



# THE ROLE OF FINTECH IN TRANSFORMING THE INDIAN BANKING SECTOR: INSIGHTS ON DIGITAL TRANSFORMATION

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## ABSTRACT

As technology evolves and consumer preferences change, the Indian banking sector is undergoing a significant revolution. The Indian banking sector finds itself at the forefront of a profound transformation, where the convergence of FinTech innovations and digital payments is reshaping the financial landscape and redefining customer experiences.

With over 70% of Indian consumers demanding personalized interactions and more than 60% preferring digital channels, the digital transformation in banking is highly relevant today. Government initiatives like Digital India and increased internet and smartphone penetration, projected to reach 800 million users by 2023, have significantly contributed to this shift. The present study evaluates the impact of FinTech innovations and digital payments, focusing on the Digi Dhan scheme and the RBI's Digital Payment Index, which reflect growth and trends in digital transactions. The objectives also include analysing how FinTech promotes a less-cash economy and enhances financial inclusion. The study examines the integration of technologies like AI, blockchain, and cloud computing in banking operations, highlighting their role in fraud detection, customer insights, and process automation.

**Key Words:** Digital innovation, Fintech, Digi Dhan, Digital Payment Index.

## INTRODUCTION

The Indian banking sector is undergoing a significant transformation driven by technological advancements and evolving customer expectations. In the digital age, customers now demand seamless, personalized, and interactive banking experiences. Over 70% of Indian consumers expect personalized interactions with their banks, and more than 60% prefer digital channels. This shift is propelled by the proliferation of smartphones and the internet, making digital banking more accessible. The growth of the digital ecosystem in India has been driven by several key factors, including government initiatives, increased internet and smartphone penetration, and the rise of e-commerce<sup>3</sup>. The Indian government has actively promoted the use of digital technologies through programs like Digital India, Make in India, and Startup India etc. These initiatives aim to enhance the adoption of digital technologies across various sectors such as healthcare, education, and agriculture, while also creating a supportive environment for startups to thrive.

The increase in internet and smartphone penetration has played a significant role in the expansion of the digital ecosystem. According to a report by the Internet and Mobile Association of India, the number of internet users in India is expected to reach 800 million by 2023. This surge in internet users has also fueled the growth of mobile wallet users, which is projected to reach 900 million by 2025. The government's mission to achieve increased digital transactions

<sup>3</sup> Reignite Human Connections to Discover Hidden Value, Global Banking Consumer Study, Accenture, 2023.

through platforms like UPI, USSD, Aadhaar Pay, IMPS, and debit cards has been a significant step towards promoting digital payment transactions and reducing reliance on cash. Digital payments have become increasingly vital in India, driven by the rapid adoption of smartphones and internet access. This shift has led to a substantial increase in the use of digital payment methods, such as mobile wallets, UPI, and card payments.

Despite this progress, a considerable portion of the population still relies on cash transactions. The government aims to change this by promoting digital payments through various initiatives. One key strategy involves providing incentives for merchants to adopt digital payment methods. This may include subsidies for purchasing point-of-sale terminals and tax incentives for businesses that implement digital payment solutions. The government's efforts, combined with technological advancements and increased connectivity, are propelling the growth of India's digital ecosystem, making digital transactions more accessible and widespread across the country.

This research aims to evaluate the impact of FinTech innovations and digital payments on the Indian banking sector by analysing the various aspects of Digi Dhan scheme and the study also analysed the Digital Payment Index of RBI with its parameters of measuring digital payment system.

## INSIGHTS ON DIGITAL TRANSFORMATION IN INDIAN BANKING SECTOR

Innovation in finance is not a recent phenomenon. Earlier examples include wire transfers, ATMs, modern stock exchanges with anonymous order matching systems, and algorithmic trading. These changes were gradual and allowed the financial system to adapt in a largely non-disruptive manner. What sets recent financial innovations apart is their speed and scope, making them potentially much more disruptive and meriting the name 'Fintech'<sup>4</sup>. Digital technologies and platforms are set to revolutionize how Indian businesses operate and engage with customers, suppliers, and competitors. These technologies facilitate instant and continuous communication, eliminate intermediaries, and enable seamless collaboration, transactions, and information sharing. They can boost productivity by automating tasks and analysing data to identify inefficiencies, detect errors, and customize products and services. The stakes are high for India's digital transformation.<sup>5</sup>

In a changing scenario of marketing and information technology which is leading the changes in the banking and finance sector also. The factors like, changing in the customer expectation, emergence of fintech startups, regulatory changes, increased competition with reduction in cost and advancements in data analytics etc. will lead the digital revolution in the Indian banking sector.<sup>6</sup> The digital transformation in banking sector enable banks to utilize Aadhaar-based e-KYC (electronic Know Your Customer) processes, allowing for remote customer verification and eliminating the need for physical document submission. This enhancement boosts customer convenience and reduces operational costs<sup>7</sup>. These FinTech innovations are significantly reshaping the Indian financial landscape, driven by cumulative technological advancements and strategic government initiatives. These innovations enhance efficiency and inclusivity while fostering collaboration between traditional banks and FinTech firms<sup>8</sup>. According to Governor Shri Shaktikanta Das role of FinTech in reshaping the financial landscape, emphasizing the transformative potential of digital infrastructure, institutional arrangements, and policy initiatives are essential. Key initiatives like Jan Dhan Yojana, Aadhaar, mobile connectivity, UPI, and some of the institutional arrangements like IDRBT, NPCI etc. are for fostering financial inclusion and innovation.<sup>9</sup>

Now a days the Artificial intelligence place an important role in digital innovation in every sector of business. The transformative potential of AI, distinguishing between traditional AI and generative AI (GenAI), and its applications in enhancing efficiency, compliance, and customer services in banking sector<sup>10</sup>.

<sup>4</sup>Sankar, T. R. (2023). FinTech Innovation and approach to regulation. *Keynote address delivered by RBI Deputy Governor at the Global Fintech Festival*. Mumbai

<sup>5</sup> McKinsey & Company. (2019). Digital India: Technology to transform a connected nation. Noshir Kaka, Anu Madgavkar, Alok Kshirsagar, Rajat Gupta, James Manyika, Kushe Bahl, & Shishir Gupta. Retrieved from <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/digital-india-technology-to-transform-a-connected-nation>

<sup>6</sup> Dr. Vigneswara Swamy (2023), Adapting to Digital Disruption: A digital transformation strategy for Indian Banks, *The Journal of Indian Institute of Banking & Finance*, Pp. 1-9.

<sup>7</sup> Lakshmi Padhy (2023), Digital Disruptions in the Indian Banking Sector - Opportunities and Challenges, *The Journal of Indian Institute of Banking & Finance*, Pp. 32-42.

<sup>8</sup>Sankar, R. (2023). FinTech Innovation and approach to regulation, *Keynote address by Rabi Sankar, Deputy Governor of the Reserve Bank of India, at the Global Fintech Festival in Mumbai*.

<sup>9</sup> Das, S. (2023). FinTech and the Changing Financial Landscape, *Address delivered by the Governor of the Reserve Bank of India at the Global Fintech Festival in Mumbai*.

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## DIGITAL REVOLUTION TOOLS/TECHNIQUES UTILISED BY THE INDIAN BANKING SECTOR

The increase in internet and smartphone penetration in India has significantly contributed to the growth of the digital payments' ecosystem. E-commerce has been another major driver, with the market expected to grow at a CAGR of 31% and reach \$200 billion by 2026. Digital payments in India have grown from 162 crore transactions in FY 2012-13 to over 14,726 crore transactions in 2023-24 (till February 2024), representing an approximately 90-fold increase over 12 years. As of 2022, India accounts for nearly 46% of the world's digital transactions. This extraordinary growth is also reflected in the Reserve Bank's Digital Payment Index, which has seen a four-fold rise in the last five years (Das, 2024)<sup>11</sup>.

This growth has boosted the number of online shoppers in India, projected to reach 220 million by 2025. Additionally, the digital payments ecosystem is supported by various private players offering diverse services, including mobile wallets, UPI payments, and QR code-based payments.

### RBI-DIGITAL PAYMENTS INDEX (RBI-DPI)

The RBI-DPI, introduced to reflect the growth and trends in digital payments, considers factors such as payment enablers, payment infrastructure, payment performance, and consumer centricity. This index provides valuable insights into the progress and effectiveness of the various initiatives aimed at promoting digital transactions and fostering a less-cash economy in India. The followings are the Parameters and Sub-parameters of RBI's Digital Payment Index.

**Table 1**

**RBI-Digital Payments Index – Parameters and Sub-parameters**

Payment Enablers	Payment Infrastructure-Demand side	Payment Infrastructure-Supply side	Payment Performance	Consumer Centricity
<ul style="list-style-type: none"> <li>- Internet</li> <li>- Mobile</li> <li>- Aadhar</li> <li>- Bank Accounts</li> <li>- Participants</li> <li>- Merchants</li> </ul>	<ul style="list-style-type: none"> <li>- Debit Cards</li> <li>- Credit Cards</li> <li>- Prepaid Payment Infrastructure</li> <li>- Customer Registered-mobile and internet banking</li> <li>- F A S Tags</li> </ul>	<ul style="list-style-type: none"> <li>- Bank Branches</li> <li>- Business Correspondents</li> <li>- ATMs</li> <li>- PoS Terminals</li> <li>- QR Codes</li> <li>- Intermediaries</li> </ul>	<ul style="list-style-type: none"> <li>- Digital Payment System-Volume</li> <li>- Digital Payment System-Value</li> <li>- Unique Users</li> <li>- Paper Clearing</li> <li>- Currency in Circulation</li> <li>- Cash withdrawals</li> </ul>	<ul style="list-style-type: none"> <li>- Awareness and Education</li> <li>- Declines</li> <li>- Complaints</li> <li>- Frauds</li> <li>- System Downtime</li> </ul>

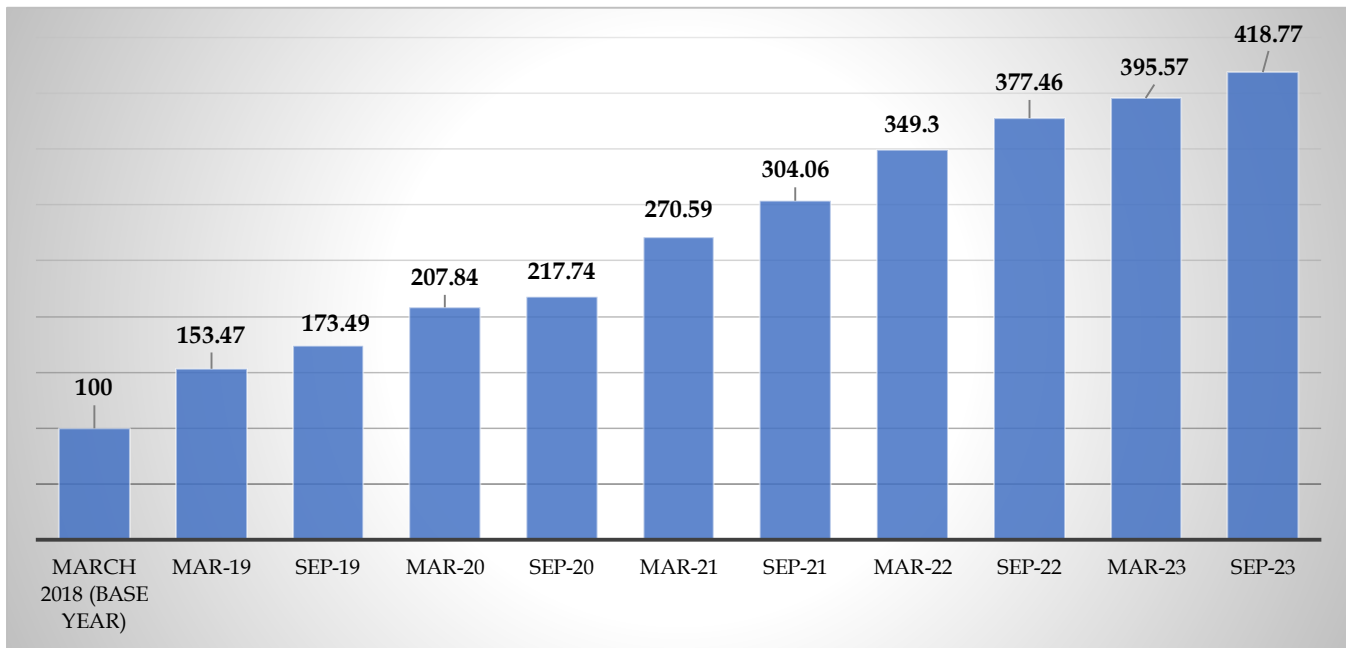
Source: Reserve Bank of India

**Chart 1**

<sup>11</sup> Das, S. (2024, March 4). Address by Governor, Reserve Bank of India at the Digital Payments Awareness Week celebrations. Reserve Bank of India, Mumbai.



## RBI's Digital Payments Index for March 2018- September 2023



Source: Reports of Reserve Bank of India

The RBI's Digital Payment Index has seen a steady rise from 2018 to 2023 due to enhancements in various parameters and sub-parameters. These improvements include the expansion of payment infrastructure such as mobile and internet payment systems, increased penetration of ATMs, PoS terminals, and other banking services. Additionally, customers are becoming more aware of financial and digital financial services, thanks to various government policies and financial inclusion efforts. As a result, the RBI's Digital Payment Index has observed a 400% increase over the past five years, with expectations of continued growth.

### DIGI DHAN MISSION

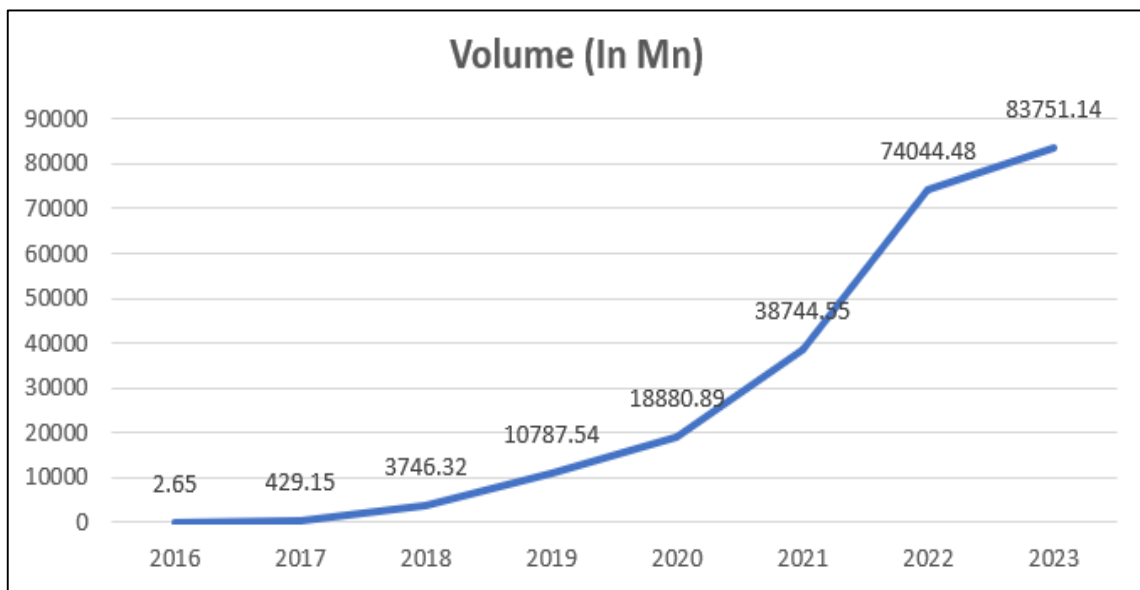
The Digi Dhan Mission is an initiative launched by the Government of India to promote digital payments and create a less-cash society. This mission is part of the broader Digital India campaign, which aims to transform India into a digitally empowered society and knowledge economy. The primary objective of the Digi Dhan Mission is to encourage digital payment methods among the general population, merchants, and various stakeholders, thereby reducing reliance on cash transactions.

**Table 2**  
**Digital Payments**

Digital Payment Services	2019-20	2020-21	2021-22	2022-23	2023-24
AEPS (in Mn)	172.84	313.92	408.06	447.25	541.74
UPI (in Mn)	10787.54	18880.9	38744.55	74044.48	83751.14
IMPS (in Mn)	216.82	363.14	492.0	497.06	580.64
Internet Banking (in %)	9.21	9.58	13.68	9.86	7.44
Mobile Banking (in %)	6.15	4.67	5.03	4.56	5.0
NEFT (in %)	13.34	14.53	14.18	17.23	22.67
RTGS (in %)	0.73	0.75	0.76	0.79	0.84
Debit Card (in %)	7.39	11.15	13.85	19.33	24.91

Source: Department of Financial Services and NPCI.

**Chart 2**  
**Growth of UPI Payment System in India**



Source: National Informatic Statistics, 2023.

The UPI has seen significant growth since 2017. Starting with a 900% year-on-year (YoY) increase, processing over 100 million transactions worth INR 67 billion, UPI's growth continued with a 246% rise in 2018, processing transactions worth INR 1.5 trillion. In 2019, the growth rate was 67%, with transactions reaching INR 2.9 trillion. By the end of 2022, UPI's transaction value hit INR 125.95 trillion, accounting for 86% of India's GDP. In 2023, UPI processed 83.75 billion transactions, highlighting its crucial role in India's payment system. Total digital payment transactions volume increases from 2,071 crore in FY 2017-18 to 13,462 crore in FY 2022-23 at a CAGR of 45 per cent.

**Table 3**  
**Digital Payment Transactions**

Financial Year	Volume (in crore)
2017-18	2,071
2018-19	3,134
2019-20	4,572
2020-21	5,554
2021-22	8,839
2022-23	13,462
2023-24 (Till 11th Dec)	11,660

Source: National Informatics Centre

The consistent increase in the volume of digital transactions in India from 2017-18 to 2023-24 can be attributed to several key factors like, government initiatives, Penetration of smart phone and internet, e-commerce expansion, introduction of UPI and efforts made to achieve financial inclusion of the country.

### ADVANCEMENT IN BANKING TOOLS AND TECHNIQUES

The integration of advanced technologies such as Artificial Intelligence (AI), Machine Learning (ML), Blockchain, Cloud Computing, Big Data Analytics, Mobile Banking Apps, Robotic Process Automation (RPA), and Internet of Things (IoT) has revolutionized the banking sector in India. Banks are leveraging these technologies to enhance various aspects of their operations, from fraud detection and credit scoring to customer insights and process automation.

For instance, ICICI Bank utilizes AI for real-time fraud detection, while SBI employs Machine Learning algorithms for credit scoring and loan approvals. Additionally, banks like Kotak Mahindra use AI to analyse customer behaviour and preferences, enabling personalized banking services. Blockchain technology is being adopted by banks such as Yes Bank and ICICI Bank for trade finance and international remittances, offering secure and transparent transactions. Cloud computing services from providers like AWS and Microsoft Azure are leveraged by banks such as

Axis Bank and HDFC Bank for scalable infrastructure and enhanced data security. Big data analytics helps banks gain valuable insights into customer behaviour and mitigate risks in lending and investments.

Mobile banking apps offered by banks like Paytm Payments Bank and SBI YONO provide convenient and accessible banking services, while RPA automates repetitive tasks for increased efficiency. Moreover, IoT is being explored by banks for smart ATMs and connected devices to improve operational efficiency and offer innovative banking solutions.

## FINDINGS & CONCLUSION

The digitalization of the banking sector and the rapid growth of FinTech are driving transformative changes across industries, fostering innovation and growth. With easier access to capital through digital lending platforms and alternative financing options, businesses, particularly startups and small enterprises, can secure funding more efficiently, pushing innovation and expansion. Streamlined digital payment solutions simplify transactions, reduce operational friction, and enhance customer experiences in industries like retail, e-commerce, and hospitality. Data-driven insights derived from digital banking and FinTech analytics empower businesses to make informed decisions, optimize operations, and tailor offerings to meet evolving consumer needs, benefiting sectors such as marketing, retail, and healthcare. Cross-industry collaborations between traditional banks, FinTech startups, and other sectors drive innovation and create synergies, while the emergence of platform economies enables seamless transactions, collaborations, and value exchanges across industries. Moreover, digital banking and FinTech contribute significantly to financial inclusion by reaching underserved populations and providing access to formal financial services through e-KYC, digital access etc. which is stimulating consumption, entrepreneurship, and economic growth among the people from grassroot level.

Digitalization and FinTech are rapidly transforming India's banking sector, positioning the country as a global leader in digital payment systems. While India embraces new services and leads in early adoption stages, other countries like Singapore, Japan, Russia etc. are yet to fully adopt such systems. Despite India's progress, concerns about data security and protection persist. An effective adoption of Digital Financial Service is possible when there is a proper regulatory mechanism and security analysis for the payment options<sup>12</sup>. However, advancements in tools and techniques are swiftly addressing these issues. India's success highlights the potential of digitalization to enhance financial inclusion and drive economic growth. As other nations navigate their digital transitions, learning from India's experiences can inform policy decisions and regulatory frameworks. Ultimately, continued innovation and collaboration will be key to maximizing the benefits of digitalization while addressing associated challenges, ensuring a secure and inclusive digital financial ecosystem for all.

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