

factors associated with satisfaction and dissatisfaction. The study pays particular attention to the contrast between the efficiency of digital channels and customers' continuing need for human support in complex situations.

2. OBJECTIVES OF THE STUDY

1. To examine the level of customer adoption of digital banking services in Nagpur City.
2. To assess customer satisfaction with selected digital banking features, including mobile applications, UPI, 24/7 availability, and security alerts.
3. To evaluate customer perceptions of AI-enabled banking services, particularly chatbots.
4. To identify major factors contributing to satisfaction and dissatisfaction with digital banking.
5. To suggest measures for improving digital and AI-enabled banking services through a balanced phygital approach.

3. LITERATURE REVIEW

Davis (1989), through the Technology Acceptance Model (TAM), proposed perceived usefulness and perceived ease of use as major determinants of technology acceptance. "

"In digital banking, perceived usefulness can be reflected in time savings, convenience, transaction speed, and access to services without visiting a branch, while perceived ease of use relates to navigation, accessibility, and simplicity of the application.

The expansion from conventional e-banking to AI-enabled banking has introduced additional dimensions such as personalised recommendations, automated customer service, predictive analytics, and fraud monitoring. "

"These services can increase convenience, but their effectiveness depends on accuracy, transparency, reliability, and customer trust.

The literature also indicates that digital service quality is multidimensional. Efficiency, system availability, fulfilment, privacy, and responsiveness are important elements of customers' online service experiences. "

"In banking, these dimensions become especially important because service failure may directly affect customers' money and confidence in the institution.

Trust and perceived risk are important extensions of technology acceptance in financial services. Customers may accept digital services for routine transactions while preferring human interaction for high-value, disputed, or complicated matters. "

"This supports the growing relevance of a phygital model, in which digital convenience is combined with accessible physical or human assistance.

A further issue is localisation. Customers in multilingual environments may interact with banking services using combinations of English, Hindi, Marathi, and local expressions. "

"AI systems that fail to interpret such language patterns may reduce perceived ease of use and increase frustration. The present study addresses this issue in the context of Nagpur.

4. RESEARCH GAP

- Existing studies frequently examine internet or digital banking broadly, while fewer studies separately examine AI-enabled banking services such as chatbots and predictive features.
- There is limited city-level evidence on customer satisfaction with AI-enabled banking services in Nagpur.
- The role of human intervention and service recovery in digital banking dissatisfaction requires greater attention.
- The effect of multilingual and locally contextualised customer interaction on AI service experience remains underexplored.

5. CONCEPTUAL FRAMEWORK

Based on TAM and digital service-quality perspectives, the study considers perceived usefulness, perceived ease of use, system availability, security, responsiveness, trust, and AI service performance as important dimensions influencing customer satisfaction.

Independent / Service Factors	Customer Experience	Outcome
Perceived usefulness	Convenience and time saving	Customer satisfaction
Perceived ease of use	Simple and accessible interaction	Customer satisfaction
System availability	Reliable access and fewer failures	Customer satisfaction
Security and trust	Confidence in transactions	Customer satisfaction
AI chatbot performance	Accuracy, understanding and responsiveness	Customer satisfaction
Human support / escalation	Empathy and service recovery	Customer satisfaction

6. RESEARCH METHODOLOGY

The study adopted a descriptive mixed-method research design. Primary data were collected from 300 respondents in Nagpur through online forms and face-to-face interactions. The study also included 10 in-depth interviews to obtain qualitative insights into customers' experiences with digital banking and AI-enabled services. Selected respondents were approached in areas including Sadar and Mahal. The questionnaire used a five-point Likert scale to capture perceptions of digital banking features. The analysis presented in this paper is descriptive and focuses on reported usage patterns and satisfaction scores.

Sample size: 300 respondents; qualitative interviews: 10; primary data collection mode: online and face-to-face; measurement: five-point Likert scale.

7. RESULTS AND ANALYSIS

The study reports very high UPI usage among respondents and a marked difference between satisfaction with general digital banking features and satisfaction with AI chatbots.

Digital Banking Feature	Reported Satisfaction / Usage	Interpretation
UPI usage	98%	Very high adoption of digital payments
AI chatbot preference	20%	Low satisfaction/preference for chatbot interaction
Mobile app UI	4.2 / 5	High satisfaction with interface

AI chatbot	1.8 / 5	Low satisfaction, mainly due to limited understanding
24/7 availability	4.8 / 5	Very high perceived convenience
Security alerts	4.5 / 5	High perceived reassurance and security value

Age-related observations indicate that respondents aged 18–25 were more receptive to AI-based features such as spending analysis. Older respondents showed greater concern about fraud, although AI-driven security features were perceived positively. The qualitative interviews further indicated that customers were more accepting of AI for routine and preventive tasks than for complex complaints requiring explanation or emotional reassurance.

8. DISCUSSION

The findings support the central proposition of TAM that usefulness and ease of use contribute to technology acceptance. High satisfaction with 24/7 availability and the mobile application suggests that customers value digital banking primarily for convenience, speed, and accessibility. At the same time, the substantially lower score for AI chatbots indicates that acceptance of digital banking does not necessarily translate into acceptance of every AI-enabled service. The findings also highlight the importance of trust and human support in financial service encounters. When a routine transaction succeeds, customers may not notice the technology behind it. However, when a transaction fails or money is disputed, customers expect clear explanations, rapid resolution, and human accountability. This creates a satisfaction gap between efficient digital processing and the relational expectations associated with banking. The evidence therefore supports a phygital approach for Nagpur: routine transactions can remain digital and automated, while complex cases should have a visible and rapid pathway to trained human staff. AI systems should also be improved in language understanding, contextual interpretation, escalation, and transparent communication.

9. KEY FINDINGS

- Digital banking adoption among the surveyed respondents is very high, particularly for UPI-based transactions.
- Customers report high satisfaction with mobile banking interfaces, 24/7 availability, and security alerts.
- AI chatbots receive substantially lower satisfaction than other digital banking features.

- Younger customers appear more receptive to AI-based financial features, while older customers place stronger emphasis on fraud protection and trust.
- Human assistance remains important for transaction disputes and other complex banking problems.
- The results point toward a phygital service model rather than complete replacement of human banking support.

10. RECOMMENDATIONS

1. Improve Chatbot accuracy and contextual understanding, especially for transaction-related complaints.
2. Provide clear human escalation options within digital banking applications.
3. Strengthen multilingual and vernacular conversational capabilities, including common Hindi-Marathi code-switching.
4. Use AI primarily to enhance customer service, fraud prevention, and personalisation rather than as a complete substitute for human support.
5. Improve service recovery processes for failed or pending transactions and communicate resolution timelines clearly.
6. Conduct regular customer-experience audits across age groups to identify differences in trust, digital confidence, and AI acceptance.

11. LIMITATIONS AND SCOPE FOR FUTURE RESEARCH

The study is limited to respondents from Nagpur City and uses a descriptive sample of 300 respondents with 10 qualitative interviews. The results should therefore not be generalised to all Indian banking customers without further evidence. Future studies may use probability sampling, inferential statistical tests, larger samples, and comparisons across Nagpur, Mumbai, Pune, and other Tier-2 cities. Longitudinal research could also examine whether improvements in AI accuracy and human escalation mechanisms lead to measurable increases in customer satisfaction over time.

12. CONCLUSION

Digital banking has become an important component of customers' everyday financial lives in Nagpur. The study shows that customers strongly value speed, convenience, continuous availability, and security. However, the lower satisfaction associated with AI chatbots demonstrates that technological sophistication alone does not guarantee customer satisfaction. Customers expect banking technology to be reliable and convenient, but they also expect empathy, accountability, and human assistance when problems become complex. The practical implication is that banks should not frame

digital transformation as a choice between technology and people. Instead, they should develop integrated phygital services in which AI handles routine and preventive tasks efficiently while human employees remain readily accessible for exceptions, disputes, and emotionally sensitive situations. For Nagpur's diverse customer base, trust, localisation, service recovery, and human-centred design should therefore be treated as essential components of successful AI-enabled banking.

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