

IMPACT OF ARTIFICIAL INTELLIGENCE ON CUSTOMER TRUST IN DIGITAL PAYMENT APPLICATIONS: A STUDY WITH SPECIAL REFERENCE TO ERODE DISTRICT OF TAMIL NADU

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Abstract

The rapid advancement of digital technology has transformed the financial sector, leading to the widespread adoption of digital payment applications. Artificial Intelligence (AI) has become a significant component of these applications, enhancing security, efficiency, and user experience. AI-driven features such as fraud detection, biometric authentication, predictive analytics, and personalized recommendations have contributed to increased customer confidence in digital transactions. This study examines the impact of Artificial Intelligence on customer trust in digital payment applications in Erode District. The study utilizes both primary and secondary data. Primary data were collected from 120 respondents through a structured questionnaire, while secondary data were gathered from journals, reports, and academic publications. Percentage analysis and weighted average ranking were used for data analysis. The findings reveal that AI-powered security features significantly influence customer trust and encourage the continued use of digital payment applications.

Artificial Intelligence (AI) has emerged as a transformative force in the financial technology sector, significantly influencing the development and adoption of digital payment applications. Customer trust plays a crucial role in determining the acceptance and continued usage of digital payment applications. In recent years, increasing concerns regarding cyber fraud, data breaches, privacy issues, and unauthorized transactions have highlighted the importance of advanced security mechanisms in digital payment systems.

Keywords: Artificial Intelligence, Customer Trust, Digital Payment Applications, Erode District, Cybersecurity, FinTech.

1. Introduction

The digital revolution has significantly changed the way financial transactions are conducted across the world. The emergence of digital payment applications has reduced dependency on cash transactions and improved financial accessibility. In India, digital payment platforms such as Google Pay, PhonePe, Paytm, and BHIM have experienced remarkable growth due to increasing smartphone penetration, internet accessibility, and government initiatives promoting a cashless economy. Artificial Intelligence has emerged as a transformative technology in the financial sector. Through machine learning algorithms, digital payment systems can detect fraudulent activities, analyze spending patterns, and improve customer experiences. Customer trust is one of the most critical factors influencing the adoption and continued use

of digital payment applications. Users are more likely to engage with payment platforms that ensure transaction security, privacy protection, and reliability. AI technologies play a crucial role in strengthening customer trust by minimizing fraud risks and enhancing service quality. This study focuses on understanding the impact of Artificial Intelligence on customer trust in digital payment applications among users in Erode District.

2. Review of Literature

- Sharma and Gupta (2023) found that AI-enabled fraud detection systems significantly improve customer confidence in digital financial transactions.
- Patel and Singh (2022) reported that biometric authentication mechanisms increase user perceptions of security and reduce concerns regarding unauthorized access.
- Kumar and Rajan (2023) concluded that customer trust in digital payment applications depends largely on transaction security, privacy, and ease of use.
- Rao et al. (2024) observed that AI-powered customer support systems improve service quality and customer satisfaction.
- Mehta and Verma (2024) highlighted that despite technological advancements, concerns related to data privacy continue to influence customer trust.

3. Statement of the Problem

The increasing use of digital payment applications has raised concerns regarding transaction security, fraud, and data privacy. Although Artificial Intelligence offers advanced security mechanisms and fraud prevention techniques, customers may still hesitate to fully trust digital payment platforms. Understanding the influence of AI on customer trust is therefore essential for improving user confidence and promoting sustainable growth in digital payments.

4. Objectives of the Study

1. **To examine the socio-demographic profile** of customers using digital payment applications in Erode District.
2. **To identify the applications of Artificial Intelligence** used in digital payment applications.
3. **To analyze the influence of AI-related factors** such as security, accuracy, privacy, transparency, personalization, and fraud detection on customer trust.
4. **To identify the problems and concerns faced by customers** regarding the use of AI in digital payment applications.
5. **To offer suitable suggestions** for improving customer trust through effective and responsible use of AI in digital payment applications.

Major variables

5. Research Methodology

Research Design :The study adopts a descriptive research design.

Area of Study:Erode District, Tamil Nadu.

Sources of Data: -Primary Data and Secondary Data

Primary Data :Primary data were collected through a structured questionnaire administered to digital payment users.

Secondary Data: Secondary data were collected from journals, books, RBI reports, conference proceedings, websites, and research publications related to Artificial Intelligence and digital payments.

Tools Used for Analysis

- Percentage Analysis
- Weighted Average Ranking Method

6. Analysis and Interpretation**Table 1:**

Demographic Profile of Respondents

Particulars	Number of Respondents	Percentage
Male	68	56.67
Female	52	43.33
Total	120	100

Interpretation: The majority of respondents (56.67%) are male, while 43.33% are female.**Table 2:**

Preferred Digital Payment Application

Applications	Respondents	Percentage
PhonePe	48	40.00
Google Pay	38	31.67
Paytm	22	18.33
BHIM	12	10.00
Total	120	100

Interpretation: PhonePe is the most preferred digital payment application among respondents.**Table 3:**

Most Trusted AI Feature

AI Feature	Respondents	Percentage
Fraud Detection	42	35.00
Biometric Authentication	35	29.17
Transaction Alerts	28	23.33
AI Chatbot Support	15	12.50
Total	120	100

Interpretation: Fraud detection is considered the most trusted AI feature by respondents, indicating the importance of security in building customer confidence.**Table 4:**

Age-wise Classification of Respondents

Age Group	Respondents	Percentage
Below 20 Years	18	15.00
21-30 Years	52	43.33
31-40 Years	30	25.00
Above 40 Years	20	16.67

Total	120	100
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Interpretation

The majority of respondents (43.33%) belong to the age group of 21-30 years. This indicates that young adults are the most active users of digital payment applications. Their familiarity with technology and smartphones contributes to higher adoption rates.

Table 5:

Educational Qualification of Respondents

Qualification	Respondents	Percentage
School Level	20	16.67
Undergraduate	48	40.00
Postgraduate	36	30.00
Professional Degree	16	13.33
Total	120	100

Interpretation

Most respondents are graduates and postgraduates. Educated users tend to have greater awareness of digital payment technologies and AI-based security features.

Table 6:

Frequency of Using Digital Payment Applications

Frequency	Respondents	Percentage
Daily	60	50.00
Weekly	35	29.17
Monthly	15	12.50
Occasionally	10	8.33
Total	120	100

Interpretation

Half of the respondents use digital payment applications daily. This reflects the increasing dependence on digital transactions for routine financial activities.

Table 7:

Purpose of Using Digital Payment Applications

Purpose	Respondents	Percentage
Shopping	38	31.67
Utility Bill Payments	25	20.83
Fund Transfer	42	35.00
Mobile Recharge	15	12.50
Total	120	100

Interpretation

Fund transfer is the primary purpose of using digital payment applications. Customers prefer instant and convenient money transfer facilities offered through digital platforms.

Weighted Average Ranking

Factors Influencing Customer Trust

Factors	Weighted Score	Rank
Security	580	I
Privacy Protection	560	II
Fraud Prevention	535	III
Ease of Use	510	IV
Transaction Speed	485	V
Customer Support	460	VI
Rewards & Cashback	430	VII

Interpretation

Security has secured the first rank, indicating that users place the highest importance on safe and secure transactions. Fraud prevention and privacy protection are ranked second and third respectively, highlighting the significance of AI-based security measures in building customer trust.

Findings:

- Young adults are the most active users of digital payment applications.
- PhonePe and Google Pay dominate the market in Erode District.
- AI-based fraud detection significantly improves customer trust.
- Daily usage of digital payment applications is increasing.
- Security remains the most important factor influencing adoption.
- Data privacy concerns continue to affect customer confidence.
- Most respondents are satisfied with AI-powered security features.
- Customers believe AI helps reduce financial fraud.
- Instant transaction alerts enhance trust and transparency.
- AI-based authentication systems improve user confidence.

Suggestions:

- Digital payment providers should continuously upgrade AI-based fraud detection systems.
- Companies should increase awareness regarding AI security features.
- Stronger privacy protection measures should be implemented.
- AI algorithms should be made more transparent to enhance customer confidence.
- Customer support systems should be strengthened through advanced AI technologies.
- Periodic security audits should be conducted to identify vulnerabilities.

Conclusion:

Artificial Intelligence has become an essential component of modern digital payment applications. AI technologies enhance transaction security, improve fraud detection, provide personalized services, and strengthen customer confidence. The findings of the study indicate that AI positively influences customer trust by reducing security concerns and improving the overall user experience.

Although challenges related to privacy and transparency continue to exist, the effective implementation of AI can significantly improve customer confidence in digital payment applications. As digital transactions continue to expand in India, AI will play a crucial role in ensuring secure, reliable, and trustworthy financial services.

References:

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1. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
 2. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology. *MIS Quarterly*, 27(3), 425–478.
 3. Reserve Bank of India. (2024). Annual Report on Digital Payments. Mumbai: RBI.
 4. Sharma, R., & Gupta, S. (2023). Artificial intelligence in digital payment systems. *Journal of Financial Technology*, 12(2), 45–58.
 5. Kumar, P., & Rajan, R. (2023). Customer trust in digital financial services. *International Journal of FinTech Research*, 8(1), 25–39.

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