



MeitY
Startup Hub
Delivering Innovation!



The Dialogue™
INFORM ENGAGE IDEATE

WHITE PAPER

INDIA'S DIGITAL REVOLUTION: UNLOCKING ECONOMIC GROWTH THROUGH FINTECH INNOVATION



White Paper

INDIA'S DIGITAL REVOLUTION: UNLOCKING ECONOMIC GROWTH THROUGH FINTECH INNOVATION

Authors: Kamesh Shekar, Garima Saxena, Aditi Seetha and Divyang Arora

Copyeditor and Designer: Akriti Jayant

"Now it is time to convert these fintech initiatives into a fintech revolution. A revolution that helps to achieve financial empowerment of every single citizen of the country."

PM Narendra Modi

About MeitY Start-up Hub (MSH)

To give wings to MeitY's vision of promoting technology innovation, start-ups and creation of Intellectual Properties, a nodal entity called MeitY Start-up Hub (MSH) has been setup under its aegis. MSH is a dynamic, singular and collaborative platform for tech startup community towards building meaningful synergies in the Indian start-up space. MSH's quick value additions to domestic tech startups in terms of improving scalability, market outreach and domestic value addition and setting up innovative partnerships with various stakeholders has been a key differentiator in MSH's efforts to catapult the tech startup ecosystem in the country.

MSH is acting as a hub and ensuring synergies among all the TIDE 2.0 Centres, theme-based incubation centres, domain specific Centre of Excellences on Emerging Technologies and other existing platforms for facilitating criss-crossing of technology resources, sharing best practices and ideas across the entire gamut of innovation and startup ecosystem.

About the Federation of Indian Chambers of Commerce & Industry (FICCI)

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies.

About The Dialogue™

The Dialogue™ is a public policy think tank with a vision to drive a progressive narrative in India's policy discourse. Founded in 2017, we believe in facilitating well-researched policy debates at various levels to help develop a more informed citizenry, on areas around technology and development issues. The Dialogue™ has been ranked as the world's Top 10 think tanks to watch out for, by the Think Tank and Civil Societies Programme (TTCSP), University of Pennsylvania in their 2020 and 2021 rankings.

For more information, visit

<https://www.meitystartuphub.in/> | <https://www.ficci.in/> | <https://thediologue.co/>

Suggested Citation

Shekar, K., Saxena, G., Seetha, A., & Arora, D. (2023, July). India's Digital Revolution: Unlocking Economic Growth through Fintech Innovation. Meity Start-up Hub, FICCI & The Dialogue™.

Publication Date

July 25, 2023

Disclaimer

The facts and information in this report may be reproduced only with prior permission from MeitY Startup Hub (MSH), The Federation of Indian Chambers of Commerce & Industry (FICCI) and The Dialogue™.

CONTENTS

1. Introduction	1
2. Fintech for All	3
3. Impact on Society and Economy	6
4. Case Study of UPI Revolutionizing Digital Payments in India	10
5. Potential for Global Integration	13
5.1. Championing interoperability.....	13
5.2. Technological Efficiency.....	14
5.3. Last-mile Delivery.....	15
5.4. Enhancing Ecosystem Banking.....	15
6. Opportunities for Scalability	16

1. INTRODUCTION

India finds itself on the verge of entering the realm of a trillion-dollar digital economy. Fuelled by the necessity arising from the recent pandemic, the nation has experienced a rapid surge in digitalisation across its three critical economic dimensions: people, government, and businesses. The accelerated digital adoption has ushered in a transformative era, revolutionising our traditional way of life and transactions and profoundly affecting the financial industry.

While the conventional banking system grappled with significant challenges during the lockdown, the fintech industry seized the opportunity to bridge existing financial and market gaps, reevaluate business models, and establish sustainable solutions. Simultaneously, users and businesses were compelled to embrace emerging fintech solutions, leading to an overwhelming uptake of homegrown apps such as PhonePe and Paytm, boasting millions of downloads.¹ The volume of digital payments witnessed a staggering growth from 20.71 billion transactions in FY17-18 to 88.40 billion transactions in FY21-22.² In contrast, digital lending apps (DLAs) outpaced non-bank financial companies (NBFCs) by disbursing 60% more loans in FY21.³ The Unified Payment Interface (UPI) revolution soared to new heights during the pandemic, recording a remarkable US \$1 trillion transaction value in the financial year 2021-22.⁴ The UPI is a payment system which provides the infrastructure to facilitate inter-bank transactions. In this journey, India has become a global frontrunner in fintech adoption at 87%, surpassing the global average by 64%⁵ and witnessing a threefold surge in funding during 2021⁶.

In the post-pandemic era, an array of stakeholders, from start-ups, big tech companies, and financial institutions to the government, is harnessing advanced technologies to revolutionise traditional banking activities and transform the landscape of financial services. The term “fintech” is an amalgamation of finance and technology, representing the technologically enabled innovation in financial services that foster new business models, applications, processes, and products, significantly impacting financial markets, institutions, and service provision. The fintech sector encompasses a wide range of financial services, such as digital lending, payments, and insurance. The industry is rapidly gaining prominence, with additional subsegments⁷ like wealth tech, personal finance management, regtech, and blockchain applications emerging in the current landscape.

¹ Croxson, K., Frost, J., Gambacorta, L., & Valletti, T. (2022, January). Platform-based business models and financial inclusion (Ser. 986). Bank of International Settlements. <https://www.bis.org/publ/work986.pdf>

² Digital Transactions in India. Press Information Bureau. (2023, February 8). <https://pib.gov.in/PressReleasePage.aspx?PRID=1897272>

³ Report of the Working Group on Digital Lending including Lending through Online Platforms and Mobile Apps. Reserve Bank of India. (2021, November 18). <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1189>

⁴ Unified payments interface (UPI) product statistics: NPCI. National Payments Corporation of India (NPCI). <https://www.npci.org.in/what-we-do/upi/product-statistics>

⁵ At 87%, India has the highest FinTech adoption rate in the world against the global average of 64%: Shri Piyush Goyal. Press Information Bureau. (2021, September 30). <https://pib.gov.in/PressReleaselframePage.aspx?PRID=1759602>

⁶ Shah, P. (2022, August 8). How is the Fintech Sector in India Poised for Exponential Growth? https://www.ey.com/en_in/financial-services/how-is-the-fintech-sector-in-india-poised-for-exponential-growth

⁷ Feyen, E., Frost, J., Gambacorta, L., Saal, M., Natarajan, H. (2021, January). Fintech and the digital transformation of financial services: implications for market structure and public policy (Ser. 117). Bank of International Settlements. <https://www.bis.org/publ/bppdf/bispap117.pdf>

According to a report by Boston Consulting Group and QED Investors, the Asia-Pacific (APAC) region, spearheaded by India, China, and Indonesia, is on track to surpass the United States and emerge as the global leader in the fintech market by 2030.⁸ The report forecasts a projected compound annual growth rate (CAGR) of 27 per cent for the APAC region, highlighting its immense potential in the fintech sector. This trajectory positions APAC as a frontrunner in driving innovation and transforming the financial landscape, with India playing a pivotal role in this transformative journey.⁹ The sector attracted a total funding of US \$9.8 billion in 2021¹⁰, with the payments segment securing the majority share at 53% of the overall fintech funding. As of July 2022, 24 Indian fintech companies achieved the prestigious “Unicorn Status”¹¹ with valuations surpassing US \$1 billion. Capitalising on the fintech landscape's growth, major global fintech companies like Wise, Revolut, and Tide have launched their operations in India, recognising the nation's potential.

The traditionally cash-dependent Indian economy has warmly embraced the fintech revolution, driven by the emergence of numerous use cases, increased investor support, and a favourable policy environment. The regulatory authorities, including the government of India, Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), and Insurance Regulatory and Development Authority of India (IRDAI), have adopted a positive approach towards regulating the sector, facilitating its orderly growth. Government-led initiatives aimed at driving digital adoption, inclusivity, and accessibility have served as critical enablers of the fintech ecosystem in India.

In conjunction with the supply-side factors, demand-side elements, including the increasing need for inclusive, cost-efficient, and faster financial services, have paved the way for fintech companies to establish their presence in India's steadily digitising economy. These companies have brought innovative solutions to address the needs of underserved Indian citizens and promote financial inclusion. By significantly reducing costs, improving customer experiences and accessibility, and simplifying the process of availing credit, insurance services, wealth management, and investment, fintech has transformed the financial landscape. Moreover, this transformation has extended its benefits to other sectors, including health, education, agriculture, insurance, and entertainment, providing consumers with simplified access. Businesses, too, have gained numerous options, equipped with a wide range of features such as reporting and analytics tools, payment gateway API solutions, and marketing tools. Digital financial solutions are increasingly integrated into various sectors' products and services, catering to a broader consumer base by offering diverse choices in terms of payment modes, including debit and credit cards, QR codes, UPI, Pay Later options, and EMIs. This integration has revolutionised the way transactions are conducted and has ushered in a new era of convenience and flexibility.

⁸ Fintech projected to become a \$1.5 trillion industry by 2030. BCG Global. (2023, May 3). <https://www.bcg.com/press/3may2023-fintech-1-5-trillion-industry-by-2030>

⁹ Goyal, D., Varma, R., Rada, F., Pande, A., Jauregui, J., Corelli, P., Tripathi, S., Sénant, Y. (2023, May). Reimagining the Future of Finance. Boston Consulting Group. <https://web-assets.bcg.com/66/7e/a36d7eab41e2b4b65c3e687a17f5/bcg-qed-global-fintech-report-2023-reimagining-the-future-of-finance-may-2023.pdf>

¹⁰ BFSI – Fintech & Financial Services. Invest India. <https://www.investindia.gov.in/sector/bfsi-fintech-financial-services#:~:text=The%20Fintech%20segment%20in%20India,all%20fintech%20verticals%20in%20India>

¹¹ The Winds of Change- Trends shaping India's Fintech Sector: edition II.(2022, September).EY. https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/consulting/2022/ey-winds-of-change-india-fintech-report-2022.pdf?download

2. FINTECH FOR ALL

The term 'financial technology' was coined in 1993 with Citicorp's establishment of the Financial Services Technology Consortium. Around 1998, banks started setting up websites for Internet banking, and e-commerce gained prominence globally. However, the buzz around and the quick adoption of 'fintech' is only a recent phenomenon, despite the application of technology for financial services dating back to the 19th century.

In India, the fintech ecosystem took shape with the introduction of the National Payments Corporation of India (NPCI) in 2007, which paved the way for wallet-like innovations. This was followed by the introduction of Google Wallet in 2011 and Apple Pay in 2014, which had a positive impact on the fintech ecosystem. The demonetisation drive of 2016 further accelerated the digitalisation of financial services and opened up opportunities for fintech start-ups in a cash-driven economy.¹² Post-demonetisation, there was a surge in the usage of debit cards, digital wallets, UPI, mobile banking, and other pre-paid payment instruments (PPIs) by consumers and businesses for online transactions. This surge led to the rise of popular apps such as Paytm, PhonePe, MobiKwik, and others.

The fintech industry experienced a significant boost during the pandemic as more users turned to online payment platforms. The government's emphasis on social distancing and no-contact payments created opportunities for fintech start-ups to innovate and carve out a significant space in the ecosystem. Despite a brief decline at the beginning of the pandemic, fintech apps witnessed increased usage, with total downloads surpassing 880 million in Q2 2022, marking a sharp rise of 44% from pre-pandemic levels in Q4 2019. India and Southeast Asia led the market¹³ in this growth. The fintech market in India is pegged to reach US \$2.1 trillion by 2030¹⁴.

Several key factors have fueled the popularity and acceptance of fintech among Indian citizens. Public sector initiatives to digitalise significant sectors of the economy, coupled with the private sector's focus on developing innovative and cost-effective solutions, have played a pivotal role. Over the past decade, India has witnessed deep internet and mobile penetration, with an estimated 900 million active internet users projected by 2025¹⁵, including a significant rural user base. Increased availability of affordable devices and high-speed, inexpensive data packs, along with government initiatives laid the foundation for digital infrastructure and platforms, ensuring internet access for citizens. The Digital India program, launched in 2015, aims to transform the communication, work, savings, and spending habits of Indians, focusing on universal

¹² Lele, S. & Jain, A. Demonetisation effect: Digital Payments Gain New Momentum. PwC. <https://www.pwc.in/industries/financial-services/fintech/fintech-insights/demonetisation-effect-digital-payment-gain-new-momentum.html>

¹³ Sensor Tower. (2022). The State of Fintech and Crypto Apps 2022. <https://go.sensortower.com/rs/351-RWH-315/images/industry-trends-2021-report-final.pdf>

¹⁴ Invest India, FinTech and Financial Services Sector in India, 2023. <https://www.investindia.gov.in/sector/bfsi-FinTech-financial-services>

¹⁵ KANTAR & IAMAI . (2023, April). Internet in India 2022. https://www.iamai.in/sites/default/files/research/Internet%20in%20India%202022_Print%20version.pdf

mobile connectivity, public internet access, e-governance, digital skilling, and more. Initiatives like JAM (Jan Dhan Yojana, Aadhaar, and Mobile number) are facilitating the use of digital means for transactions by linking bank accounts, Aadhaar, and mobile numbers. The introduction of open application program interfaces (APIs) like UPI, BHIM, DigiLocker, and eKYC, along with initiatives such as Start-up India, Skill India, and India Stack, has further propelled the sector's growth. UPI transactions recorded a 91.11% year-on-year (YoY) increase in volume, while the value of UPI transactions witnessed a 74.83% YoY rise in 2022¹⁶, with over 200 million downloads¹⁷ of the BHIM app.

The financial regulator, the RBI, has approached the emerging fintech industry with a balanced and progressive stance. It established a separate fintech department and created a conducive regulatory environment for the sector. Established by RBI, the Inter-Regulatory Working Group on FinTech and Digital Banking in India released its report in 2018¹⁸, recommending measures for the sector's growth. The regulator also introduced the Framework for Regulatory Sandbox, allowing companies to conduct live testing of new financial products and services in a controlled regulatory environment. Other regulators, such as the IRDAI and the SEBI, have also implemented frameworks to foster evidence-based and innovation-friendly regulations for the fintech industry. Additionally, RBI has launched Central Bank Digital Currency (CBDC) in the trial phase, based on blockchain technology¹⁹, demonstrating its balanced approach to regulating emerging technologies in the fintech industry.

The evolution of the fintech sector in India has led to delivering more efficient and low-cost financial services, promoting inclusion, accessibility, and participation in the financial ecosystem. As fintech continues to grow, there is an opportunity to make the process more inclusive and empowering for women from all sections of society. With women increasingly contributing to the economy and emerging as crucial stakeholders in the financial sector, research indicates that their inclusion in the financial ecosystem could add US\$ 770 billion²⁰ to India's GDP by 2025. Start-ups such as LXME are actively working to reduce the existing gender divide in India by increasing access to financial services and knowledge for women.²¹

The convergence of modern technology and traditional banking practices presents a win-win scenario for the Indian financial landscape and has the potential to address structural and infrastructural challenges. The Global Findex Database of 2021 identified distance to financial institutions, lack of trust, and lack of perceived need as the most

¹⁶ Digital Transactions in India. Press Information Bureau. (2023, February 8).

<https://pib.gov.in/PressReleasePage.aspx?PRID=1897272>

¹⁷ Bhim Analytics: NPCI - National Payments Corporation of India. National Payments Corporation of India (NPCI).

<https://www.npci.org.in/what-we-do/bhim/product-statistics>

¹⁸ Report of the Working Group on FinTech and Digital Banking. Reserve Bank of India.(2018, February 8).

<https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=892>

¹⁹ Concept Note on Central Bank Digital Currency. Reserve Bank of India - Reports. (2022, October 7).

<https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1218>

²⁰ Woetzel, J., Madgavkar, A., Sneader, K., Tonby, O., Lin, D.-Y., Lydon, J., Sha, S., Krishnan, M., Ellingrud, K., & Gubieski, M. (2018, May 1). The power of parity: Advancing Women's Equality in India, 2018. <https://www.mckinsey.com/featured-insights/gender-equality/the-power-of-parity-advancing-womens-equality-in-india-2018>

²¹ Monteiro, L. (2022, August 26). 3 fintech companies helping reduce the financial gender disparity in India. IBS Intelligence. <https://ibsintelligence.com/ibsi-news/3-fintech-companies-helping-reduce-the-financial-gender-disparity-in-india/>

commonly cited reasons for account inactivity.²² Fintech has the potential to tackle such challenges by increasing the reach of financial services to remote regions, promoting account ownership, enhancing customer experience, reducing costs, building trust through consumer-centric services, and driving the adoption and usage of digital payment methods. Several start-ups, including *pSwitch*, *Hesa*, *Jai Kisan*, and *FIA*, offer financial services tailored to the rural population, bridging the divide.²³

The evolution of the fintech sector in India has the potential to enable individuals from all backgrounds to participate and engage in the broader financial ecosystem. Fintech companies have served diverse requirements, catering to young adults, senior citizens, women, farmers, and those in the unorganised sector and micro, small, and medium enterprises (MSMEs). Agri-fintech start-ups like *Safal Fasa*²⁴, *Arya.ag*²⁵, and *Unnat*²⁶ are transforming India's agriculture by providing farmers with financial access and knowledge. Fintech start-ups have also developed solutions to meet the country's needs of over 63.39 million MSMEs. *Khatabook*²⁷, a digital lending app, enables MSMEs to track transactions, manage accounts, and budget effectively, with plans to provide deeper features for users.²⁸

Overall, the fintech sector in India has experienced remarkable growth, propelled by a combination of technological advancements, government initiatives, regulatory support, and increased adoption by users and businesses. As the sector continues to evolve, it has the potential to drive financial inclusion, transform traditional banking practices, and contribute to India's economic growth and development.

²² World Bank Group. (2022, November 18). The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19. World Bank. <https://www.worldbank.org/en/publication/globalfindex/Report>

²³ Desk, Cxo. N. (2022, November 10). Here are 5 companies which are providing rural sector everything a consumer needs. CXOToday.com - Technology News, Business Technology News, Information Technology News, Tech News India.

<https://www.cxotoday.com/specials/here-are-5-companies-which-are-providing-rural-sector-everything-a-consumer-needs/>

²⁴ Gaur, V. (2019, December 19). BPC Technologies launches Safal Fasal, digital platform for Farmers. The Economic Times. <https://economictimes.indiatimes.com/tech/ites/bpc-technologies-launches-safal-fasal-digital-platform-for-farmers/articleshow/72880444.cms?from=mdr>

²⁵ Meghani, V. (2022, September 5). 5 agri-fintech startups powering agriculture in the hinterland. Forbes India.

<https://www.forbesindia.com/article/agritech-special-2022/5-agrifintech-startups-powering-agriculture-in-the-hinterland/79517/1>

²⁶ Chowdhary, S. (2021, December 19). Unnati: Building a fintech-driven agri ecosystem. The Financial Express.

<https://www.financialexpress.com/industry/unnati-building-a-fintech-driven-agri-ecosystem/2382651/>

²⁷ Singh, M. (2021, August 25). India's Khatabook raises \$100 million for its bookkeeping platform for Merchants. Tech Crunch.

<https://techcrunch.com/2021/08/23/indias-khatabook-raises-100-million-for-its-bookkeeping-platform-for-merchants/>

²⁸ Goenka, T. (2022, September 28). Khatabook to pivot to super app model, scale up finserv. The Financial Express.

<https://www.financialexpress.com/industry/khatabook-to-pivot-to-super-app-model-scale-up-finserv/2691755/>

3. IMPACT ON SOCIETY AND ECONOMY

The fintech ecosystem has transformed the way traditional financial sectors operate, revolutionising and automating financial services for both consumers and businesses. By leveraging innovative technologies such as machine learning and predictive behaviour analysis, fintech services have become more cost-efficient and time-effective. This evolution has profoundly impacted the banking and financial landscape in India, revolutionising activities related to loans²⁹, payments³⁰, fund management³¹, equity funding³², remittance³³, and insurance services³⁴.

"Two months later, I realised my business had picked up by around 20 per cent because payments had become easy and quick. Customers generally ask if they can make payment via the phone to avoid the hassle of loose change and/or to avoid a rush."

- Manish Devulkar, a businessperson running a sandwich stall at Goregaon station, on his experience with using UPI

In particular, the UPI has spearheaded the shift from cash and traditional banking instruments to a digital and cashless ecosystem in India. This transition has made the payment system more convenient and user-friendly³⁵ and driven a CAGR of over 5% in financial inclusion³⁶. The people of India have readily embraced new-age technologies in banking, finance, and communication.

Initiatives like the Prime Minister's Jan Dhan Yojana, which brought the unbanked population into the formal banking sector by opening over 197.2 million bank accounts³⁷, and the introduction of Aadhaar, which legitimised the digital identity of Indians, have played pivotal roles in establishing the foundation for citizens to adopt and access digital payments in India. Increased smartphone usage and internet penetration have further facilitated digital transactions.

²⁹ Lahri, J., & Kacholia, N. *The rise of alternative lending*. PwC. <https://www.pwc.in/industries/financial-services/fintech/fintech-insights/the-rise-of-alternative-lending.html>

³⁰ Kearns, J., & Mathew, A. (2022, September 1). Digital Journeys: India Embraces Mobile Money. International Monetary Fund. <https://www.imf.org/en/Publications/fandd/issues/2022/09/Digital-Journeys-India-embraces-mobile-money-Kearns-Mathew>

³¹ The growth of Fintech in investment management. Phronesis Partners. (2021, November 3). <https://phronesis-partners.com/insights/the-growth-of-fintech-in-investment-management/>

³² Bulger, Z., & Rouen, E. (2022, July 15). *How fintech can deliver on its social impact promises*. Harvard Business Review. <https://hbr.org/2022/07/how-fintech-can-deliver-on-its-social-impact-promises>

³³ Maiti, M. (2022, April 19). *Fintech solutions can boost cross-border remittances*. Outlook India. <https://www.outlookindia.com/business/fintech-solutions-can-boost-cross-border-remittances-news-192091>

³⁴ Person. (2021, September 16). *How Fintech is taking the insurance industry to New Levels*. FinTech Magazine. <https://fintechmagazine.com/financial-services-finserv/how-fintech-taking-insurance-industry-new-levels>

³⁵ Nayak, S. (2022, October 3). Fintech files: Part-2: In the world of Digital Payments, UPI is the king. Money Control.

<https://www.moneycontrol.com/news/business/fintech-files-part-2-in-the-world-of-digital-payments-upi-is-the-king-9253971.html>

³⁶ Thukral, S., & Sachdeva, S. Protecting a jewel among Indian Fintech innovations. NITI Aayog. <https://www.niti.gov.in/protecting-upi-jewel-among-indian-fintech-innovations>

³⁷ Leveraging the Power of JAM: Jan Dhan, Aadhar and Mobile. https://www.pmindia.gov.in/en/government_tr_rec/leveraging-the-power-of-jam-jan-dhan-aadhar-and-mobile/

The adoption of UPI has not only effectively digitised the payment system, fulfilling the vision of Digital India³⁸, but has also promoted financial literacy, inclusion, and economic development among rural and vulnerable populations.³⁹ Policy changes such as demonetisation and the COVID-19 pandemic have driven the increased use of UPI in rural sectors. Its minimalistic interface and user-friendly experience have enabled widespread adoption in rural India, with even small merchants and *kirana* stores accepting UPI payments. Since its inception, UPI has consistently shown upward growth in both value and volume, leading to a significant behavioural shift in the digital payments ecosystem.

In addition to digital financial inclusion in the payments ecosystem, fintech has played a crucial role in the lending landscape for MSMEs.⁴⁰ Traditional lenders often face challenges providing finance to MSMEs due to issues such as financial illiteracy among owners, inadequate or absent financial records, and the absence of formal credit history. The fintech revolution has facilitated the emergence of alternative lending platforms that leverage digital payment records and other alternative data to assess the creditworthiness of MSME players, enabling them to access formal credit easily. Such access nurtures employment opportunities and supports entrepreneurship.

Traditional banking systems typically involve extensive paperwork and formalities, which are often ill-suited for short-term working capital and small-scale loans that MSMEs require. These formalities led to a shortage of funds, making it challenging for MSMEs to survive. Fintechs and their innovative business models have alleviated the obstacles MSMEs face, offering hassle-free financial services tailored to their specific needs. Through the adoption of machine learning techniques and predictive analysis, online lending institutions can assess the capabilities of MSMEs, providing quick loan disbursements at competitive interest rates and low transaction costs.

The impact of fintech in India is wider than the domestic market. The Global Fintech Adoption Index Report 2019⁴¹ pegged the fintech adoption rate in India at 52%, surpassing the global average of 33%. As of July 2022, India boasts 24 Unicorns and 29 Soonicorns⁴², i.e., companies that are likely to achieve a US \$1 billion valuation in the short to medium term.

³⁸ Digital India. <https://digitalindia.gov.in/>

³⁹ Rastogi, S., Panse, C., Sharma, A., & Bhimavarapu, V. M. (2021). Unified payment interface (UPI): A Digital Innovation and its impact on financial inclusion and Economic Development. *Universal Journal of Accounting and Finance*, 9(3), 518–530. <https://doi.org/10.13189/ujaf.2021.090326>

⁴⁰ PwC. (2021, September). FinTech for the Underserved: Future of FinTech and payments to drive financial inclusiveness. <https://www.pwc.in/assets/pdfs/consulting/financial-services/fintech/publications/fintech-for-the-underserved.pdf>

⁴¹ Global FinTech Adoption Index 2019. https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/insurance/ey-2022-global-insurance-outlook-report.pdf

⁴² The Winds of Change- Trends shaping India's Fintech Sector: edition II. (2022, September).EY.

https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/consulting/2022/ey-winds-of-change-india-fintech-report-2022.pdf?download

YEAR	UNICORN EVENT BY THE YEAR (24)
As of July 2022 (9)	 CoinDCX MobiKwik Slice BharatPe Acko Yubi Onecard Open (Formerly Ofbusiness)
2021 (7)	 Cred Charaabee Digiit Groww Zeta CoinDCX Upstox
2020 (3)	 Razorpay Zerodha Pine Labs
2019 (3)	 Razorpay Billdesk Zoho
Upto 2018 (2)	 Paytm Policy Bazaar

Figure 1: List of Indian Fintech Unicorns⁴³

Fintech companies in India offer more innovative products and services, with better features and attractive pricing, addressing the financial frictions faced by MSMEs and rural entrepreneurs, especially women. The fintech ecosystem in India has demonstrated a positive impact by breaking down long-standing financial barriers, fostering financial inclusion, deepening the financial sector, and driving overall development.⁴⁴

Recognising the potential of fintech, RBI is actively supporting and enabling the fintech ecosystem to advance economic growth and promote financial inclusion in the country. Hon'ble Prime Minister has announced the establishment of 75 Digital Banking Units⁴⁵, which will provide minimum infrastructure while offering a wide range of services. This initiative aims to bring banking services to the last mile, reaching vulnerable and marginalised populations. Implementing Digital Banking Units will be vital in providing end-to-end digital processing of small-ticket retail credit, loan facilities for MSMEs, and insurance services for local households. This presents a significant opportunity for stakeholders in the fintech industry to expand their businesses and further enhance the digital lending landscape in India.

Digital lending is currently one of the fastest-growing fintech segments in India, with its market size expected to reach US \$ 1.3 trillion by 2030, with a CAGR of 22% from 2022.⁴⁶ This exponential growth from US \$150 billion in 2020⁴⁷ has widened financial inclusion by reaching underserved segments of the population and empowering them economically. The fintech boom has played a pivotal role in solving access to funds and capital challenges. This, in turn, contributes to the overall

⁴³ The Winds of Change- Trends shaping India's Fintech Sector: edition II.(2022, September),EY. https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/consulting/2022/ey-winds-of-change-india-fintech-report-2022.pdf?download

⁴⁴ Raj, B., & Upadhyay, V. (2020, May 29). *Role of FinTech in accelerating financial inclusion in India*. SSRN. <https://deliverypdf.ssrn.com/delivery.php?ID=77312411809709711902201608610307006505708104904300002907100511706900807111009809308505601703901000111100511208408409409700701404308705809200707906508308701309506407208302310201006911309109111122114074066114126119110097109096007027077124107109109095&EXT=pdf&INDEX=TRUE>

⁴⁵ PM dedicates 75 digital banking units across 75 districts to the nation. Press Information Bureau. (2022, October 16). <https://pib.gov.in/PressReleasePage.aspx?PRID=1868239>

⁴⁶ Inc42 Media. (2023). Digital Lending To Become A \$1.3 Tn Market By 2030 In India <https://inc42.com/buzz/digital-lending-become-1-3-tn-market-2030-india/>

⁴⁷ India: Digital Lending Value 2023. Statista. (n.d.). <https://www.statista.com/statistics/1202533/india-digital-lending-volume/>

economic growth and development of the MSME market, which has the potential to make significant contributions to the country's GDP.

Furthermore, the fintech sector facilitates seamless trade between India and other jurisdictions. UPI has gained global acceptance and is strengthening digital payment alliances with Nepal, France, Singapore, and Bhutan. Bhutan became the first country to accept UPI payments through the BHIM app, while Malaysia allows remittances to be sent via UPI. This global acceptance of UPI reinforces cashless transactions and positions UPI as not only the preferred payment method within India but also as a convenient option for Indians travelling overseas.

In conclusion, the fintech ecosystem in India has brought about transformative changes, improving financial services and fostering financial inclusion. Leveraging technologies like UPI, fintech has revolutionised the payments system, making it more accessible and convenient for both urban and rural populations. It has played a crucial role in addressing the financial needs of MSMEs through innovative lending platforms, overcoming traditional barriers to credit access. With the support of the RBI and government initiatives, the fintech sector is poised for further growth, enhancing economic development, and deepening financial inclusion. The exponential growth of digital lending and the expanding global acceptance of UPI highlight the positive impact of the fintech revolution in India, creating opportunities for individuals, businesses, and the economy as a whole.

4. CASE STUDY OF UPI REVOLUTIONIZING DIGITAL PAYMENTS IN INDIA

UPI, launched in 2016, stands as the torchbearer of the financial revolution in India, fundamentally reshaping the digital payments landscape and achieving remarkable milestones. Introduced by the National Payments Corporation of India (NPCI), UPI aims to create a fast and convenient payment system, driving towards a cashless economy by enabling customers to make instant and real-time payments through their smartphones. Its interoperability allows different banks to send and receive funds seamlessly.

The growth trajectory of UPI received a significant boost from policy decisions like demonetisation, and the pandemic fuelled increased technological growth, which accelerated the adoption of digital payments. As per the data from the NPCI, UPI transactions hit a record high with 83,751 million transactions worth US \$ 1.696 trillion. However, the true success of UPI lies in its inclusive, innovative, and individualistic approach. The user-friendly interface, simplified payment process, and receiving funds have fostered widespread adoption, even among rural and vulnerable populations. UPI has played a pivotal role in enhancing digital literacy and driving payment usage within these communities. Underpinning UPI's success is the Immediate Payment Service, enabling instantaneous and real-time transactions. The cumbersome task of repeatedly entering bank account numbers and IFSC codes have been replaced with a single UPI ID, streamlining transactions and making them faster and more convenient.

Moreover, UPI's strength lies in its interoperable platform that extends beyond a single app, encompassing popular platforms such as Google Pay, Paytm, PhonePe, BharatPe, and now even WhatsApp Pay and Amazon Pay. This allows users to create accounts on any of these apps and seamlessly send and receive money within the UPI ecosystem. Additionally, UPI prioritises security, providing a highly secure and reliable platform where UPI IDs are verified against registered mobile numbers, strengthening the country's digital infrastructure and reducing the burden on banks' technical infrastructure.

PayTM, a leading fintech giant, has been at the forefront of this revolution with its groundbreaking innovation, the PayTM Sound Box, which has revolutionised the mobile payments landscape in India. This compact device provides merchants instant audio confirmations of mobile payments and supports multiple languages, including English, Hindi, Tamil, Telugu, Kannada, Marathi, Malayalam, Bengali, Gujarati, Punjabi, and Odia. Its impact on society and people has been significant, with increasing adoption among merchants and a strong correlation between device deployment and load distribution. This accessibility has empowered merchants to cater to customers from diverse linguistic backgrounds, fostering financial inclusion and bridging communication barriers. The Paytm Sound Box's innovation has made mobile payments more accessible and user-friendly, positively impacting society and revolutionising how transactions are conducted in India.



Figure 2: PayTM Soundbox⁴⁸

While the urban population swiftly adopted UPI, the pandemic accelerated its usage even in rural households. Lower socio-economic backgrounds and vulnerable communities have also embraced UPI. A Consumer Sentiment Survey⁴⁹ conducted by the BCG Center for Customer Insights in July-August 2020 revealed a significant decrease in cash usage, with 50% of customers transitioning to UPI and digital wallets post-COVID. This remarkable shift has improved financial inclusion at a CAGR of over 5%.⁵⁰ It has fueled the digitisation of payments, as evident from the comprehensive Digital Payments Index and Financial Index maintained by the RBI.

UPI's adoption spans various businesses, ranging from small *kirana* stores and tea vendors to high-end showrooms, catalysing a massive surge in digital payments. Beyond national borders, UPI is gaining international traction. NPCI International Payments Ltd. (NIPL), the international arm of NPCI, has formed strategic partnerships with countries such as the UK, UAE, Singapore, Malaysia, Hong Kong, Bhutan, and Nepal. Bhutan became the first country to accept UPI transactions through the BHIM app, while Malaysia facilitated remittances through UPI in 2021. France's Lyra network signed an agreement with NIPL, enabling students and tourists to make payments through UPI. Furthermore, NIPL's collaboration with Worldline will enable UPI to penetrate several European markets, including Belgium, Switzerland, and the Netherlands.

⁴⁸ Featured image credit: PayTM

https://business.paytm.com/s3assets/images/soundbox/connection_pwe1716.webp?version=1689870614

⁴⁹ Sanghi, K., Jain, N., Goradia, M.; Jain, A. (2023, June 1). India Covid-19 Consumer Sentiment Snapshot Series. BCG Global. <https://www.bcg.com/india-covid-19-consumer-sentiment-snapshot-series>

⁵⁰ Thukral, S., & Sachdeva, S. (n.d.). Protecting UPI, a jewel among Indian Fintech innovations. NITI Aayog. <https://www.niti.gov.in/protecting-upi-jewel-among-indian-fintech-innovations>

Recently, PhonePe made history as the first Indian fintech platform to enable cross-border transactions via UPI in countries such as the UAE, Singapore, Nepal, and Bhutan.⁵¹ This groundbreaking development will transform how Indians travel and transact at overseas merchant outlets. It opens doors for UPI to expand its global presence and facilitate low-cost fund transfers on a reciprocal basis, marking a significant milestone in its journey.

⁵¹ Phonepe to enable cross border payments through UPI. Business Today. (2023, February 7). <https://www.businesstoday.in/entrepreneurship/story/phonepe-to-enable-cross-border-payments-through-upi-369307-2023-02-07>

5. POTENTIAL FOR GLOBAL INTEGRATION

Recognising the increasing penetration and adoption of digital services in India, the government understood that investments and the growth of physical infrastructure would not be sufficient to take the country's economic development to the next level. While the digital journey of India reached its peak during and post-pandemic, and continues to grow digitalisation efforts and developments in India predate the pandemic, and India's fintech ecosystem stands as an example of the same. The Indian fintech ecosystem stands unique from its global counterparts due to its maturity through hyper-scale payments, scalability, usability, etc., supported by market-driven open-banking infrastructure and framework.

Previously, the Indian fintech ecosystem used to adopt and benchmark itself with the global developments within the ecosystem. However, through consumer-centric financial technology development and innovation in the last few years, India has changed this order, where India is now setting the global benchmark in the fintech ecosystem.

Against this backdrop, this section discusses some of the key characteristics of the Indian fintech ecosystem and its potential for global integration in terms of benefits, opportunities, and problems it could solve worldwide, especially in the global south. In this section we discuss some of the key facets of Indian fintech ecosystem which could set the global benchmark and also draw the attention of other countries in terms of solving some key problems within the financial services ecosystem like interoperability, technical capabilities, last-mile delivery etc., which would ultimately enable global integration.

5.1. Championing interoperability

Interoperability plays a critical role in the digital ecosystem, ensuring that data can be easily accessed, shared, and utilised to its fullest potential. The Indian government has been at the forefront of driving interoperability at the domestic level, with notable examples such as the UPI system.

Through the NPCI⁵², India has pioneered establishing an interoperable payment system. UPI enables both horizontal and vertical interoperability. On the horizontal front, it allows different platforms and systems to be interoperable, enabling users of various platforms and apps to transact with each other seamlessly. On the vertical front, UPI enables interoperability between payment apps and platforms and complementary products and services, facilitating convenient one-stop-shop payment solutions. This revolutionised digital payments in India, with businesses and vendors embracing various digital payment methods through payment service providers.

⁵² Enabling digital payments in India. National Payments Corporation of India (NPCI). <https://www.npci.org.in/>

Additionally, UPI's Aadhaar Enabled Payment System (AEPS)⁵³ played a crucial role during the pandemic lockdowns. It enabled individuals and businesses to easily access and transfer cash provided by the government through the *Pradhan Mantri Garib Kalyan Yojana*.

The drive for interoperability in India's digital ecosystem has not only transformed how payments are made but have also fostered greater financial inclusion and convenience for individuals and businesses alike. The seamless integration of different platforms and services has paved the way for a more interconnected and accessible digital landscape in India.

5.2. Technological Efficiency

The rapid advancement of technology, with innovations such as artificial intelligence, the Internet of Things, augmented reality, and the metaverse, is transforming our daily lives. Within the financial sector, Indian fintech innovations strive to establish "Smart Banks" by leveraging emerging technologies to enhance efficiency and customer experience. Traditional elements like ATMs are being transformed into thin clients, in-branch experiences are being elevated, and micro branches are being established securely and cost-effectively. Fintech players harness enhanced data transfer capabilities and test AI and machine learning tools to analyse consumer information and customise financial products.

Furthermore, India's thriving start-up ecosystem offers a wide range of financial technologies, including alternate credit lending models, financial management tools, and insurtech, capturing approximately 14% of global funding.⁵⁴ These fintech solutions address various demand-side problems by providing suitable credit options and accessibility to a suite of financial products beyond traditional credit instruments. For example, SMEs have received around US \$21.97 billion in credit⁵⁵ through innovations like alternate credit lending and collateral-free credit.

Moreover, establishing IndiaStack, an open API platform for governments, businesses, start-ups, and developers, is a significant global milestone. IndiaStack is a unique digital infrastructure enabling presence-less, paperless, and cashless service delivery. It has revolutionised the Indian fintech ecosystem by facilitating instant loan approvals using digital IDs and enabling last-mile service delivery without individuals needing to visit bank branches. This initiative has propelled India's fintech sector to innovate and address key challenges, ensuring greater accessibility and convenience for individuals and businesses alike.⁵⁶

⁵³ Aadhaar Enabled Payment System (AEPS). Cashless India.<http://cashlessindia.gov.in/aeeps.html>

⁵⁴ Boston Consulting Group . (2022, August). State of the Fintech Union 2022 - Boston Consulting Group. <https://web-assets.bcg.com/7d/2f/002986714a27a0369a3f85da6509/state-of-india-fintech-union-2022.pdf>

⁵⁵ SBI Research. (2022, January 6). https://sbi.co.in/documents/13958/10990811/060122-Impact_of_ECLG_Scheme.pdf/81078df7-e31a-6f89-6289-f5aecb5b715d?t=1641466592115

⁵⁶ Swallow, Y., Patnam, M., Haksar, V. (2021, July). The India Stack is revolutionizing access to finance. International Monetary Fund. <https://www.imf.org/external/pubs/ft/fandd/2021/07/india-stack-financial-access-and-digital-inclusion.html>

5.3. Last-mile Delivery

Over the past decade, India has experienced remarkable growth in financial inclusion thanks to digital innovations that have expedited the process beyond traditional means. The Jan Dhan Yojana initiative stands as one of the world's most extensive financial inclusion programs, opening approximately 478 million formal bank accounts.⁵⁷ This initiative has paved the way for fintech start-ups to develop technological solutions, enabling seamless remittances, pension disbursements, and even insurance delivery to a vast consumer base in India. Moreover, the rise of neobanking start-ups, with around 55 million active neobank accounts⁵⁸, holds great promise for extending last-mile access to formal financial services, particularly for low-income households. These developments have proven to be cost-efficient in serving underserved communities.

Furthermore, in a diverse nation like India, the fintech ecosystem has successfully tackled significant social challenges, such as language barriers, illiteracy, social stigma, and lack of awareness, to onboard new-to-finance individuals and low-income households. Recognising the importance of financial literacy, the RBI has established initiatives like the National Centre for Financial Education and the Centre for Financial Literacy project to further strengthen the fintech ecosystem's efforts. These initiatives aim to empower individuals with the knowledge and skills necessary to make informed financial decisions, fostering greater financial inclusivity and economic well-being.

5.4. Enhancing Ecosystem Banking

The landscape of financial technology innovation is shifting towards an ecosystem banking approach, streamlining multiple processes into a single solution. This transition has been a driving force for the Indian fintech ecosystem. India has taken the lead in consent management technology by introducing Account Aggregators. Operating as licensed NBFCs, these entities collect and share consumers' financial information with their consent, serving as consent managers for secure and seamless data transfer.

The Indian fintech ecosystem and government initiatives exhibit characteristics that foster interoperability, harmonisation, open network principles, and inclusive development. These characteristics address key challenges the global financial ecosystem faces, including scalability, interoperability, last-mile penetration, cost efficiency, and agility. Consequently, Indian fintech innovations are well-positioned to be exported globally, setting benchmarks for others to aspire to.

India's G20 presidency provides a valuable opportunity for the nation to showcase its capabilities in enhancing the digital economy across the G20 nations, particularly through initiatives like the G20-Digital Innovation Alliance. This platform will allow India to demonstrate its fintech innovations and how it can contribute to establishing best practices and achieving digital economy goals for G20 countries.

⁵⁷ Speech of Nirmala Sitharaman. (2023, February 1). https://www.indiabudget.gov.in/doc/budget_speech.pdf

⁵⁸ PWC India. (2021, September). The evolution of neobanks in India: Impact on the financial ecosystem. <https://www.pwc.in/assets/pdfs/consulting/financial-services/fintech/publications/the-evolution-of-neobanks-in-india.pdf>

6. OPPORTUNITIES FOR SCALABILITY

India has emerged as a leader in technology export, where its software exports reached an all-time high of US \$ 320 billion in FY23.⁵⁹ As a testament to its scalability and technical precision, the NPCI has established a subsidiary dedicated to exporting the Unified Payment Interface (UPI), a homegrown technology that offers seamless transactions with ease of use, affordability, and robust design.⁶⁰

Given India's G20 presidency, there is a unique opportunity to export more of its technological innovations to the global south and other regions worldwide. By focusing on digitalisation and fostering collaboration, India can leverage the following levers to enhance the export and exchange of technology and innovation:

Aiding the Fintech Ecosystem with Clarity and Consensus: At the G20 level, it is crucial to support the fintech ecosystem by ensuring clarity and consensus regarding the scope of the digital economy. This includes defining key terminologies like fintech, insurtech, and ecosystem banking. Market mechanisms, such as accreditation and certification through third-party evaluation based on readiness and quality, can further enable recognition and provide fintech companies with a competitive edge.

Comparative Analysis for Cross-Border Innovation: To facilitate the export and import of start-up innovation across G20 countries, it is essential to gauge their differences and similarities. Conducting comparative analyses, particularly between countries in the global south, such as South Africa and Mexico, can help India expand its technological innovations and promote interoperability, harmonisation, and open network principles. Understanding market gaps will allow fintech solutions to better cater to the needs of individuals.

Ensuring Consensus in Technology Policies: To achieve seamless transfer and trade of technological innovations among leading G20 countries, a consensus within their respective technology-related policies is crucial. Although countries worldwide are instituting different technology policies to maximise opportunities within their jurisdictions, finding potential congruence among India and G20 countries at the policy level will ensure sustainable export and import of start-ups; creating a unified global fintech ecosystem is a complex yet attainable task.⁶¹

Ensuring Consensus in Supervision: In addition to building consensus at the technology policy level, it is important to build consensus at the operational level, where global convergence regarding how we supervise the fintech ecosystem and how the

⁵⁹ India's software exports reach US\$ 320 billion in FY23. IndBiz. (2023, April 18). <https://indbiz.gov.in/indias-software-exports-reach-us-320-billion-in-fy23/>

⁶⁰ NPCI International. National Payments Corporation of India. <https://www.npci.org.in/who-we-are/group-companies/npci-international>

⁶¹ Broeders, D., & Prenio, J. (n.d.). Innovative technology in financial supervision (suptech) - the experience of early users. Bank for International Settlements. Retrieved July 22, 2023, from <https://www.bis.org/fsi/publ/insights9.pdf>

fintech ecosystem supervises financial customers is crucial. As various financial regulators and fintech companies use technological innovations such as supervisor technology (SupTech) for executing supervision of KYC, blockchain etc., as a first step, it would be beneficial for the fintech ecosystem to have convergence at the level of technologies such as SupTech through consensus building.⁶²

India's Digital Economy Goal and Start-up Potential: As India strives towards achieving its trillion-dollar digital economy goal and establishes itself as a burgeoning start-up hotspot, the central government and state governments can contribute by implementing technology-led innovation-enabling policies. These policies can provide direct incentives for innovative businesses catering to the global south and create a progressive policy environment that enhances investment opportunities and ease of doing business.

Compliance Support for Fintech Scalability: G20 governments can play a vital role in supporting the fintech sector by exempting them from specific regulations or accepting self-certification under certain regulations to promote scalability. Establishing a G20-level sandbox can further facilitate innovation in financial services by allowing businesses to live-test their solutions within a controlled regulatory environment.

Collaborative Mentoring and Knowledge-Sharing: To enhance the knowledge quotient of the fintech ecosystem across the G20 nations, governments may establish collaborative open mentoring support systems and knowledge-sharing mechanisms. These facilities should provide comprehensive mentoring support to the fintech ecosystem in India and other G20 countries, helping them grasp technical developments, identify market gaps, and understand the significance of last-mile delivery. Upskilling entrepreneurs in core technologies like machine learning and big data is essential. Information centres within these facilities can also educate the fintech ecosystem about the legal requirements for establishing and operating businesses in different G20 countries.

Recognition and Reward for Innovative Solutions: Governments across the G20 should establish mechanisms to reward and identify fintech solutions that align holistically with the needs of G20 nations, particularly in the global south. Encouraging state-of-the-art fintech solutions in the market is crucial to drive advancements and address pressing financial challenges.

Creating Awareness and Promoting Adoption: The G20 countries must prioritise creating awareness about fintech solutions, ensuring individuals have the necessary information to make informed decisions regarding their financial goals. Individuals should be provided with comprehensive details about the efficiency of these solutions and how they can enhance their financial outcomes, encouraging wider adoption.

India's position as a leader in technology export and its current role as the G20 presidency presents significant opportunities for scalability and global impact. India has proven its ability to develop and export innovative solutions with a record-high software

⁶² Ongwae, J., Mestanza, J. M., & di Castri, S. (n.d.). Cambridge SupTech Lab. Retrieved July 22, 2023, from <https://lab.ccaf.io/>

export of US \$320 billion in FY23⁶³ and the successful scalability of homegrown technologies like UPI. To further enhance this growth, key levers must be considered, including establishing clarity and consensus on the scope of the digital economy and ensuring the readiness and quality of fintech solutions at the G20 level. Comparative analysis with other G20 countries, especially in the global south, can drive technological advancements and address market gaps. Additionally, policy congruence and collaborative mentoring support systems are vital to facilitate the seamless transfer and trade of technological innovations. Governments across the G20 must incentivise and recognise fintech solutions that cater to their specific needs while creating awareness among individuals about the benefits and efficiency of adopting these solutions. By implementing these measures, India can advance global impact and become a leader in technology development, deployment, and integration.

⁶³ India's software exports reach US\$ 320 billion in FY23. IndBiz. (2023, April 18). <https://indbiz.gov.in/indias-software-exports-reach-us-320-billion-in-fy23/>

