"Balancing Innovation and Ethics: Exploring Consumer Trust and Privacy in AI-Driven FinTech Services – Evidence from Chennai"

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ABSTRACT

The study discovers how the customers adopt the digital banking services drove by Artificial Intelligence across public, private and foreign banks in Chennai, India. People's willingness to use AI – powered platforms are influenced by factors such as trust, privacy concerns and digital literacy. Structured questionnaire was collected from 200 respondents using descriptive quantitative method that explores perceptions of usefulness, problem-solving ability, transparency, and privacy features like data encryption and access control. The results show that Respondents' actual adoption depends heavily on how much they trust the technology and the bank's ability to protect their data, while most users appreciate the personalization and convenience offered by AI-driven banking. privacy safeguards such as encryption and secure access system were given high importance by the respondents. Overall, the study highlights that banks must maintain a balance between technological innovation and ethical responsibility, ensuring that AI tools are both effective and trustworthy. The main limitation is that the research focuses only on Chennai's urban population, future studies should include other regions and demographics for broader insights.

Keywords:

INTRODUCTION

Through the integration of Artificial Intelligence in FinTech services the global banking sector is undergoing rapid transformation. AI technologies enable banks to provide personalized financial solutions, streamline decision-making, and strengthen fraud detection capabilities (Davenport & Ronanki, 2018). In urban city like Chennai, the rising digital banking ecosystem presents opportunities for enhanced service delivery. However, widespread adoption depends on consumers' trust in technology and assurance of data privacy (Gefen, 2000; Kim et al., 2020). Trust influences willingness to share sensitive information and rely on AI for decision-making,

while privacy concerns arise from uncertainties about data handling, consent, and algorithmic transparency.

While earlier studies have examined AI adoption in the Indian banking sector, there is a limited understanding of how emerging financial hubs like Chennai perceive AI-powered banking in terms of trust and privacy. This study helps to identify the research gap by examining how privacy features such as access control, data encryption and other features like trust and transparency, impacting the adoption of AI-enabled FinTech services. Accordingly, this research focuses on urban banking consumers in Chennai a demographically diverse group with varying levels of digital literacy and technology exposure. By examining how consumers perceive AI in banking, this study adds to the growing understanding of ethical AI adoption in financial services. It highlights the importance for banks to strike a balance between technological innovation and ethical responsibility to build lasting trust with their customers.
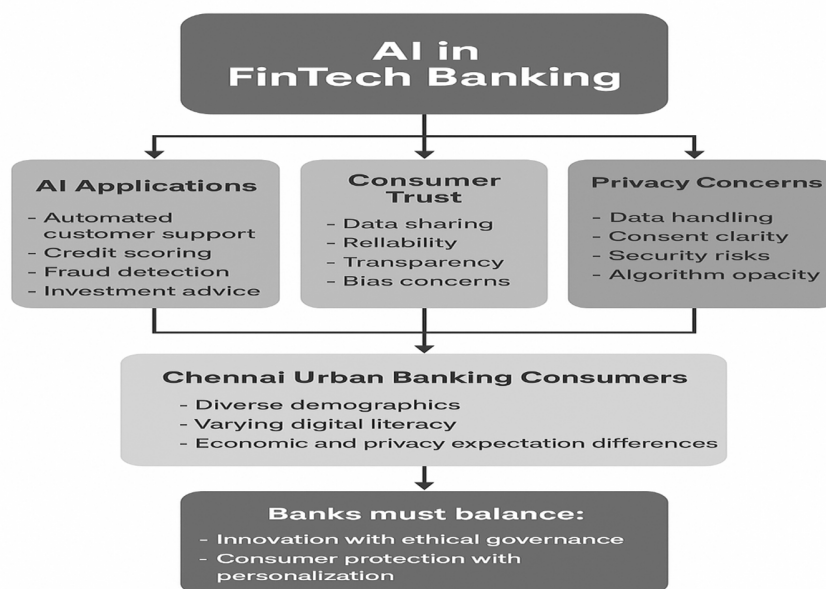

Fig 1. The Interplay of AI, Trust, and Privacy in FinTech Services

RESEARCH OBJECTIVES:

➢ To assess urban consumers' perceptions of AI usefulness and problem-solving ability in banking services.

- ➢ To evaluate the importance of privacy-related features (data encryption, access controls) in shaping trust.
- ➢ To analyze the relationship between transparency, trust, and adoption intentions in AI-driven FinTech.

LITERATURE REVIEW

Chakraborty & Ghosh, (2021), studies focusing on Indian consumers reveal mixed attitudes toward AI, with privacy and trust issues hindering wider acceptance. The rapid emergence of Artificial Intelligence (AI) in the banking sector has garnered significant academic and industry attention, especially regarding its impact on consumer trust and privacy.

Kakde & Lad, (2024), Recent studies show that the adoption of artificial intelligence (AI) and machine-learning (ML) in banking is accelerating, especially in India. For example, Impact of Artificial Intelligence and Machine Learning Adoption in Finance finds that banks are leveraging AI/ML for fraud prevention, risk-assessment and operational efficiency.

Tan, (2025), While technology advances, consumer acceptance remains contingent on trust, transparency and privacy safeguards. According to Research on the Role of AI in FinTech and Consumer Trust consumers' trust plays a critical role in FinTech (and AI) adoption decisions.

Vijayagopal, Jain & Viswanathan, (2024), Regulation and governance frameworks critically influence FinTech and AI adoption. The review by Regulations and Fintech: A Comparative Study of the Developed and Developing Countries shows that regulatory readiness varies significantly between developed and developing economies, which affects how consumers perceive digital financial services.

METHODOLOGY

This study adopts a descriptive research design to systematically explore the factors influencing trust and privacy in AI-powered FinTech platforms within the banking sector. The design facilitates a comprehensive understanding of consumer expectations and perceptions among urban users in Chennai. A quantitative approach was employed to gather measurable data and identify patterns across a broad sample. This approach enables statistical analysis of user perceptions and demographic influences on trust and privacy in FinTech services. The

questionnaire comprised three sections: demographics (age, gender, occupation), trust-related items (Perceived Usefulness, Problem-Solving Ability), and privacy-related items (Data Encryption, Access Controls). Responses were measured on a 5-point Likert scale

Table 1: Descriptive analysis

Items	Mean	Std. Deviation
Age (in years)	2.75	1.12
Gender	1.58	0.49
Education	2.40	0.68
Perceived Usefulness (PU)	3.65	0.87
Problem-Solving Ability (PSA)	3.72	0.89
Transparency	3.78	0.75
Data Encryption (DE)	4.05	0.62
Access Controls (AC)	4.10	0.79

Regarding security, the **Data Encryption (DE)** variable had a mean score of **4.050** (SD = **0.620**), indicating that respondents strongly agreed that the FinTech platforms employed secure encryption methods to protect user data. The relatively low standard deviation suggests consistent perceptions across the sample. Similarly, **Access Controls (AC)** received a high mean score of **4.100** (SD = **0.790**), reflecting strong user confidence in the platforms' ability to restrict unauthorized use of critical information. In terms of education level, the mean was **2.360 (SD = 0.645**), suggesting that most respondents had a moderate level of education**. Transparency** had a mean of **3.78 (SD = 0.75),** reflecting a generally positive view of how data usage was communicated by the platforms.

These findings suggest that **privacy-related features** are highly valued by users and contribute significantly to their overall trust in AI-powered FinTech services. The elevated scores for **Data Encryption** and **Access Controls** imply that users are more likely to adopt and continue

using platforms that demonstrate robust security protocols. Overall, the descriptive statistics reveal that Chennai's urban banking users hold **positive perceptions** of AI-driven FinTech platforms, particularly in terms of **usefulness, problem-solving ability, customization, transparency, and privacy protections**. The demographic diversity of the sample enhances the reliability of these insights, providing a well-rounded understanding of consumer expectations in the context of FinTech adoption.

Table 2: Reliability Statistics

Variable	Alpha (α)	Interpretation
Perceived Usefulness of AI	0.812	Good reliability
Problem-Solving Ability of AI	0.804	Good reliability
Transparency in Data Usage	0.768	Acceptable to good reliability
Trust in AI Systems	0.781	Acceptable to good reliability
Data Encryption Practices	0.749	Acceptable reliability
Access Control Mechanisms	0.832	Good reliability (strongest consistency)

To assess the internal consistency of the measurement scales used in this study, Cronbach's Alpha (α) was calculated for each construct. All variables exceeded the minimum acceptable threshold of 0.7, indicating reliable scales and consistent responses among the 200 urban banking users surveyed in Chennai.

The construct Perceived Usefulness of AI yielded an alpha of 0.812, reflecting strong agreement on the practical benefits of AI in banking services. Similarly, Problem-Solving Ability of AI (α = 0.804) demonstrated good reliability, suggesting that respondents consistently recognized AI's role in resolving financial issues. Transparency in Data Usage **(α = 0.768)** and Trust in AI Systems **(α = 0.781)** showed acceptable to good reliability, indicating shared concerns about openness and dependability in AI-driven platforms.

Data Encryption Practices **(α = 0.749)** revealed acceptable reliability, highlighting moderate consensus on the importance of securing sensitive information. Notably, Access Control Mechanisms achieved the highest alpha value **(0.832),** signifying very strong internal consistency and a high level of agreement on the need for robust access protocols in FinTech environments.

FINDINGS

The study's findings indicate a nuanced relationship between AI-driven FinTech adoption and consumer perceptions of privacy and trust among urban banking users in Chennai. While customers appreciate the efficiency and personalization that AI brings to banking, significant apprehensions persist regarding data security and algorithmic transparency. The high mean scores for Data Encryption (4.050) and Access Controls (4.100) suggest that users place a high value on these security features and that their presence contributes significantly to overall trust. This aligns with previous research highlighting that privacy concerns can reduce a consumer's willingness to engage with digital financial services. The study also found that Chennai's urban users have positive perceptions of the usefulness and problem-solving abilities of AI, with high reliability scores for these variables. This demonstrates that while the benefits of AI are recognized, they are not enough to overcome privacy and trust concerns on their own. This shows that there is a need for a balanced approach to innovation that includes ethical governance and consumer protection.

The findings of this study have several practical implications for banking institutions looking to increase the adoption of AI-powered FinTech solutions:

➤ Implement Robust Privacy Controls
➤ Acknowledge Demographic Diversity
➤ Invest in strong encryption and access controls.

LIMITATIONS

This study focused on 200 urban banking customers in Chennai, India, and therefore the results may not fully represent consumers in rural areas or other regions with different levels of digital literacy and socioeconomic backgrounds. The use of a convenience sampling method and a cross-sectional design limits the ability to track how perceptions might change over time. Since the data were self-reported, some responses may reflect personal bias or limited understanding of AI-related concepts. The research also concentrated on specific variables such as trust, transparency, privacy, and usefulness, while other factors like perceived risk and regulatory awareness were not included. Additionally, as AI technologies and financial regulations continue to evolve rapidly, consumer perceptions may shift in the future, highlighting the need for broader and more long-term studies across diverse populations.

CONCLUSION

The study's findings indicate a nuanced relationship between AI-driven FinTech adoption and consumer perceptions of privacy and trust among urban banking users in Chennai. While customers appreciate the efficiency and personalization that AI brings to banking, significant apprehensions persist regarding data security and algorithmic transparency. The high mean scores for Data Encryption (4.050) and Access Controls (4.100) suggest that users place a high value on these security features and that their presence contributes significantly to overall trust. This aligns with previous research highlighting that privacy concerns can reduce a consumer's willingness to engage with digital financial services. The study also found that Chennai's urban users have positive perceptions of the usefulness and problem-solving abilities of AI with high reliability scores for these variables. This demonstrates that while the benefits of AI are recognized, they are not enough to overcome privacy and trust concerns on their own. This shows that there is a need for a balanced approach to innovation that includes ethical governance and consumer protection.

REFERENCES

➢ Chakraborty, S., & Ghosh, R. (2021). Consumer attitudes towards AI in banking: An Indian perspective. *International Journal of Bank Marketing*, 39(3), 567–584. https://doi.org/10.1108/IJBM-08-2020-0413

➢ Kakde, H. & Lad, K. (2024). Impact of Artificial Intelligence and Machine Learning Adoption in Finance. Indian Journal of Computer Science, 9(2), 8–17. https://doi.org/10.17010/ijcs/2024/v9/i2/173859

➢ Tan, J. (2025). *Research on the Role of AI in FinTech and Consumer Trust.* SHS Web of Conferences, 213, 01012. https://doi.org/10.1051/shsconf/202521301012

➢ Vijayagopal, P., Jain, B., & Viswanathan, S.A. (2024). *Regulations and Fintech: A Comparative Study of the Developed and Developing Countries.* Journal of Risk and Financial Management, 17(8), 324. https://doi.org/10.3390/jrfm17080324