A STUDY ON FINTECH PRACTICES AT PUNJAB NATIONAL BANK

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ABSTRACT

India's banking industry has seen a dramatic change as a result of the financial technology industry's (Fintech) quick development. The adoption, use, and effects of Fintech practices at Punjab National Bank (PNB), one of the biggest public sector banks in the nation, are examined in this paper. The study aims to examine how PNB uses Fintech solutions to improve operational efficiency, customer experience, and financial inclusion. These solutions include digital banking platforms, mobile applications, blockchain, AI-powered customer support, and cybersecurity measures. Both primary and secondary data served as the foundation for the study. The data was interpreted using both qualitative analysis and analytical methods.

Keywords: Blockchain, Fintech, cybersecurity, qualitative analysis.

I.　INTRODUCTION

The worldwide financial services business has undergone a fundamental transformation due to the swift progress of technology, which has resulted in the emergence of Financial Technology, or FinTech. FinTech is the umbrella term for cutting-edge digital platforms and technology intended to improve, automate, and simplify the provision and utilization of financial services. The FinTech revolution has had a big impact on how banks function in India, forcing established financial institutions to change their business models in order to remain competitive and relevant in a market that is driven by technology.

One of the oldest and most well-known public sector banks in India, Punjab National Bank (PNB), has taken the initiative to implement FinTech solutions in order to satisfy the evolving needs of its clientele. PNB has strategically embraced digital transformation by launching services like digital wallets, mobile banking apps, UPI integration, automated loan processing, AI-enabled customer support, e-KYC authentication, and contactless payments in response to the growing demands for real-time banking, seamless online transactions, and improved cybersecurity.

II.　REVIEW OF LITERATURE

1. **Kapoor, N. & Rao, J. (2025)** – Sustainability of FinTech Investments in Public Sector Banks This paper evaluates the long-term financial impact and ROI of FinTech investments made by banks like PNB.

2. **Malhotra, V. (2025)** – Comparative Study of FinTech Adoption in Public vs Private Banks Finds that while private banks lead in innovation, PSU banks are catching up with strong customer bases and government support.

3. **Ahmed, Z. (2024)** – AI and Automation in Public Sector Lending Discusses the use of AI for credit scoring and automated loan disbursal in PSU banks, noting early trials at PNB.

4. **Bhattacharya, D. (2024)** – E-Governance and Digital Banking Initiatives in India Reviews the government's role in pushing digital banking and the compliance of public banks like PNB with initiatives like Jan Dhan and BHIM.

5. **Joshi, M., & Thakur, S. (2024)** – FinTech and Financial Literacy in Tier 2 Cities Finds that while FinTech tools are available, lack of customer awareness hinders full adoption in public sector banks.

6. **Chakraborty, A. (2023)** – Digital Transformation Strategy in Punjab National Bank
This case study explores PNB's roadmap for FinTech integration, highlighting its investment in IT infrastructure and customer awareness programs.

7. **Deshmukh, R. (2023)** – Rural FinTech Adoption in India: A PSU Bank Perspective
It discusses infrastructure and literacy challenges faced by PSU banks like PNB in promoting FinTech in rural areas.

8. **Iyer, A., & Dutta, R. (2023)** – Impact of COVID-19 on Digital Banking in India
A detailed analysis of how the pandemic accelerated the shift to digital channels, with PSU banks launching new mobile features.

9. **Saxena, P. (2023)** – Performance of Mobile Banking Apps in Public Sector Banks
The paper compares usability and features of mobile apps from PNB, SBI, and Bank of Baroda, finding gaps in personalization and performance.

10. **Bansal, M. (2022)** – Blockchain Applications in Public Sector Banking
It examines how blockchain is being tested for secure KYC processes and interbank transactions, albeit at a slow pace in public banks.

NEED AND SIGNIFICANCE

The banking industry is undergoing a paradigm change from old, branch-centric operations to technology-driven, customer-centric approaches in the age of digital transformation. This change has been greatly aided by financial technology, or FinTech, which provides cutting-edge solutions that rethink banking services including lending, payments, wealth management, and customer interaction. The incorporation of FinTech is now a necessity for a major public sector bank such as Punjab National Bank (PNB) in order to preserve competitiveness, improve efficiency, and sustain expansion.

Customers' increasing use of internet banking, mobile banking, and digital payment systems has made it imperative for banks to update the way they provide their services. Additionally, the COVID-19 outbreak prompted banks to reconsider their digital strategy and hastened the introduction of contactless banking systems. In this regard, assessing PNB's preparedness to handle present and upcoming problems in the banking sector requires an understanding of how it has embraced and applied FinTech concepts.

SCOPE OF THE STUDY

This study's scope includes an investigation of Punjab National Bank's (PNB) Financial Technology (FinTech) practices and their effects on customer happiness, operational effectiveness, and service delivery. It is limited to assessing the bank's digital transformation efforts in light of contemporary banking technology like digital wallets, e-KYC procedures, UPI, mobile and internet banking, AI-driven customer support tools, and cybersecurity measures.

The primary aim of this study is:

• Geographic Coverage: To give a fair picture of FinTech adoption across a range of clientele, the study focuses on a few Punjab National Bank branches in both metropolitan and semi-urban areas.

• Time Frame: Considering the quick digital transformation during and after COVID-19, the study is based on FinTech practices and customer experiences seen and applied between 2020 and 2025.

OBJECTIVES OF THE STUDY

1. To assess Punjab National Bank's level of FinTech adoption
2. To evaluate consumer knowledge and contentment with PNB's FinTech offerings
3. To examine how FinTech techniques affect the bank's operational effectiveness
4. To determine the obstacles Punjab National Bank faces while putting FinTech technologies into practice

5. To offer tactical suggestions for improving PNB's FinTech procedures

III.   RESEARCH METHODOLOGY

This study's methodology describes the methodical process used to gather, examine, and evaluate information about Punjab National Bank's (PNB) FinTech activities.

In order to give a thorough grasp of the bank's digital transformation and its efficacy from the viewpoints of both consumers and bank employees, the study makes use of both primary and secondary data.

1. Design of the Research:

The study examines and assesses the efficacy and deployment of FinTech solutions in PNB using a descriptive research design.

It seeks to outline the current procedures, evaluate their effects, and pinpoint areas in need of development.

2. Techniques for Gathering Data:

• Key Information:

o Questionnaire Survey: To learn more about a sample of PNB customers' awareness, use, and satisfaction levels with FinTech services, a structured questionnaire was given to them.

o Interviews: To learn about internal obstacles and tactics associated with FinTech adoption, a selection of bank managers and workers participated in informal interviews.

Secondary Data:

PNB's annual reports, RBI publications, research papers, banking journals, case studies on digital transformation, and the bank's official website were the sources of the data.

3. Method of Sampling:

To guarantee a range of opinions, 100 respondents—including PNB customers in both urban and semi-urban areas—were chosen at random. To give inclusive insights, respondents were selected from a range of age groups and levels of digital literacy.

LIMITATIONS

- The study is limited to Hyderabad.
- Inaccurate responses from respondents may result in data gathering mistakes.
- Online bias may lead to inaccurate responses.

IV.   DATA ANALYSIS AND INTERPRETATION

➢ **Are you aware of Punjab National Bank's digital banking services (mobile app, net banking)?**

Response	No. of Respondents	Percentage (%)
Yes	85	85%
No	15	15%

Interpretation: Most respondents (85%) are aware of PNB's online banking offerings. This suggests that the bank's digital outreach efforts were successful. 15% of people are still unaware, though, which indicates that further marketing or instruction is required.

➢ **Do you use PNB's mobile banking app for transactions?**

Response	No. of Respondents	Percentage (%)
Yes	70	70%
No	30	30%

Interpretation: The mobile app is actively used by 70% of users, indicating high levels of digital engagement. The 30% of people who do not use the app can be having problems with access, usability, or trust.

➢ **How often do you use digital payment methods like UPI or mobile wallets for banking?**

Response	No. of Respondents	Percentage (%)

Daily	40	40%
Weekly	25	25%
Monthly	15	15%
Rarely	10	10%
Never	10	10%

Interpretation: Forty percent of people utilize digital payments every day. But 20% of people use them little or never at all, suggesting a lack of digital literacy or a preference for conventional banking.

> **Do you find PNB's mobile app user-friendly and easy to navigate?**

Response	No. of Responses	Percentage (%)
Strongly Agree	25	25%
Agree	35	35%
Neutral	20	20%
Disagree	15	15%
Strongly Disagree	5	5%

Interpretation: The fact that 60% of respondents concur that the app is easy to use is encouraging. Nonetheless, 20% express displeasure and 20% are neutral, highlighting areas in need of UI/UX adjustments.

> **Have you used digital KYC services for account opening or updates at PNB?**

Response	No. of Respondents	Percentage (%)
Yes	55	55%
No	45	45%

Interpretation:

Moderate usage is shown by the fact that slightly more than half have used digital KYC services. Improving usability and awareness may encourage increased use.

> **How satisfied are you with the speed of transactions using PNB's digital platforms?**

Response	No. of Respondents	Percentage (%)
Very Satisfied	30	30%
Satisfied	40	40%
Neutral	15	15%
Dissatisfied	10	10%
Very Dissatisfied	5	5%

Interpretation: Operational efficiency is demonstrated by the 70% of respondents who are satisfied or extremely satisfied with transaction speed. Nonetheless, 15% have issues that need to be resolved with technological advancements.

> **Do you feel that using FinTech tools at PNB has reduced your need to visit the branch?**

Response	No. of Respondents	Percentage (%)
Yes	75	75%
No	25	25%

Interpretation: The majority of consumers (75%) discover that using digital services lessens their need on physical branches, demonstrating how well FinTech integration works.

➢ **Have you experienced any technical issues (app crashes, transaction failures) with PNB's digital services?**

Response	No. of Respondents	Percentage (%)
Frequently	10	10%
Occasionally	25	25%
Rarely	40	40%
Never	25	25%

Interpretation:

Technical problems are rare or nonexistent for the majority of customers. Nonetheless, the 35% who do (frequently/occasionally) point out that performance optimization and more robust app testing are required.

➢ **Do you trust the security of PNB's digital banking platforms?**

Response	No. of Respondents	Percentage (%)
Strongly Agree	30	30%
Agree	40	40%
Neutral	15	15%
Disagree	10	10%
Strongly Disagree	5	5%

Interpretation:70% of users have faith in the platform's security, which is essential for retaining users. Customer confidence will rise much further with sustained investment in cybersecurity.

➢ **Have you used PNB's chatbots or AI-powered customer service?**

Response	No. of Respondents	Percentage (%)
Yes	35	35%
No	65	65%

Interpretation: Low adoption (35%) suggests a lack of usefulness or knowledge. The support experience can be improved by promoting and developing AI tools.

➢ **How effective do you find the digital customer support services of PNB?**

Response	No. of Respondents	Percentage (%)
Very Effective	20	20%
Effective	35	35%
Neutral	25	25%
Ineffective	15	15%
Very Ineffective	5	5%

Interpretation: Digital help is considered effective by 55% of respondents, but ineffective by 20%. Response time and resolution quality must be improved.

➢ **Do you think FinTech adoption at PNB has improved your overall banking experience?**

Response	No. of Respondents	Percentage (%)
Yes	80	80%
No	20	20%

Interpretation:

The vast majority (80%) believe FinTech has improved their experience, confirming the bank's digital strategy.

➤ **Have you used contactless card payments issued by PNB?**

Response	No. of Respondents	Percentage (%)
Yes	45	45%
No	55	55%

Interpretation:

Contactless card usage is moderate. Adoption may be accelerated by more NFC technology education and advertising.

➤ **Are you aware of any new digital financial products launched by PNB recently?**

Response	No. of Respondents	Percentage (%)
Yes	60	60%
No	40	40%

Interpretation:

Although awareness is very high, the fact that 40% are not aware indicates that branch-level communication or more aggressive digital marketing are required.

➤ **Do you prefer digital transactions over cash transactions at PNB?**

Response	No. of Respondents	Percentage (%)
Strongly Agree	25	25%
Agree	40	40%
Neutral	20	20%
Disagree	10	10%
Strongly Disagree	5	5%

Interpretation:

The shift in consumer behavior is demonstrated by the fact that 65% of respondents prefer digital transactions over cash ones. Some people may be resistant because they lack digital knowledge or insecurity.

V. FINDINGS

1. High Knowledge of Online Banking Services

• Eighty-five percent of those surveyed are aware of Punjab National Bank's online services, including net and mobile banking.

• Shows a high level of consumer knowledge of digital issues.

2. There is a Significant Adoption of Mobile Banking

• The PNB mobile app is used for transactions by 70% of consumers.

• Indicates that clients are amenable to utilizing mobile platforms for their banking requirements.

3. Digital Payments Are Increasingly Common

• Sixty-five percent of respondents utilize UPI and other digital methods on a daily or weekly basis.

• Demonstrates how well FinTech works to encourage cashless transactions.

4. The user experience is good, but it could be better.

• Although 20% were neutral and 20% were unhappy, 60% of respondents thought the mobile app was easy to use.

• The digital interface's usability and design might be enhanced.

5. Using Digital KYC Services Moderately

• Of the respondents, just 55% made advantage of PNB's digital KYC services

• Adoption might be enhanced by more awareness-raising initiatives and procedure streamlining.

6. Thank You for the Quick Transaction Speeds

• 70% of consumers are happy with how quickly transactions are completed, confirming PNB's digital systems' dependability.

7. A decrease in branch visits as a result of digital tools

• 75% of respondents said they no longer need to visit physical branches as much because of internet banking.

• An indication of operational effectiveness and digital transformation achievement.

8. Some Users Are Concerned About Technical Issues

• 35% of respondents mentioned sporadic or regular technical problems, such as unsuccessful transactions or app failures.

• It is crucial to do regular system maintenance and upgrades.

9. There is a fair amount of trust in security

• Although 15% still have concerns, 70% of people have faith in PNB's digital systems' security.

• More focus on customer education and security features is required.

10. Limited Use of Chatbots and AI Tools

• Just 35% of respondents have used AI-powered customer support platforms.

• Shows that sophisticated FinTech features are not being fully utilized.

VI. RECOMMENDATIONS

• Improve Programs for Digital Literacy To boost use of digital banking services including mobile applications, UPI, net banking, and digital KYC, Punjab National Bank should regularly run awareness and education programs, focusing especially on senior and rural consumers. YouTube lessons, in-branch demonstrations, and workshops can all aid in closing the digital gap.

Enhance the User Interface (UI) and Experience (UX) of Mobile Apps In order to guarantee a smooth user experience for customers of all ages, PNB should update its mobile banking software with user-friendly menus, improved accessibility features, quicker loading times, and fewer crashes, as indicated by the feedback indicating that 20% of users are dissatisfied with app navigation.

• Improve Communication and Cybersecurity Measures 15% of users are still unsure, despite 70% of users having faith in the site. PNB needs to make investments in cutting-edge security measures including two-factor authentication (2FA), biometric authentication, and real-time fraud warnings. Additionally, the bank should use emails, SMS, and app notifications to notify customers on a regular basis about safety procedures and upgrades.

• Grow AI-Powered Services, Such as Virtual Assistants and Chatbots Only 35% of people already use AI technologies like chatbots. PNB should update its AI-powered customer service capabilities to better serve its customers by handling difficult inquiries, enabling voice-based communication, supporting vernacular languages, and guaranteeing 24/7 availability.

VII. CONCLUSION

One of the biggest public sector banks in India is undergoing a progressive yet changing digital transformation, according to the current study on FinTech practices at Punjab National Bank (PNB). By incorporating digital platforms including mobile banking, internet banking, UPI services, e-KYC, and AI-driven customer support tools, PNB has achieved significant progress as financial technology transform banking experiences.

The results show that the majority of consumers are using digital banking more and more for their daily financial requirements. It is clear that PNB has successfully matched itself with the digital expectations of contemporary consumers, as more than 70% of respondents expressed happiness and trust in the bank's FinTech offerings. Additionally, UPI and mobile banking have grown essential to user behavior, increasing convenience and decreasing reliance on physical banks.

The study also highlights certain issues, including the sparse use of AI chatbots, the low level of knowledge of digital technologies, sporadic technical difficulties, and

accessibility disparities in rural areas. In terms of customer service, user education, and technology infrastructure, these areas require constant improvement.

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