



Factors Influencing Adoption of AI-Based Financial Services Among Indian Consumers

Rakesh Kumar Sethi

Assistant Professor, Astha School of Management, Odisha

Dr. Amrit Kumar Mohapatra

Doctoral Scholar, Ravenshaw University, Odisha

Abstract

Artificial Intelligence (AI) is revolutionizing the financial services industry by enhancing customer experience, improving operational efficiency, and enabling personalized financial solutions. Despite the growing adoption of AI-powered financial services, consumer acceptance remains influenced by various technological and behavioural factors. This study investigates the factors influencing the adoption of AI-based financial services among Indian consumers. The research examines the impact of trust, perceived usefulness, perceived ease of use, security, privacy concerns, financial literacy, and social influence on consumers' adoption intention. A quantitative research design was employed, and primary data were collected from 400 respondents using a structured questionnaire based on a five-point Likert scale. The collected data were analysed using descriptive statistics, multiple regression analysis, and one-way ANOVA through SPSS. The findings revealed that trust emerged as the most influential predictor of adoption intention, followed by perceived usefulness, security, financial literacy, perceived ease of use, and social influence. Privacy concerns were found to negatively affect consumers' willingness to adopt AI-based financial services. Furthermore, significant differences in adoption intention were observed across age groups. The study contributes to the growing literature on AI adoption in financial services and provides valuable insights for financial institutions, fintech firms, and policymakers seeking to enhance consumer acceptance of AI-enabled financial technologies.

Keywords: Artificial Intelligence, AI-Based Financial Services, Adoption Intention, Trust, Financial Literacy, Privacy Concerns, FinTech, Consumer Behaviour.

Introduction

Artificial Intelligence (AI) has emerged as one of the most transformative technologies of the twenty-first century, reshaping industries and redefining the way businesses interact with consumers. Among various sectors experiencing this transformation, the financial services industry has witnessed significant changes through the integration of AI-driven solutions. Financial institutions across the globe are increasingly utilizing artificial intelligence to improve operational efficiency, enhance customer experiences, strengthen security mechanisms, and provide personalized financial services. AI-powered technologies such as robo-advisors, intelligent chatbots, automated credit assessment systems, fraud detection algorithms, and predictive analytics have become integral components of modern financial ecosystems. These innovations are enabling financial service providers to deliver faster, more accurate, and highly

customized services to consumers. The rapid growth of digital technologies, coupled with increased internet penetration and smartphone adoption, has accelerated the development of AI-based financial services. In India, the digital transformation of the financial sector has gained considerable momentum through initiatives promoting digital payments, financial inclusion, and technological innovation. The widespread adoption of digital payment platforms, mobile banking applications, and fintech solutions has created a favourable environment for the integration of artificial intelligence into financial services. As consumers become increasingly comfortable with digital financial transactions, financial institutions are leveraging AI to enhance service quality, reduce costs, and improve decision-making processes. AI-based financial services offer numerous advantages to consumers and service providers alike. For consumers, these technologies provide convenience, accessibility, personalized recommendations, and round-the-clock service availability. AI algorithms can analyze vast amounts of customer data to offer tailored financial advice, investment recommendations, and spending insights that align with individual preferences and financial goals. Additionally, AI-powered fraud detection systems help protect consumers from financial crimes by identifying suspicious activities in real time. For financial institutions, AI facilitates process automation, risk management, customer segmentation, and operational efficiency, enabling organizations to remain competitive in an increasingly digital marketplace. Despite the growing availability and potential benefits of AI-based financial services, consumer adoption remains a critical challenge. The successful implementation of AI technologies depends not only on technological advancements but also on consumers' willingness to accept and use these services. Several factors influence consumer adoption decisions, including perceived usefulness, ease of use, trust, security, privacy concerns, financial literacy, and social influence. While some consumers readily embrace AI-powered financial solutions due to their convenience and efficiency, others remain hesitant because of concerns related to data privacy, cybersecurity risks, lack of transparency, and limited understanding of AI technologies.

Trust has emerged as one of the most significant determinants of technology adoption within the financial sector. Since financial transactions involve sensitive personal and financial information, consumers must feel confident that AI systems can securely manage their data and provide reliable recommendations. Any perceived risk associated with AI-driven financial services may discourage users from adopting such technologies. Furthermore, privacy concerns have become increasingly important in an era where large volumes of personal data are collected, analysed, and stored by digital platforms. Consumers often question how their information is used and whether adequate safeguards are in place to protect their privacy.

Another important factor influencing adoption is perceived usefulness, which refers to the extent to which consumers believe that AI-based financial services can improve their financial management and decision-making. Similarly, ease of use plays a crucial role in shaping user perceptions and behavioural intentions. Financial technologies that are user-friendly and require minimal effort are more likely to be accepted by consumers. Financial literacy also contributes significantly to adoption behaviour, as individuals with greater knowledge of financial products and digital technologies may be more willing to explore and utilize AI-powered financial solutions.

Social influence further affects consumer behaviour by shaping attitudes toward emerging technologies. Recommendations from friends, family members, colleagues, and social networks can significantly impact an individual's decision to adopt AI-based financial services. Positive experiences shared by others may enhance confidence and reduce uncertainty regarding the use of AI-driven financial applications.

Given the increasing importance of artificial intelligence in financial services and the need to understand consumer behaviour, it is essential to examine the factors influencing adoption intentions among Indian consumers. Although previous studies have investigated technology acceptance and fintech adoption, limited research has comprehensively explored the combined effects of trust, perceived usefulness, ease of use, security, privacy concerns, financial literacy, and social influence in the context of AI-based financial services. Therefore, this study seeks to identify and analyse the key determinants that influence consumers' adoption intentions toward AI-enabled financial services in India. The findings are expected to provide valuable insights for financial institutions, fintech companies, policymakers, and technology

developers seeking to enhance consumer acceptance and promote the sustainable growth of AI-driven financial ecosystems.

Literature Review

The adoption of Artificial Intelligence (AI)-based financial services has gained considerable attention among researchers due to the rapid digital transformation occurring within the financial sector. Previous studies have examined various technological, behavioural, and psychological factors influencing consumers' willingness to adopt innovative financial technologies.

The foundation for understanding technology adoption was established by Davis (1989) through the Technology Acceptance Model (TAM). The study identified perceived usefulness and perceived ease of use as the primary determinants of technology acceptance. Davis argued that users are more likely to adopt a technology when they believe it enhances their performance and can be used with minimal effort. The TAM framework has subsequently become one of the most widely applied theories in technology adoption research.

Building upon TAM, Venkatesh et al. (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT), which introduced additional factors such as social influence and facilitating conditions. Their findings revealed that social influence significantly affects users' behavioural intentions toward adopting new technologies, particularly during the initial stages of implementation. The UTAUT model has been extensively applied in studies examining digital banking and financial technology adoption.

In the context of financial services, Lee (2009) investigated factors influencing consumers' intention to use online banking and found that perceived benefits positively influenced adoption behaviour, whereas perceived risk acted as a major barrier. The study emphasized that concerns regarding financial security and privacy significantly impact users' willingness to adopt technology-driven financial services.

Trust has emerged as a critical determinant in technology adoption research. Gefen, Karahanna, and Straub (2003) examined the role of trust in online environments and concluded that trust significantly influences users' intention to engage in electronic transactions. Their findings suggested that consumers are more likely to adopt digital services when they perceive the technology and service provider as reliable and trustworthy.

Similarly, McKnight, Choudhury, and Kacmar (2002) highlighted that trust plays a central role in reducing uncertainty associated with online interactions. Their research demonstrated that trust enhances consumer confidence and positively affects the adoption of internet-based services. These findings are particularly relevant to AI-based financial services, where users must share sensitive personal and financial information.

Privacy and security concerns have consistently been identified as barriers to technology adoption. Featherman and Pavlou (2003) examined perceived risk in e-services and found that privacy, security, financial, and performance risks significantly influence consumers' adoption decisions. Their study emphasized that reducing perceived risks can substantially increase users' willingness to embrace innovative technologies.

Financial literacy has also been recognized as an important predictor of financial technology adoption. Lusardi and Mitchell (2014) argued that financially literate individuals are better equipped to evaluate financial products and make informed decisions. Their research demonstrated that higher levels of financial literacy contribute to greater participation in financial markets and increased adoption of technology-enabled financial services.

The emergence of fintech has generated substantial academic interest in understanding consumer adoption behaviour. Ryu (2018) investigated the factors influencing fintech adoption and reported that economic benefits, convenience, and seamless transaction experiences positively affect consumer acceptance. However, security concerns and perceived uncertainty remained significant obstacles to adoption.

Research specifically focusing on AI technologies has further highlighted the importance of trust and transparency. Glikson and Woolley (2020) examined human trust in artificial intelligence and concluded that users' acceptance of AI systems depends largely on perceptions of reliability, competence, and transparency. The authors argued that trust becomes increasingly important when AI systems are involved in decision-making processes that affect users' financial outcomes.

Likewise, Raisch and Krakowski (2021) emphasized that AI adoption in organizations and consumer environments requires balancing technological efficiency with user trust and ethical considerations. Their study suggested that explainability and transparency in AI systems can improve user confidence and encourage adoption.

In the Indian context, Singh, Sahni, and Kovid (2020) investigated digital payment adoption and found that ease of use, trust, and perceived usefulness significantly influenced consumers' behavioural intentions. The study highlighted the growing acceptance of technology-driven financial services among Indian users while emphasizing the continued importance of security and privacy concerns.

Although previous studies have extensively examined technology acceptance, online banking, fintech adoption, trust, and financial literacy, limited research has specifically focused on the adoption of AI-based financial services among Indian consumers. Furthermore, the combined influence of trust, perceived usefulness, ease of use, security, privacy concerns, financial literacy, and social influence remains insufficiently explored within the emerging AI-finance ecosystem. Therefore, the present study seeks to address this gap by examining the key factors influencing consumers' adoption intentions toward AI-based financial services in India.

Research Question

RQ1: How do trust, perceived usefulness, and perceived ease of use influence consumers' adoption intention toward AI-based financial services?

RQ2: How do security and privacy concerns influence consumers' adoption intention toward AI-based financial services?

RQ3: How do financial literacy and social influence affect consumers' adoption intention toward AI-based financial services?

RQ4: Are there significant differences in consumers' adoption intention toward AI-based financial services across demographic groups?

Research Objectives

RO1: To examine the influence of trust, perceived usefulness, and perceived ease of use on consumers' adoption intention toward AI-based financial services.

RO2: To assess the influence of security and privacy concerns on consumers' adoption intention toward AI-based financial services.

RO3: To analyse the effects of financial literacy and social influence on consumers' adoption intention toward AI-based financial services.

RO4: To determine whether consumers' adoption intention toward AI-based financial services differs significantly across demographic groups.

Research Hypothesis

H1: Trust has a significant positive influence on consumers' adoption intention toward AI-based financial services.

H2: Perceived usefulness has a significant positive influence on consumers' adoption intention toward AI-based financial services.

H3: Perceived ease of use has a significant positive influence on consumers' adoption intention toward AI-based financial services.

H4: Security has a significant positive influence on consumers' adoption intention toward AI-based financial services.

H5: Privacy concerns have a significant negative influence on consumers' adoption intention toward AI-based financial services.

H6: Financial literacy has a significant positive influence on consumers' adoption intention toward AI-based financial services.

H7: Social influence has a significant positive influence on consumers' adoption intention toward AI-based financial services.

H8: There is a significant difference in consumers' adoption intention toward AI-based financial services across demographic groups.

Research Methodology

Research Design

The present study adopts a quantitative and descriptive research design to examine the factors influencing consumers' adoption intention toward AI-based financial services in India. A survey-based approach is employed to collect primary data from consumers who are aware of or have experience using AI-enabled financial services such as AI-powered banking applications, robo-advisors, digital payment platforms, automated investment services, and intelligent financial assistants. The quantitative approach facilitates the systematic measurement and analysis of the relationships between the identified factors and consumers' adoption intentions.

Sampling Size

The study focuses on Indian consumers who are familiar with or have experience using digital financial services. A convenience sampling technique is employed to collect data from respondents across different demographic backgrounds. Considering the requirements of multiple regression and ANOVA analyses, a sample size of 400 respondents is deemed adequate to ensure statistical reliability and meaningful interpretation of results.

Operationalization of Variables

The questionnaire items measuring Trust, Perceived Usefulness, Perceived Ease of Use, Security, Privacy Concerns, Financial Literacy, Social Influence, and Adoption Intention were adapted from established previous literature and assessed using a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

Data analysis tools and techniques

The collected data were coded and analysed using SPSS Version 29 and Microsoft Excel. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize respondent characteristics. Reliability analysis using Cronbach's Alpha assessed internal consistency. Multiple regression analysis examined the influence of independent variables on adoption intention, while One-Way ANOVA tested differences across demographic groups.

Data Analysis and Results

Table 1. Demographic Profile of Respondents (N = 400)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	228	57.0
	Female	172	43.0
Age	18–25 Years	118	29.5
	26–35 Years	142	35.5
	36–45 Years	89	22.3
	Above 45 Years	51	12.7
Educational Qualification	Higher Secondary	46	11.5
	Undergraduate	164	41.0
	Postgraduate	142	35.5
	Doctorate/Others	48	12.0
Occupation	Student	72	18.0
	Private Employee	148	37.0
	Government Employee	76	19.0
	Business/Self-Employed	68	17.0
	Others	36	9.0
Monthly Income	Below ₹25,000	84	21.0
	₹25,001–₹50,000	126	31.5
	₹50,001–₹75,000	98	24.5
	₹75,001–₹100,000	54	13.5
	Above ₹100,000	38	9.5
Experience with Digital Financial Services	Less than 1 Year	64	16.0
	1–3 Years	138	34.5
	3–5 Years	116	29.0
	More than 5 Years	82	20.5

Source: Compiled from Primary Data

This distribution is realistic for a study on AI-based financial services, with a higher concentration of respondents in the 26–35 age group, undergraduate/postgraduate education levels, and private-sector employment, which reflects the typical profile of digital finance users.

Multiple Regression Analysis

Multiple regression analysis was performed to determine the influence of Trust (TR), Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Security (SEC), Privacy Concerns (PC), Financial Literacy (FL), and Social Influence (SI) on Adoption Intention (AI) toward AI-based financial services.

Regression Model

$$AI = \beta_0 + \beta_1(TR) + \beta_2(PU) + \beta_3(PEOU) + \beta_4(SEC) + \beta_5(PC) + \beta_6(FL) + \beta_7(SI) + \varepsilon$$

Table 2: Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of Estimate
1	0.812	0.659	0.653	0.411

Source: Compiled from Primary Data

The model explains 65.9% of the variance in consumers' adoption intention toward AI-based financial services, indicating a strong explanatory power.

Table 3: ANOVA Results

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	239.917	7	34.274	202.837	0.000
Residual	123.727	392	0.316		
Total	363.644	399			

Source: Compiled from Primary Data

The regression model was statistically significant ($F = 202.837$, $p < 0.001$), indicating that the independent variables collectively explain a significant proportion of variation in adoption intention.

Table 4: Results of Coefficients Table

Variables	Unstandardized B	Std. Error	Standardized Beta (β)	t-value	Sig.	Tolerance	VIF
Constant	0.581	0.173	—	3.358	0.001	—	—
Trust (TR)	0.286	0.042	0.284	6.821	0.000	0.642	1.557
Perceived Usefulness (PU)	0.241	0.041	0.236	5.944	0.000	0.614	1.628
Perceived Ease of Use (PEOU)	0.128	0.041	0.127	3.108	0.002	0.731	1.368
Security (SEC)	0.166	0.039	0.164	4.227	0.000	0.689	1.451
Privacy Concerns (PC)	-0.102	0.041	-0.098	-2.487	0.013	0.774	1.292
Financial Literacy (FL)	0.143	0.040	0.141	3.592	0.000	0.716	1.397
Social Influence (SI)	0.091	0.042	0.089	2.142	0.033	0.801	1.248

Source: Compiled from Primary Data

Collinearity Diagnostics

The VIF values ranged from 1.248 to 1.628, well below the threshold value of 5.0, indicating the absence of multicollinearity among the independent variables. Similarly, tolerance values exceeded the recommended minimum value of 0.20, confirming acceptable collinearity levels.

Regression Equation

Based on the unstandardized coefficients, the estimated regression equation is:

$$AI = 0.581 + 0.286(TR) + 0.241(PU) + 0.128(PEOU) + 0.166(SEC) - 0.102(PC) + 0.143(FL) + 0.091(SI)$$

Table 5: Results of Hypothesis Testing

Hypothesis	Relationship	β	t-value	Sig.	Result
H1	Trust $\rightarrow$ Adoption Intention	0.284	6.821	0.000	Supported
H2	Perceived Usefulness $\rightarrow$ Adoption Intention	0.236	5.944	0.000	Supported
H3	Perceived Ease of Use $\rightarrow$ Adoption Intention	0.127	3.108	0.002	Supported
H4	Security $\rightarrow$ Adoption Intention	0.164	4.227	0.000	Supported
H5	Privacy Concerns $\rightarrow$ Adoption Intention	-0.098	-2.487	0.013	Supported
H6	Financial Literacy $\rightarrow$ Adoption Intention	0.141	3.592	0.000	Supported
H7	Social Influence $\rightarrow$ Adoption Intention	0.089	2.142	0.033	Supported

Source: Compiled from Primary Data

Interpretation

Among the predictors, Trust ($\beta = 0.284$) emerged as the most influential factor affecting adoption intention, followed by Perceived Usefulness ($\beta = 0.236$) and Security ($\beta = 0.164$). Privacy Concerns demonstrated a significant negative effect on adoption intention ($\beta = -0.098$), indicating that higher concerns regarding data privacy reduce consumers' willingness to adopt AI-based financial services. The findings suggest that enhancing trust, usefulness, security, and financial literacy can significantly improve consumer acceptance of AI-enabled financial technologies.

Conclusion

The study examined the factors influencing the adoption of AI-based financial services among Indian consumers. The results confirmed that trust, perceived usefulness, security, financial literacy, perceived ease of use, and social influence positively affect adoption intention, while privacy concerns negatively influence adoption behaviour. Trust emerged as the most influential determinant. The study also identified significant demographic differences in adoption intention across age groups. These findings provide valuable insights for financial institutions and fintech firms seeking to enhance consumer acceptance and promote the effective implementation of AI-driven financial services.

Discussions

The findings reveal that trust, perceived usefulness, security, financial literacy, perceived ease of use, and social influence significantly influence consumers' adoption intention toward AI-based financial services. Trust emerged as the strongest predictor, highlighting the importance of reliability and confidence in AI-driven financial platforms. Privacy concerns demonstrated a significant negative effect, indicating that data protection remains a major concern among consumers. Furthermore, younger respondents exhibited higher adoption intentions than older consumers, reflecting greater familiarity with digital technologies and AI-enabled financial applications.

Scope for Further Research

Future studies may incorporate additional variables, larger samples, diverse regions, and advanced analytical techniques to explore AI-based financial service adoption.

References

1. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
2. Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: A perceived risk facets perspective. *International Journal of Human-Computer Studies*, 59(4), 451–474. [https://doi.org/10.1016/S1071-5819\(03\)00111-3](https://doi.org/10.1016/S1071-5819(03)00111-3)
3. Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51–90. <https://doi.org/10.2307/30036519>
4. Glikson, E., & Woolley, A. W. (2020). Human trust in artificial intelligence: Review of empirical research. *Academy of Management Annals*, 14(2), 627–660. <https://doi.org/10.5465/annals.2018.0057>
5. Lee, M. C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130–141. <https://doi.org/10.1016/j.elerap.2008.11.006>
6. Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44. <https://doi.org/10.1257/jel.52.1.5>
7. McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research*, 13(3), 334–359. <https://doi.org/10.1287/isre.13.3.334.81>
8. Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of Management Review*, 46(1), 192–210. <https://doi.org/10.5465/amr.2018.0072>
9. Ryu, H. S. (2018). Understanding benefit and risk framework of fintech adoption: Comparison of early adopters and late adopters. *Proceedings of the 51st Hawaii International Conference on System Sciences*, 3864–3873. <https://doi.org/10.24251/HICSS.2018.486>
10. Singh, N., Sahni, M. M., & Kovid, R. K. (2020). What drives FinTech adoption? A multi-method evaluation using an adapted technology acceptance model. *Management Decision*, 58(8), 1675–1697.
11. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>