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The Digital Paradigm: Assessing The Impact Of FinTech Innovations On Public Awareness And Customer Experience In Modern Banking

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Abstract— The financial service industry is currently navigating a pivotal era defined by the rapid integration of Financial Technology (FinTech). This study investigates the penetration of FinTech innovations within the banking sector of Kerala, India, specifically focusing on public awareness, usage patterns, and the transformation of customer experience. Utilising a descriptive and analytical research design, primary data was collected from a diverse demographic in Thiruvananthapuram. The findings reveal a high adoption rate (97%) of digital banking services, driven largely by convenience and transaction speed. However, a significant paradox exists where cybersecurity remains a paramount concern (82%) despite high trust levels in transaction management. Furthermore, statistical analysis (U-Tests) indicates that demographic factors such as age, gender, and education no longer serve as significant barriers to FinTech adoption, suggesting a democratization of financial technology. This paper concludes with strategic recommendations for banking institutions to bridge the gap between innovation and user security.

Keywords— Digital Banking, FinTech, Financial Inclusion, Technology Adoption.

I. INTRODUCTION

The global financial ecosystem has historically been defined by brick-and-mortar institutions, physical ledgers, and face-to-face interactions. However, the last decade has witnessed a seismic shift with the advent of “Fintech” – a clipped compound of financial technology. FinTech refers to the application of innovative technologies to products and services in the financial industry. This broad term encompasses a wide array of technological advancements, including mobile banking, online lending platforms, digital payment systems, robo-advisors and blockchain-based applications.

The objective of these technologies is to improve financial service delivery by enhancing efficiency, security, accessibility and customer experience.

FinTech is not merely a standalone sector but a disruptive force cutting across traditional banking, insurance, and investment management. It reshapes how financial institutions operate and interact with customers, regulators and stakeholders.

In the context of India, the nation has emerged as a global FinTech hub, ranking among the top three countries globally in terms of adoption. Initiatives such as Digital India, Aadhaar-enabled payment systems, and the Unified Payments Interface (UPI) have provided the necessary infrastructure. As of 2025, India's FinTech market is projected to reach a value of over USD 150 billion.

Despite this growth, a critical problem remains: the gap between technological implementation and public understanding. While a segment of tech-savvy consumers embraces these tools, a large portion of the population may lack adequate knowledge regarding the risks and mechanics of these innovations. This study specifically addresses this gap within the demographic context of Kerala, a state with high literacy and digital infrastructure, to understand how FinTech is reshaping the modern banking experience.

II. STATEMENT OF THE PROBLEM

The rapid growth of FinTech has transformed modern banking, introducing digital tools and innovative services. However, public awareness and understanding of these technologies remain inconsistent, leading to lower adoption rates and inefficient usage. FinTech innovations, such as blockchain and AI-powered solutions, have enhanced customer experiences but also raise concerns about data privacy and regulatory compliance. This research explores the impact of FinTech innovations on public awareness and customer experience in modern banking, aiming to bridge the gap between technological advancement and customer readiness.

III. REVIEW OF LITERATURE

To contextualise the study, it is essential to review the existing body of knowledge regarding FinTech's global and local impact.

- 1) *Global Economic Impact*: Scholars like Yoganandham (2024) have emphasised that modern banking technologies, including blockchain and AI, contribute significantly to global economic growth by streamlining operations and fostering entrepreneurship. Rizvi et al. (2024) further explore the synergistic relationship between innovation and digital adoption, highlighting how these elements influence economic development in emerging markets.
- 2) *The Indian Banking Context*: Chouhan et al. (2023) assessed the Indian banking industry's response to FinTech, revealing that digital technologies have improved customer satisfaction and operational efficiency. This has prompted traditional public sector banks to adopt hybrid models. Komandla and Perumalla (2017) noted that traditional banks are adapting by embracing digital transformation and forming strategic partnerships rather than competing directly with agile startups.
- 3) *Consumer Trust and Risks*: While adoption is high, Lee (2024) analyses how digital banks utilise machine learning to improve financial inclusion but warns of regulatory challenges. Alshater et al. (2024) emphasise the role of RegTech (Regulatory Technology) in promoting business sustainability. According to Sharma and Bansal (2020), trust and the transparency of the available data are important components when using FinTech.

IV. OBJECTIVES OF THE STUDY

- 1) To assess the level of public awareness and understanding of FinTech innovations in modern banking.
- 2) To examine the spectrum of FinTech innovations in reshaping financial ecosystems.
- 3) To analyse the transformative impact of digital banking solutions on customer experiences.

V. RESEARCH METHODOLOGY

A. Research Design

This study adopts a descriptive and analytical research design. The descriptive aspect outlines the current status of FinTech awareness, while the analytical aspect utilises statistical tools to determine relationships between demographics variables and FinTech adoption.

B. Sampling Design

The study focuses on Thiruvananthapuram, Kerala. The study was conducted on 100 respondents. A Purposive Sampling technique was employed to select respondents across various demographic groups, including students, public/private sector employees and retirees, ensuring a representative dataset.

C. Hypothesis

The study posits the following null hypothesis (H_0) to be tested –

H_{01} : There is no significant difference between selected demographic characteristics (Age, Gender, Education, Occupation) and the consumer's use of digital banking services.

H_{02} : There is no significant difference between selected demographic characteristics and customer awareness about FinTech.

D. Tools for Analysis

Data was analysed using simple percentage analysis, standard deviation, and the Mann-Whitney U Test and similar non-parametric tests to determine statistical significance.

VI. DATA ANALYSIS AND INTERPRETATION

The respondents represented a balanced cross-section of society:

A. Demographic Profile

- 1) *Age*: The largest group was the youth (18-25 yrs) at 33%, followed by the 36-45 age group at 23%.
- 2) *Gender*: 54% Male and 46% Female.
- 3) *Education*: The sample was highly educated, with 43% holding PG degree and 33% holding UG degree.
- 4) *Occupation*: Public sector employees constituted the largest block (33%), followed by students (24%).

B. Awareness and Adoption Levels

The data indicates a pervasive awareness of FinTech in Kerala.

- 1) *Awareness:* 81% of respondents confirmed they are aware of the term FinTech.
- 2) *Usage:* A staggering 97% of respondents actively use Digital Banking services.

TABLE I
BREAKDOWN OF FINTECH SERVICES UTILISED

FinTech Services	Percentage of Users
Digital Wallets	94%
Mobile Banking Apps	44%
Peer-to-peer payment apps	28%
Cryptocurrency Platforms	15%
Buy Now Pay Later (BNPL)	9%
Robo Advisors	7%

Interpretation: The dominance of Digital Wallets (94%) suggests that UPI and wallet-based payments have become the primary mode of transaction, far stripping complex financial tools like Robo-advisors or Crypto platforms.

C. Hypothesis Testing (Statistical Significance)

To understand if demographics influence adoption, statistical test were run. The results are summarized below:

Test 1: Demographics Vs Awareness

- 1) *Age Vs Awareness:* $p\text{-value} = 0.334 (> 0.05)$ Accept Null Hypothesis
- 2) *Gender Vs Awareness:* $p\text{-value} = 0.376 (> 0.05)$ Accept Null Hypothesis
- 3) *Education Vs Awareness:* $p\text{-value} = 0.153 (> 0.05)$ Accept Null Hypothesis

Test 2: Demographics Vs Usage of Digital Banking

- 1) *Age Vs Usage:* $p\text{-value} = 0.393 (> 0.05)$ Accept Null Hypothesis
- 2) *Occupation Vs Usage:* $p\text{-value} = 0.827 (> 0.05)$ Accept Null Hypothesis

- 3) *Residence Vs Usage:* $p\text{-value} = 0.944 (> 0.05)$ Accept Null Hypothesis

Analytical Inference: These results are highly significant. They indicate that the “Digital Divide” often cited in earlier literature is non-existent in this sample. Age, gender and educational levels are not barriers to entry. FinTech has successfully permeated all demographic strata in the study area.

D. Customer Experience: Drivers and Barriers

- 1) *Divers of Adoption:* Respondents were asked what encourages their use of FinTech.

Convenience: 82%

Speed of Transactions: 73%

Access without visiting branches: 65%

- 2) *Barriers and Risks:* Despite high adoption, risk perception remains acute.

Cybersecurity Threats: 82%

Privacy Concerns: 60%

Dependence on Technology: 52%

Interpretation: A ‘Convenience-risk Paradox’ is observed. Users are heavily reliant on the speed and ease of FinTech (97% usage), yet an overwhelming majority (82%) are simultaneously fearful of cybersecurity threats.

E. Customer Satisfaction and Future Outlook

- 1) *Satisfaction:* 87% of respondents reported being either ‘Very satisfied’ or ‘Somewhat satisfied’.
- 2) *Recommendation:* 87% stated they would recommend FinTech services to others.
- 3) *Future Instinct:* 58% of respondents believe FinTech innovations will eventually replace traditional banking, while 23% remain unsure.

VII. FINDINGS AND DISCUSSIONS

The analysis of the data leads to several critical findings that characterise the modern banking landscape in Kerala.

- 1) *The Ubiquity of Digital Finance:* The most striking findings is the 97% adoption rate of digital banking services. This aligns with the “Digital India” initiative goals. The lack of statistical significance between demographic variables and usage implies that digital banking is no longer a luxury for the young or educated but a utility for the general populace.

2) *The Dominance of Payments over Investment:* While payments (Digital Wallets: 94%) have been fully disrupted by FinTech, wealth management remains traditional. Only 7% use Robo-advisors and 15% use Cryptocurrency platforms. This suggests that while customers trust FinTech for moving money, they may still prefer traditional or human-assisted methods for growing and storing substantial wealth.

3) *The Trust-Security Gap:* A significant finding is the disconnect between 'Trust' and 'Fear'. 76% of respondents explicitly stated they trust FinTech innovations to manage transactions. However, 82% identified cybersecurity as a major risk. This suggest that 'Trust' in this context is functional – users trust the app to work – but they harbour deep anxieties about the broader ecosystem's security against hackers.

4) *The Demand for Hybrid Integration:* When asked about desired improvements, 38% of respondents requested "more seamless integration with traditional banking". This indicates that customers do not necessarily want to abandon traditional banks; rather they want the agility of FinTech layered over the stability of traditional banking institutions.

VIII. SUGGESTIONS AND RECOMMENDATIONS

Based on the findings, the following recommendations are proposed for stakeholders in the banking and FinTech sectors:

1) *Prioritise Cybersecurity Infrastructure:* With 82% of users citing security as a top concern banks must move beyond basic passwords. Implementation of biometric authentication, blockchain based security layers and real time AI fraud detection is non-negotiable to maintain long-term trust.

2) *Focus on Financial Literacy beyond Payments:* There is a usage gap in advanced FinTech i.e, investing/lending. Educational campaigns are needed to explain Robo-advisors and digital lending to encourage broader financial inclusion beyond just payments.

3) *The "Phygital" Approach:* Banks should not close all branches in favour of apps. The data suggests a desire for integration. A "Phygital" model, Physical + Digital, where digital tools are supported by accessible human customer service (or advanced AI chat, which 12% currently use) is ideal.

4) *Simplify Onboarding:* To maintain the 97% usage rate and capture the remaining 3%, institutions should continue to simplify e-KYC and digital identify verification processes.

5) *Regulatory Sandboxes:* Policymakers should continue to utilise regulatory sandboxes to test high risk innovations (like Crypto and BNPL) to ensure consumer protection without stifling innovation.

IX. CONCLUSION

The research conclusively demonstrates that FinTech is not a fleeting trend but a fundamental restructuring of the banking sector. In Kerala, the integration of FinTech into daily life is nearly absolute across all demographics. The statement of the problem initially queried if public awareness was consistent; the study finds that while functional awareness (how to pay) is high, deep awareness (how to invest/secure) has room for growth.

The transformation of customer experience has been overwhelmingly positive, characterised by speed, convenience and satisfaction. However, the shadow of cybersecurity threats looms large. The future of modern banking, therefore, does not lie in simply adding more features, but in fortifying the digital trust architecture. As 58% of respondents foresee FinTech replacing traditional banking, the onus is on financial institutions to evolve into entities that offer the technological agility of a startup with the security and reliability of a century old bank.

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