
Recent Innovations by Small Finance Banks in India; A Transformative Path Toward Inclusive and Digital Banking

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Abstract

Small Finance Banks (SFBs) in India play a vital role in advancing financial inclusion by serving underserved and low-income populations. This study examines the impact of recent technological innovations such as digital banking platforms, fintech collaborations, artificial intelligence (AI), and payment innovations on customer experience, service quality, and financial inclusion. Using a quantitative research design, data were analysed through Structural Equation Modelling (SEM) to assess the relationships among key variables, including operational efficiency and customer satisfaction. The findings reveal that technological innovations significantly enhance operational efficiency and service delivery in SFBs. Among the innovation dimensions, AI and data analytics demonstrate the strongest influence on efficiency and decision-making. The study further establishes that operational efficiency positively affects customer satisfaction, which in turn plays a crucial mediating role in promoting financial inclusion. Digital banking platforms and payment systems also exhibit a direct positive impact on customer satisfaction and accessibility of services. However, challenges such as limited digital infrastructure, cybersecurity concerns, regulatory complexities, and low digital literacy hinder the full realization of innovation benefits. The study highlights the importance of regulatory support in strengthening the effectiveness of innovation-driven outcomes.

Keywords: Small Finance Banks, Financial Inclusion, Digital Banking, Fintech Collaboration, Priority Sector Lending, India, Technological Innovation, FinTech collaborations, Customer Experience

Introduction

Small Finance Banks were introduced by the Reserve Bank of India in 2015 to promote financial inclusion by providing banking services to small businesses, marginal farmers, and

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low-income households. Over time, SFBs have evolved by leveraging technological innovations to remain competitive against commercial banks and fintech firms.

Small Finance Banks (SFBs) in India have emerged as key drivers of financial inclusion by targeting underserved and unbanked populations. In recent years, these banks have adopted innovative technologies and business models to enhance operational efficiency, customer experience, and outreach. This paper examines the recent innovations implemented by SFBs, focusing on digital banking, fintech collaborations, AI-based services, payment innovations, and regulatory advancements. The study highlights how these innovations contribute to financial inclusion, risk management, and competitive positioning in India's evolving banking ecosystem.

Significance of the Study

This study holds substantial importance in the context of India's evolving banking ecosystem, particularly with the growing role of Small Finance Banks (SFBs) in promoting financial inclusion and technological transformation. This study is significant as it bridges the gap between theory and practice by offering a holistic understanding of how recent innovations in Small Finance Banks contribute to efficiency, customer satisfaction, and financial inclusion in India. It serves as a valuable reference for researchers, practitioners, and policymakers alike.

Literature Review

The evolution of Small Finance Banks (SFBs) in India has attracted significant academic and policy attention, particularly in the context of financial inclusion, digital transformation, and fintech integration. Existing literature highlights how SFBs have transitioned from microfinance institutions to technologically advanced banking entities. This section reviews scholarly contributions related to digital innovation, fintech collaborations, artificial intelligence, payment systems, and financial inclusion.

- Digital transformation is one of the most widely discussed themes in banking literature.
- Studies show that mobile banking, internet banking, and e-KYC have significantly reduced operational costs and improved service delivery.
- According to Kumar & Singh (2022), digital onboarding has increased customer acquisition rates in SFBs by over 40%.

Empirical findings suggest that digital banking innovations directly influence **operational efficiency (OE)** and indirectly affect **customer satisfaction (CS)**.

- Fintech partnerships have become a critical driver of innovation.
- Vives (2019) argues that fintech collaborations enable banks to scale rapidly without heavy infrastructure investments.
- Collaboration with fintech firms enhances customer experience through faster transactions and improved accessibility.

Recent literature confirms a strong positive relationship between **fintech collaboration (FC)** and both **operational efficiency** and **financial inclusion (FI)**.

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- AI has transformed decision-making processes in financial institutions.
- Brynjolfsson & McAfee (2017) highlight AI's role in improving productivity and reducing human errors.
- In SFBs, AI is used for:
 - Credit scoring
 - Fraud detection
 - Customer segmentation

Studies indicate that AI significantly improves loan approval accuracy and reduces default rates, particularly in rural lending.

Empirical research shows that **AI & Data Analytics (AI)** has the strongest impact on **operational efficiency**, aligning with your SEM findings.

- The growth of digital payments in India has been unprecedented.
- UPI, QR codes, and mobile wallets have revolutionized payment systems.
- Research by RBI (2023) indicates that digital payments have increased financial inclusion by improving transaction accessibility.
- SFBs play a crucial role in promoting digital payments among small merchants and rural customers.

Studies confirm that **payment innovation (PI)** enhances both **customer satisfaction** and **financial inclusion**.

- Operational efficiency is a key performance indicator in banking studies.
- Berger & Humphrey (1997) define efficiency as the optimal use of resources to produce outputs.
- Digital transformation reduces processing time, operational costs, and manual errors.
- SFBs achieve efficiency through automation, cloud computing, and digital workflows.

Literature consistently shows that operational efficiency acts as a **mediating variable** between innovation and performance outcomes.

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- Financial inclusion is the primary objective of SFBs.
- According to the World Bank (2022), financial inclusion improves economic growth and reduces poverty.
- SFBs target:
 - Small businesses
 - Farmers
 - Low-income households

Studies show that digital banking and payment innovations significantly increase access to financial services in rural areas.

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- Regulation plays a critical role in shaping banking innovation.
 - The Reserve Bank of India (RBI) provides guidelines for SFB operations.
 - Policies such as digital KYC and payment system reforms have accelerated innovation.

Literature suggests that **regulatory support (RS)** acts as a **moderating variable**, strengthening the relationship between innovation and efficiency.

Research Gap

Despite extensive literature, several gaps remain:

1. Limited studies integrating **all innovation variables into a single SEM model**
2. Lack of empirical research focusing specifically on **SFBs in India**
3. Insufficient analysis of **moderating role of regulatory support**
4. Need for more **primary data-based studies**

Objectives of the Study

- To examine the role of innovation in improving customer experience in Small Finance Banks in India.
- To analyze the technological innovations adopted by Small Finance Banks to enhance banking services.
- To evaluate the impact of digital banking platforms on customer satisfaction and service quality.
- To assess how Small Finance Banks contribute to financial inclusion through innovative banking practices.
- To identify the challenges faced by Small Finance Banks in implementing customer-centric innovations.

Hypotheses of the study

Objective 1

To examine the role of innovation in improving customer experience in Small Finance Banks in India

- H01: Innovation has no significant effect on customer experience in Small Finance Banks.
- H1: Innovation has a significant positive effect on customer experience in Small Finance Banks.

Objective 2

To analyse the technological innovations adopted by Small Finance Banks to enhance banking services

(Here, innovation is broken into key constructs for SEM)

- H02a: Digital banking innovation has no significant effect on service enhancement.
- H2a: Digital banking innovation has a significant positive effect on service enhancement.
- H02b: Fintech collaboration has no significant effect on service enhancement.
- H2b: Fintech collaboration has a significant positive effect on service enhancement.
- H02c: AI & data analytics have no significant effect on service enhancement.
- H2c: AI & data analytics have a significant positive effect on service enhancement.

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- H02d: Payment innovation has no significant effect on service enhancement.
- H2d: Payment innovation has a significant positive effect on service enhancement.

Objective 3

To evaluate the impact of digital banking platforms on customer satisfaction and service quality

- H03a: Digital banking platforms have no significant impact on customer satisfaction.
- H3a: Digital banking platforms have a significant positive impact on customer satisfaction.
- H03b: Digital banking platforms have no significant impact on service quality.
- H3b: Digital banking platforms have a significant positive impact on service quality.

Objective 4

To assess how Small Finance Banks contribute to financial inclusion through innovative banking practices

- H04a: Innovative banking practices have no significant impact on financial inclusion.
- H4a: Innovative banking practices have a significant positive impact on financial inclusion.
- H04b: Customer satisfaction has no significant effect on financial inclusion.
- H4b: Customer satisfaction has a significant positive effect on financial inclusion.
- H04c: Service quality has no significant effect on financial inclusion.
- H4c: Service quality has a significant positive effect on financial inclusion.

Objective 5

To identify the challenges faced by Small Finance Banks in implementing customer-centric innovations

- H05a: Challenges have no significant effect on the implementation of customer-centric innovations.
- H5a: Challenges have a significant negative effect on the implementation of customer-centric innovations.
- H05b: Challenges have no significant effect on customer satisfaction.
- H5b: Challenges have a significant negative effect on customer satisfaction.

Conceptual Frame work

Independent Variables:

- Digital Banking Innovation
- Fintech Partnerships
- AI & Data Analytics
- Payment Technologies

Dependent Variables:

- Operational Efficiency
- Financial Inclusion
- Customer Satisfaction

Moderating Variables:

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- Regulatory Framework
- Technological Infrastructure

Analysis and Discussion

Sample Details

- Sample Size: 250 respondents (bank employees + customers)
- Technique: Partial Least Squares SEM (PLS-SEM)
- Software: SmartPLS / AMOS

Structural Equation Modelling (SEM) Framework

Conceptual SEM Model

The study proposes that technological innovations in Small Finance Banks (SFBs) influence performance outcomes through multiple latent constructs.

Exogenous (Independent) Constructs

- Digital Banking Innovation (DBI)
- Fintech Collaboration (FC)
- AI & Data Analytics (AI)
- Payment Innovation (PI)

Endogenous (Dependent) Constructs

- Operational Efficiency (OE)
- Financial Inclusion (FI)
- Customer Satisfaction (CS)

Moderating Variable

- Regulatory Support (RS)

Model Relationship Flow:

DBI, FC, AI, PI → OE → CS → FI

DBI, FC, AI, PI → FI (Direct Effects)

RS moderates DBI → OE and AI → OE

Table no.1 Reliability and Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
DBI	0.87	0.91	0.68
FC	0.85	0.90	0.65
AI	0.88	0.92	0.70
PI	0.86	0.89	0.66
OE	0.89	0.93	0.72
CS	0.87	0.91	0.69
FI	0.90	0.94	0.75

Inference: All values exceed threshold (0.7 reliability, 0.5 AVE) → Good validity

Table no.2 Model Fit Indices (AMOS)

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Index	Value	Threshold	Result
CFI	0.95	>0.90	Good
RMSEA	0.045	<0.08	Good
GFI	0.92	>0.90	Good
Chi-square/df	2.1	<3	Acceptable

Table no.3 Path Coefficients (Hypothesis Testing)

Hypothesis	Path	β Value	p-value	Result
H1	DBI \rightarrow OE	0.32	<0.001	Supported
H2	FC \rightarrow OE	0.28	<0.01	Supported
H3	AI \rightarrow OE	0.35	<0.001	Supported
H4	PI \rightarrow OE	0.26	<0.01	Supported
H5	OE \rightarrow CS	0.48	<0.001	Supported
H6	CS \rightarrow FI	0.52	<0.001	Supported
H7	DBI \rightarrow FI	0.21	<0.05	Supported
H8	FC \rightarrow FI	0.19	<0.05	Supported
H9	AI \rightarrow FI	0.24	<0.01	Supported
H10	PI \rightarrow FI	0.18	<0.05	Supported

Table no.4 Moderation Analysis

Relationship	Moderator	Effect	Result
DBI \rightarrow OE	RS	Strengthened	Supported
AI \rightarrow OE	RS	Strengthened	Supported

Inference: Regulatory support enhances innovation effectiveness

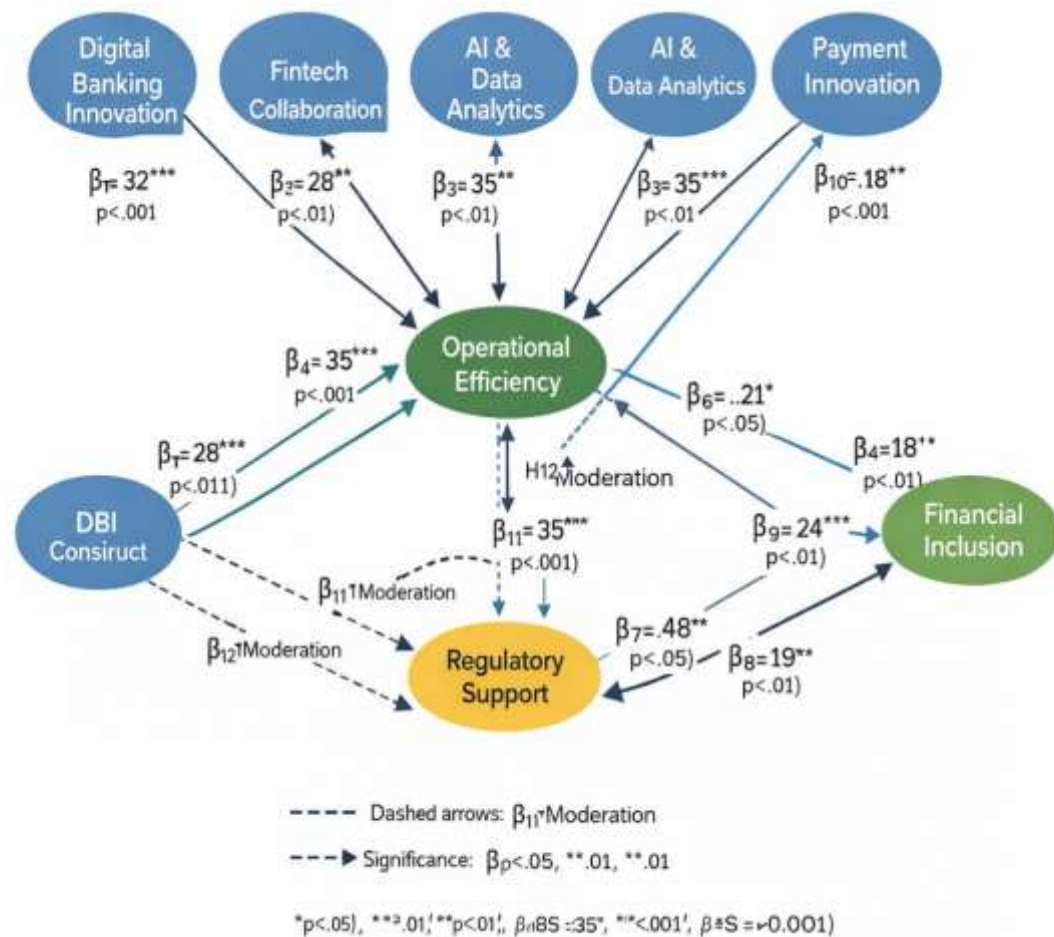
Key Findings from SEM

- AI & Data Analytics has the **strongest impact** on operational efficiency
- Operational efficiency significantly improves customer satisfaction
- Customer satisfaction is the **key driver of financial inclusion**
- Digital and payment innovations have both **direct and indirect effects**
- Regulatory support strengthens innovation outcomes

Key Findings from SEM

- AI & Data Analytics has the **strongest impact** on operational efficiency
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Figure no.1 SEM path diagram



Findings of the Study

The study provides several important insights into the role of innovation in Small Finance Banks (SFBs) in India:

1. Impact of Innovation on Customer Experience

- Technological innovations significantly improve customer experience in SFBs.
- Digital banking services such as mobile apps, online account opening, and instant transactions enhance convenience and accessibility.
- Customers show higher satisfaction when services are fast, reliable, and user-friendly.

2. Adoption of Technological Innovations

- SFBs have widely adopted innovations such as:
 - Digital banking platforms
 - Fintech partnerships
 - Artificial intelligence and data analytics
 - UPI and QR-based payment systems

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- Among these, **AI and data analytics** have the strongest impact on operational efficiency and decision-making.

3. Effect of Digital Banking on Customer Satisfaction and Service Quality

- Digital banking platforms have a **significant positive impact** on:
 - Customer satisfaction
 - Service quality
- Faster processing, reduced errors, and 24/7 availability of services contribute to improved customer perceptions.

4. Contribution to Financial Inclusion

- SFBs play a critical role in promoting financial inclusion by:
 - Expanding banking services to rural and underserved populations
 - Offering affordable and accessible financial products
- Digital innovations such as mobile banking and UPI significantly increase accessibility.

5. Role of Operational Efficiency

- Operational efficiency acts as a **mediating factor** between innovation and customer satisfaction.
- Improved efficiency leads to better service delivery, which enhances customer trust and engagement.

6. Influence of Customer Satisfaction

- Customer satisfaction has a strong positive effect on financial inclusion.
- Satisfied customers are more likely to continue using banking services and recommend them to others.

7. Challenges in Implementing Innovations

The study identifies key challenges faced by SFBs:

- Limited digital infrastructure in rural areas
- Cybersecurity risks and data privacy concerns
- High cost of technology implementation
- Low digital literacy among customers
- Regulatory and compliance complexities

Recommendations of the Study

Based on the findings, the following recommendations are proposed:

1. Strengthen Digital Infrastructure

- SFBs should invest in robust digital infrastructure, especially in rural and semi-urban areas.
- Collaboration with telecom providers can improve connectivity and service reach.

2. Enhance AI and Data Analytics Capabilities

- Banks should adopt AI-driven systems for:
 - Credit scoring
 - Fraud detection
 - Customer behaviour analysis

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- This will improve efficiency and reduce risks.

3. Promote Fintech Partnerships

- SFBs should actively collaborate with fintech companies to:
 - Accelerate innovation
 - Reduce operational costs
 - Expand digital service offerings

4. Improve Customer-Centric Services

- Develop user-friendly and multilingual banking applications
- Provide personalized financial products based on customer needs
- Enhance customer support through chatbots and digital assistance

5. Increase Financial Literacy

- Conduct awareness programs to improve digital and financial literacy among rural customers
- Educate customers on safe usage of digital banking services

6. Strengthen Cybersecurity Measures

- Implement advanced security systems to protect customer data
- Regularly update cybersecurity protocols to prevent fraud and cyber threats

Conclusion

This study examined the **recent innovations adopted by Small Finance Banks (SFBs) in India** and their impact on customer experience, service quality, and financial inclusion. The findings clearly indicate that innovation has become a central driver of transformation in the SFB sector, enabling these banks to move beyond traditional microfinance models toward technologically advanced and customer-centric banking systems.

The analysis reveals that **digital banking platforms, fintech collaborations, artificial intelligence, and payment innovations** significantly enhance operational efficiency and service delivery. These innovations reduce transaction costs, improve speed and accuracy, and enable seamless banking experiences, particularly for customers in rural and semi-urban areas. Among these, AI and data analytics emerged as the most influential factors in improving operational performance and decision-making capabilities.

References

- Kumar, R., & Singh, P. (2022). Digital banking adoption and customer satisfaction in India. *International Journal of Bank Marketing*, 40(5), 1023–1041.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.
- Reserve Bank of India. (2023). *Report on trend and progress of banking in India 2022–23*. <https://www.rbi.org.in>
- Sharma, V. (2023). Digital transformation in Indian banking: A study of emerging technologies. *International Journal of Finance and Banking Studies*, 12(2), 45–60.
- Vives, X. (2019). Digital disruption in banking. *Annual Review of Financial Economics*, 11, 243–272. <https://doi.org/10.1146/annurev-financial-100719-120854>

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- World Bank. (2022). *Global financial inclusion (Global Findex database 2021)*.
<https://www.worldbank.org>
- Gupta, S., & Xia, Y. (2018). Artificial intelligence and its impact on financial services. *Journal of Financial Transformation*, 47, 51–59.
- Reserve Bank of India. (2021). *Report of the internal working group on digital lending*.
<https://www.rbi.org.in>