

# Fintech as A Catalyst for Inclusive Growth: Managing The Evolution of Digital Finance Ecosystems

Dr. Surendra Sisodia  
Assistant Professor  
Suresh Gyan Vihar University, Jaipur

## Abstract:

The rapid growth of FinTech has significantly reshaped India's Digital Financial System (DFS), enhancing efficiency, accessibility, and financial inclusion. This study examines the evolution of new digital finance driven by the FinTech in India and its role in strengthening financial inclusion through financial infrastructure such as Aadhaar, PMJDY, UPI, NPCI and other digital payment platforms. Using secondary data from official reports, the paper analyses trends in digital transactions, account penetration, welfare delivery mechanisms, and payment infrastructure growth in India. The findings reveal a substantial expansion in digital payment volumes and values, improved transparency in financial transactions and increased participation of rural, low-income, and women beneficiaries in day-to-day finance. However, challenges related to digital access, financial literacy, infrastructure gaps, operational constraints, and data integration continue to impede inclusive outcomes. The study concludes that targeted policy interventions, sustainable business models, and innovation-driven DFS governance are essential to fully harness the potential of FinTech for inclusive and sustainable financial development in India.

## Key Words:

Digital Financial Services, Financial Inclusion, FinTech, Sustainable Development Goals

## Introduction:

India has emerged as one of the world's fastest-growing FinTech ecosystems, driven by rapid digitalization, supportive policy frameworks, and a large, technology-adaptive population. Over the past decade, the convergence of financial services and digital technologies has fundamentally transformed the way financial products are designed, delivered, and consumed. FinTech, encompassing innovations such as digital payments, mobile banking, peer-to-peer lending, AI and data-driven credit assessment, has become a critical driver of India's evolving Digital Financial System (DFS). This transformation is not merely technological in nature; it represents a paradigm shift in financial intermediation, business models, and customer engagement strategies within the financial services sector. The Digital Financial System (DFS) refers to the integrated ecosystem of digital infrastructure, platforms, institutions, regulations, and technologies that enable the delivery of formal financial services through electronic and digital channels. In the Indian context, DFS is built upon foundational digital public infrastructure such as Aadhaar for digital identity, Jan-Dhan accounts for universal banking access, Unified Payments Interface (UPI) for real-time transactions, and mobile connectivity under the 'Digital India' initiative. FinTech firms are leveraging its

architecture to design innovative financial products and services. The growth trajectory of India's FinTech sector is closely inter-connected with the expansion and strengthening of the 'Digital Financial System'. Government-led initiatives and regulatory support from institutions such as the 'Reserve Bank of India' have facilitated the development of a secure, inclusive, and innovation-friendly DFS. This environment has accelerated digital payment adoption, increased formal credit penetration, and encouraged collaboration between traditional financial institutions and FinTech start-ups. From a management perspective, the DFS provides a strategic platform that allows organizations to optimize operations, improve service outreach, and experiment with data-driven business models while maintaining systemic stability. Digital financial services not only lower the operational cost by bridging the gap between banks, FinTech firms, and digital wallets, but also enhance the financial capabilities of users. It facilitates a comfortable and easy experience for the financial customers despite any geographical conditions. Improved financial infrastructure, advancement of IT, government customer-centric initiatives for a more conducive environment, and a responsive regulatory framework from RBI have also boosted the country's digital ecosystem. "The expansion of digital payments, facilitated by the stack, is an important driver of economic development in India and has helped stabilize incomes in rural areas and boost sales for firms in the informal sector." (Patnam and Yao 2020). Since the Indian economy is based upon heavy cash-based retail transactions, concerted efforts at innovation for various digital financial services in order to transform cash-

based retail transactions into a systematic, secure and user-centric financial system is essential. "These advances build on the India Stack, a comprehensive digital identity, payment, and data-management system". Carrière-Swallow, Haksar, and Patnam 2021).

A defining feature of India's FinTech growth is its strong linkage with the objective of financial inclusion. Despite notable progress, a significant portion of the population historically remained excluded from formal financial systems due to income volatility, geographic isolation, lack of documentation, and limited financial literacy. The expansion of DFS, powered by FinTech innovations, has addressed these constraints by facilitating low-cost digital access to banking, payments, savings, credit, and insurance services. Mobile wallets, app-based micro-lending, digital insurance platforms, and buy-now-pay-later solutions have brought millions of individuals, micro-entrepreneurs, and small businesses into the formal financial ecosystem, particularly in semi-urban and rural areas. At the macroeconomic level, a well-functioning DFS, supported by FinTech innovation plays a crucial role in promoting inclusive and sustainable economic growth. DFS facilitates greater savings mobilization, improved credit access, enhanced transparency, and the formalization of economic activities. These outcomes contribute to financial resilience among households and small enterprises while strengthening the overall financial architecture of the economy. However, the rapid expansion of DFS also raises critical challenges related to data privacy, cyber-security, regulatory coordination, and the digital divide, necessitating balanced governance and strategic oversight.

**Review of Literature:**

Several studies have examined the relationship between digital technology and financial and economic growth, often with a focus on specific countries or regions. Varisha Parvez (2022) identified key challenges that need to be addressed to build a digitally inclusive society in India and highlighted the role of emerging technologies in supporting inclusive development through digital adoption. Sharma and Mathur (2022) analysed trends in mobile banking in India between 2010 and 2022 and examined the factors influencing digital financial inclusion and its linkage with economic growth. Their findings suggest that digital financial services play an important role in enhancing financial access and overall economic performance. Pathak and Wright (2021) explored the significance of digital financial services during the COVID-19 period and in the post-pandemic phase in India, with particular emphasis on regulatory issues and financial inclusion policies. Chiemeké and Imafidor (2021) studied the influence of digitalisation on economic growth and labour productivity in Nigeria and reported a positive association between digital adoption and productivity outcomes. Similarly, Irtysheva et al. (2021) examined the impact of digital financial services on economic growth in Ukraine and found that the expansion of digital finance had a measurable effect on national output. Research in the African context has also provided valuable insights. Solomon and Klyton (2020) analysed the role of digital technology in economic development across selected African countries and observed that effective implementation of digital solutions contributes to employment generation and individual empowerment. Kandpal and Mehrotra (2019)

focused on the development of FinTech in India and discussed the role of government initiatives and regulatory support in promoting the digitisation of financial services. Adaba et al. (2019), in their study on mobile money usage in Ghana, concluded that digital financial services contributed positively to both financial access and social well-being. Studies examining broader socio-economic outcomes further reinforce these findings. Forenbacher et al. (2019) analysed the relationship between mobile phone ownership and socio-economic development and reported a positive association, particularly in terms of education and employment opportunities. Cohen et al. (2018) investigated the impact of digital technology on the lifestyle of individuals in South Africa and found improvements in quality of life linked to digital adoption. Qu et al. (2017) studied the Australian economy and reported a significant relationship between digital technology and economic growth, recommending greater consideration of digital tools in economic policy formulation. Similar evidence was presented by Chakpitak et al. (2018) in the context of Thailand, where digital technologies were found to enhance business performance and improve living standards.

**Digital Support during COVID-19 Pandemic**

During the COVID-19 pandemic, the Government of India leveraged digital financial systems to provide timely support to economically vulnerable populations. In 2020, the Pradhan Mantri Garib Kalyan Yojana (PMGKY) was introduced as an emergency welfare measure, under which government-to-person (G2P) transfers were largely executed through digital channels. Welfare

benefits under schemes such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), Pradhan Mantri Ujjwala Yojana (PMUY), National Social Assistance Programme (NSAP), and Pradhan Mantri Kisan Samman Nidhi (PM-Kisan) were credited directly into beneficiaries' bank accounts. Official assessments indicated that a substantial proportion of these transfers were successfully delivered through digital modes, ensuring continuity of financial support during mobility restrictions. As beneficiaries accessed their funds, withdrawal activities at bank branches and through Business Correspondents (BCs) increased significantly. Cash-in-cash-out (CICO) agents, who play a crucial role in facilitating financial services for rural and low-income households, faced operational challenges during lockdowns due to restricted movement and health risks. Despite these constraints, digital payment systems witnessed remarkable growth during the pandemic period. According to a joint report by the Centre for Global Development and MSC in 2021, the adoption of digital payments accelerated sharply as consumers shifted toward contactless transaction modes. While the pandemic caused widespread economic and social disruption, it also heightened awareness of financial risk protection, particularly in the health insurance sector. The unprecedented health crisis underscored the importance of medical insurance, leading to a significant increase in insurance adoption. As a result, the collection of health insurance premiums recorded a sharp growth of over 100 percent on a year-on-year basis. Overall, the COVID-19 pandemic acted as a catalyst for accelerating digital financial inclusion in India, reinforcing the role of digital financial

systems in delivering welfare support and strengthening financial resilience among households.

### **Digital Finance Services and Finance Inclusion**

Financial inclusion refers to providing easy access to suitable and affordable basic financial services such as savings, payments, loans, and insurance parts of society. DFS has emerged as an invigorating fuel for the growth of financial inclusion in the country. Enormous improvements in this direction have revolutionised India's payments ecosystem. All the important payment channels, i.e. 'person-to-business (P2B), person-to-government (P2G), person-to-person (P2P) and business-to-person (B2P)' have substantial potential and digitalisation has to exploit it at its best. Utmost attention through digital payment solutions across these channels has addressed the financial needs of the unprivileged and underserved segments of society. All kinds of business segments, the middle-class population have benefited in the form of digitalising domestic payments, utility bill payments, house rental payments, e-commerce, offline merchant payments, banking and finance loan payment and several other transactions. The participation from all segments of society has made the digital financial system stronger. While the major focus of governments was on spreading the banking and financial service network, many innovations such as digital wallets and mobile money apps were launched by FinTech firms. The primary focus of these innovations was to offer a cost-efficient, user-friendly and safe platform to make financial transfers from their mobiles, even for those without a bank account. The government of India's ambitious

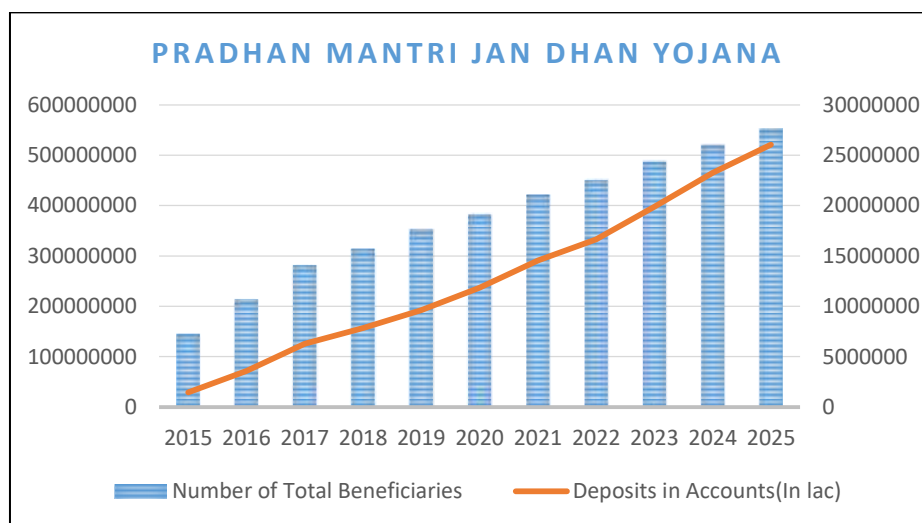
‘Digital India Campaign’ with the vision of ‘Digitally-Empowered India’ has boosted this transformation of the financial system. Under this campaign, ‘Pradhan Mantri Jan Dhan Yojana’ (PMJDY) scheme and the ‘direct benefit transfer’ (DBT) mission, have cemented the solid foundation for financial inclusion by facilitating universal access to accounts and their subsequent usage. Linking Aadhaar and various financial welfare schemes with banks has enabled the service providers to have a smooth and affordable digital payment experience for their users. ‘The JAM trinity’ that unites ‘Jan Dhan accounts for banking, Aadhaar for identification and authentication and mobile for easy and self-initiated banking’ have improved the financial inclusion in India.

With the issuance of RuPay debit cards and the expansion of digital access channels, the PMJDY has emerged as a cornerstone of India’s financial inclusion strategy. Since its early years, the scheme has witnessed sustained and significant growth in both account ownership and deposit mobilisation. The number of PMJDY beneficiaries increased sharply from about 145 million in 2015 to over 551 million by 2025, reflecting the rapid penetration of basic banking services across the country. Parallel to this expansion, deposits in Jan Dhan accounts rose substantially from approximately 1.46 million lakh in 2015 to over 26 million lakh in 2025,

indicating growing trust in the formal banking system and improved saving behaviour among newly banked populations. A large proportion of PMJDY account holders belong to rural and semi-urban regions, with a particularly notable participation of women beneficiaries from these areas. The steady rise in deposits over the years suggests that Jan-Dhan accounts are increasingly being used not merely as zero-balance accounts but as active financial instruments. The direct crediting of benefits under various government welfare schemes into PMJDY accounts has played a crucial role in enhancing account usage. Transfers under schemes such as PMGKY, PM-Kisan, PMUY, and other social assistance programmes are routed directly into beneficiaries’ accounts, ensuring transparency, reducing leakages, and enabling timely access to funds. The growth trajectory of PMJDY underscores its role not only as a social welfare delivery mechanism but also as a foundational pillar for strengthening India’s digital finance ecosystem and promoting inclusive economic participation. “It represents an impressive fast-forward of traditional financial development. Only a decade earlier, just one in three adults in India had a bank account. Similar expansions in financial access elsewhere have taken almost half a century” (D’Silva and others, 2019). The Table 1 and subsequent graph illustrate the growth of PMJDY.



Pradhan Mantri Jan Dhan Yojana		
Year	Number of Total Beneficiaries	Deposits in Accounts(In lac)
2015	145368040	1464065
2016	214275474	3567201
2017	281678271	6297243
2018	314439129	7849399
2019	352662230	9610735
2020	383279961	11843441
2021	422005644	14555053
2022	450615343	16645916
2023	486536360	19884434
2024	519467243	23250222
2025	551801835	26038728

**Table 1: Pradhan Mantri Jan Dhan Yojna**Source: Data retrieved & compiled from <https://pmjdy.gov.in/>Source: Data retrieved & compiled from <https://pmjdy.gov.in/>

The nationwide initiative undertaken by the Government of India to establish Aadhaar as a universal digital identity has yielded remarkable outcomes over the past decade. The cumulative number of Aadhaar enrolments increased significantly from about 80.47 crore in 2015 to

nearly 139.56 crore by 2024, demonstrating the extensive reach and acceptance of this digital identification system across the country. This rapid expansion implies that Aadhaar now covers the vast majority of India's population, making it one of the largest biometric identification programmes globally. The steady year-on-year growth in enrolments highlights the

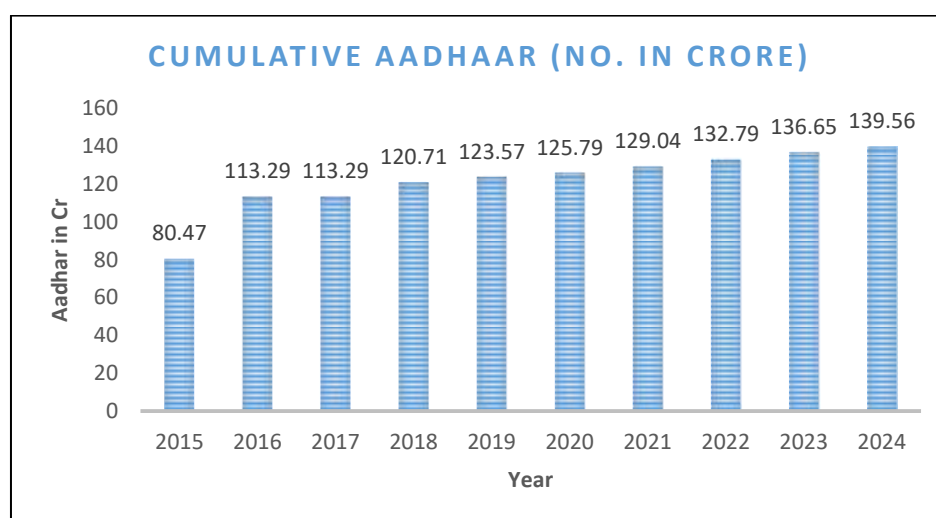
effectiveness of government efforts in promoting Aadhaar as a foundational document for accessing public and private services. In addition to widespread enrolment, the government has strongly emphasized the integration of Aadhaar with the formal financial system. Linking Aadhaar with bank accounts has been a central policy objective aimed at improving efficiency in welfare delivery, enhancing financial security, and strengthening regulatory compliance. This integration has

facilitated seamless authentication, reduced duplication and leakages in subsidy transfers, and enabled direct benefit transfers under various social welfare schemes. A substantial number of Aadhaar holders have successfully linked their digital identity with bank accounts, reinforcing the role of Aadhaar as a critical pillar of India's Digital Financial System. The Table 2 and subsequent graph illustrate the growth of Aadhaar generation in recent years.

Aadhaar Generation Statistics	
Year	Cumulative Aadhaar (No. in crore)
2015	80.47
2016	113.29
2017	113.29
2018	120.71
2019	123.57
2020	125.79
2021	129.04
2022	132.79
2023	136.65
2024	139.56

**Table 2: Aadhaar Generation and linkage with bank a/c**

Source: Data retrieved & compiled from <https://uidai.gov.in/>



Source: Data retrieved & compiled from <https://uidai.gov.in/>

### Heading

The growth trajectory of UPI and BHIM highlights their strategic significance in strengthening India's overall financial system. FinTech driven innovations, and advancing the broader objective of inclusive and sustainable financial development have played a crucial role. The rapid expansion of UPI and BHIM has delivered multiple benefits, including reduced transaction costs, enhanced payment transparency, faster settlement cycles, and increased formalization of economic activity. These platforms have enabled micro-entrepreneurs, small merchants, and households to participate actively in the digital economy without the need for complex banking infrastructure. Moreover, the interoperability of UPI across banks and FinTech applications has strengthened the digital payments ecosystem, encouraging innovation while maintaining systemic stability. The Unified Payments Interface (UPI) and the BHIM application represent core components of India's Digital Financial System and have played a transformative role in accelerating digital payments. The growth of UPI has been particularly remarkable, with the number of banks live on the

platform increasing from 399 in March 2023 to 661 by March 2025. Correspondingly, UPI transaction volumes surged from 8,685.30 million to over 18,301.51 million during the same period, while the total transaction value rose sharply from ₹14.10 lakh crore to nearly ₹24.77 lakh crore. This sustained expansion reflects the scalability, interoperability, and reliability of UPI as a real-time payment infrastructure, enabling seamless peer-to-peer and merchant transactions across banks and digital platforms.

The BHIM application, as the government-backed UPI interface, has also demonstrated steady growth in adoption and usage. The number of banks integrated with BHIM increased from 274 in March 2023 to 487 by March 2025, indicating broader institutional participation. Transaction volumes through BHIM nearly doubled, rising from 23.53 million to 52.09 million, while transaction value increased from ₹7,480.69 crore to ₹9,856.48 crore over the same period. The growth of BHIM underscores its role in promoting trust, digital literacy, and ease of use among first-time and low-income users, particularly in rural and semi-urban regions. Table 3 presents the latest growth statistics UPI & BHIM.

UPI & BHIM App Growth Statistics			
Year	No of Banks live on UPI	Volume (In Mn.)	Value (In Cr.)
Mar-25	661	18,301.51	24,77,221.61
Mar-24	572	13,440.00	19,78,353.23
Mar-23	399	8,685.30	14,10,443.01
Year	No of Banks live on BHIM	Volume (In Mn.)	Value (In Cr.)
Mar-25	487	52.09	9,856.48
Mar-24	421	29.87	8,319.37
Mar-23	274	23.53	7,480.69

**Table 3: UPI & BHIM Growth Statistics**



Source: Data retrieved & compiled from  
<https://www.npci.org.in/product/upi/product-statistics>

The payment and settlement system statistics for FY 2024–25 highlight the growing scale, depth, and digital orientation of India's financial system. Financial Market Infrastructures (FMIs) continue to play a pivotal role, with CCIL-operated settlement systems handling transactions worth over ₹29,62,18,030 Cr., reflecting the robustness and efficiency of wholesale financial settlements. Within payment systems, Real Time Gross Settlement (RTGS) transactions accounted for more than 30.24 Cr. transactions, with a total value exceeding ₹20,13,87,682 Cr., underscoring the critical importance of high-value digital payment infrastructure in ensuring systemic stability. Retail payment systems dominated overall transaction volumes, recording over 22,22,885 Cr. transactions with a total value of approximately ₹91,92,577 Cr.. Among retail instruments, credit transfers emerged as the most significant contributor, followed by

card-based payments and prepaid payment instruments, indicating a strong shift toward digital and cashless modes of transaction. Debit transfers and direct debits further supported recurring and automated payments, enhancing efficiency for households and businesses. In contrast, paper-based instruments accounted for a relatively small share of total transaction volumes, though they continued to represent a notable transaction value, reflecting their limited but persistent usage. Digital payments alone accounted to 22,19,815 Cr. transactions valued at ₹28,62,00,103 Cr. This overwhelming dominance of digital payments underscores the maturity of India's Digital Financial System and the success of FinTech driven payment platforms in expanding access, reducing transaction costs, and promoting financial inclusion. The data collectively reflect a well-integrated, technology-driven payment ecosystem that supports inclusive growth while maintaining operational efficiency and financial stability.

Payment System Indicators		
Payment System Indicators - Payment & Settlement System Statistics		
	Volume (lakh)	Value (₹ Cr.)
	FY 2024-25	FY 2024-25
<b>A. Settlement Systems</b>		
<b>Financial Market Infrastructures (FMIs)</b>		
1 CCIL Operated Systems	47.40	296218030
<b>B. Payment Systems</b>		
<b>I Financial Market Infrastructures (FMIs)</b>		
1 Credit Transfers - RTGS	3024.55	201387682
<b>II Retail</b>		
2 Credit Transfers - Retail	2061014.91	79781976
3 Debit Transfers and Direct Debits	21659.95	2208583
4 Card Payments	63861.15	2605110
5 Prepaid Payment Instruments	70254.08	216751
6 Paper-based Instruments	6095.38	7113350
<b>Total Retail Payments (2+3+4+5+6)</b>	<b>2222885.46</b>	<b>91925771</b>
<b>Total Payments (1+2+3+4+5+6)</b>	<b>2225910.01</b>	<b>293313453</b>
<b>Total Digital Payments (1+2+3+4+5)</b>	<b>2219814.63</b>	<b>286200103</b>

**Table 4: Current Digital Payment Statistics**

Source: Data retrieved & compiled from  
<https://www.rbi.org.in/Scripts/PSIUserView.aspx?Id=10>

**Key Issued to be addressed:**

DFS operate through a multi-stage process that requires the coordinated participation of users, service providers, and supporting infrastructure. Most DFS solutions, particularly those linked to UPI-based platforms, demand certain prerequisites on the user side, including ownership of a smartphone, reliable internet connectivity, valid KYC documentation, and an active bank account linked with a debit card. Simultaneously, merchants and service providers must possess adequate digital infrastructure to ensure secure, efficient, and seamless transaction experiences. While India has made substantial progress in strengthening its DFS ecosystem, there remains significant untapped potential for payment service providers to scale operations, diversify service offerings, and introduce innovative, user-centric financial products.

Policy-level challenges also influence the effectiveness of DFS adoption. The issue of the Merchant Discount Rate (MDR) continues to affect the sustainability of digital payment networks, as banks and payment gateways require adequate compensation to maintain and expand services. Addressing MDR concerns can enable banks to better support network providers while simultaneously incentivising Business Correspondent (BC) agents, who serve as the primary access point for DFS among low- and middle-income (LMI) households. However, the BC

network faces persistent operational challenges, including low commissions, profitability constraints, liquidity management issues, high operating costs, inadequate product training, and inconsistent internet connectivity. Resolving these constraints is critical to improving service quality, outreach, and productivity within the DFS ecosystem.

Despite the rapid growth of digital payments, access-related barriers remain significant. Smartphone penetration in India needs to be strengthened, particularly within low-income and rural groups. Inadequate internet connectivity in semi-urban and rural regions further compounds this issue, contributing to transaction delays and failures. Such negative user experiences discourage repeat usage and undermine trust in digital financial platforms. Additionally, low levels of digital and financial literacy among economically weaker and rural populations continue to impede inclusive adoption of DFS.

Enhancing financial inclusion through DFS therefore requires targeted interventions focused on awareness, education, and infrastructure development. Structured, product-oriented, and activity-based training programmes supported by capable mentors can empower excluded groups to confidently adopt digital financial tools. Improving access to relevant and affordable financial products, particularly for women in socially and economically backward sections, can help overcome socio-cultural constraints that limit their participation in formal finance. Women-centric financial solutions and simplified access mechanisms can significantly enhance inclusion outcomes.

Operational inefficiencies in government-to-person (G2P) transfers also pose challenges to DFS effectiveness. A notable proportion of Direct Benefit Transfer (DBT) failures arise due to mismatched beneficiary details, dormant accounts, and incomplete Aadhaar-bank linkages. Establishing a unified, real-time beneficiary database across welfare schemes can minimize redundancies, reduce payment failures, and improve transparency. Automated inclusion and exclusion mechanisms would further eliminate the need for repetitive documentation, which often discourages beneficiaries. Complementing this system with a beneficiary-centric grievance redress mechanism (GRM) would enhance accountability, ensuring timely resolution of payment-related issues and greater user control over funds.

#### **Conclusion:**

The rapid expansion of FinTech and Digital Financial Systems has fundamentally transformed India's financial landscape, enabling scalable, efficient, and inclusive delivery of financial services. The integration of digital public infrastructure has strengthened the foundation of India's DFS, facilitating seamless transactions, transparent welfare delivery, and broader participation in formal finance. Empirical evidence on digital payments, account ownership, and transaction growth highlights the increasing adoption and maturity of digital finance across both retail and institutional segments. Despite these achievements, the study identifies persistent challenges that limit the full realization of DFS-driven financial inclusion. Infrastructure gaps, limited smartphone and internet access, operational constraints within the Business Correspondent network, financial and digital literacy deficiencies, and data-related inefficiencies in

government-to-person transfers continue to hinder equitable access. Addressing these challenges requires coordinated policy action, sustainable incentive structures for intermediaries, targeted capacity-building initiatives, and robust digital infrastructure, particularly in rural and low-income regions.

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