



The changing face of financial services: Growth of FinTech in India

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Message from PwC



Vivek Belgavi

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The Indian FinTech ecosystem is a unique one, with a variety of stakeholders such as founders, start-ups, a diverse customer base, incumbent institutions, and Government and regulatory bodies functioning and operating together to enable its growth.

FinTechs worldwide have grown significantly since the beginning of the COVID-19 pandemic which restricted mobility and catalysed digital adoption. They have penetrated the various domains of financial services, disrupting traditional processes and providing superior customer experience and service. India has been one of the leading countries for FinTech innovation and disruption. At present, it is home to 6,000+ FinTechs and its FinTech industry is worth over USD 30 billion.¹ A large underserved and aspirational customer base, supportive regulatory climate, flourishing talent pool, increasing access to capital and remarkable public digital infrastructure – India Stack – have played significant roles in the swift growth of FinTechs in India.

Though the restrictions imposed during the pandemic led to a slowdown in economic activity, the FinTech industry sustained progress on various parameters such as funding, adoption and top-line growth, and is expected to grow further and faster. We expect to witness advancement in manufacturing, delivery and consumption of financial products and services led by technology innovations, partnerships and fusing together of adjacent ecosystems.

The perspectives presented in this comprehensive report are based on our extensive interactions with stakeholders in the Indian FinTech ecosystem, and our experience of working with the Government, regulators, start-ups and incumbents on multiple facets. The report provides an overview as well as an outlook on funding, innovations and business models, consumer trends, and regulatory developments across various segments.

We are happy to be associated with ASSOCHAM as the knowledge partner for the India International FinTech Festival where this report will be launched. We hope this report provides you with holistic industry views and insights. We also look forward to hearing your suggestions as well as to providing a deep dive into the FinTech domain.

¹ <https://bsfi.economicstimes.indiatimes.com/news/fintech/indias-fintech-market-size-at-31-billion-in-2021-third-largest-in-world-report/88794336>

Message from ASSOCHAM



Sumant Sinha

President, ASSOCHAM

FinTech is one of the fastest-growing segments in the financial services sector worldwide. Over the past decade, FinTechs have become a hub of customer-centric innovation. Easy, fast and efficient offerings across payments, lending, insurance, wealth management and broking have disrupted industries and transformed the face of financial services. In line with global trends, India's FinTech ecosystem has seen tremendous growth over the last five years. Over the next five years, India's booming FinTech industry is estimated to grow tremendously in terms of market valuation.

Most successful FinTechs would create deep differentiation across their core offerings, while some may be able to capture the ecosystem play. Several Indian FinTechs will also expand offerings beyond domestic borders. All stakeholders have a role in facilitating this growth. Collectively, FinTechs, financial institutions and policymakers can script the next global success story for India's FinTech sector. India's well-functioning FinTech ecosystem has been powered by its strengths on a variety of dimensions. Multiple stakeholders – regulators, the Government, financial institutions, academia, etc. – have contributed to enabling the FinTech sector's success.

To uncover the sustainability of India's FinTech growth story and provide in-depth perspectives, ASSOCHAM and PwC have prepared a comprehensive report which provides insights and analysis into how the FinTech and financial services sectors are closely moving together, and how financial services are innovating in response to FinTech. I wish the ASSOCHAM team success in this endeavour.

Message from ASSOCHAM



Deepak Sood

Secretary General, ASSOCHAM

FinTech has the potential to transform the financial landscape, strengthen the efficiency of financial institutions and provide consumers with a variety of financial products at competitive prices. The Indian FinTech ecosystem comprises various subsegments such as payments, lending, WealthTech, InsurTech and RegTech. India's numerous start-ups that offer innovative technologies to reduce information asymmetry between financial institutions and investors are driving the growth of FinTech.

Today, India has set a benchmark for itself globally in digital payments. This is driven by the country's resilient payments infrastructure, market practices and swift increase of digital payments across various retail and merchant segments.

India's rapid adoption of digital/online payments also heavily contributed to the growth of the country's FinTech market. The MSME segment has unlocked several efficiencies due to digital payments adoption, leading to end-to-end transformation in how small businesses conduct their cash flow management, operations and reconciliations. Over the past few years, the Government of India and state governments, regulators, industry bodies, banks, FinTech players, financial service providers and other organisations have launched or collaborated to drive various financial-inclusion initiatives.

ASSOCHAM has worked extensively with its members to foster India's inclusive and enabling digital ecosystem. Through the efforts of the ASSOCHAM FinTech Committee, we are excited to work towards India's transition into a more diverse and financially inclusive economy that is geared toward introducing an ever-widening population to digital financial services. This report, prepared jointly by ASSOCHAM and PwC, analyses some of the key trends shaping the FinTech revolution in India. We plan to follow it up with a series of deeper analyses which will explore more details about the underlying causes for the growth of digital payments and recommend changes required to boost the FinTech growth in India. I would like to thank my colleagues from the ASSOCHAM Fintech Committee for contributing with their valuable insights for this report. I would also like to express my gratitude to the PwC team for their support in putting together this report and being the knowledge partner for this initiative.

Message from ASSOCHAM



Ram Rakkappan

Chairman, ASSOCHAM National Fintech Council

FinTech in India has thrived on massive untapped markets, easier access to capital and rising customer expectations of getting a super app like experience from financial services. The rapidly growing FinTech space in the country offers immense potential for growth. FinTech can offer or help offer better financial services experience to customers. This is usually data driven (more and better data) and utilises automated/efficient systems which use technology. Using new-age technologies like artificial intelligence (AI), blockchain and internet of things (IoT), FinTech players are innovating in the space of real-time payments due to the rise of digital commerce. Such innovations prompt the need for support of scalable tools, vast global reach and rapid expansion, among others. The mobile penetration, coupled with the size and depth of small and medium enterprises (SME) in India, is an extraordinary hybrid of a myriad of potentially disruptive and scalable platform of solutions that could definitely be extended to the global markets in the future. As an industry, this is where we need to focus on as it will contribute towards the growth of FinTech in India. There is a need for collaborating with new-age companies which are seeking to redefine the financial services industry with their innovative and customer-friendly solutions.

A larger ecosystem push can be seen through the tremendous growth in institutions such as non-banking financial companies (NBFCs), microfinance and small banks to facilitate better access to credit for the Indian financial services industry. These institutions have brought about an enormous change in how credit is disbursed with instruments like flow-based lending, micro loans and group-based lending. These have been tried and tested successfully, and are now increasingly matching credit demand and supply. Recent efforts towards creating a level-playing field between conventional financial entities and FinTech players are game changing for the Indian FinTech growth story.

The FinTech sector is playing an important role in disrupting the conventional payments landscape both in India and worldwide. Collaboration between various stakeholders – academia, traditional financial service providers and technology firms – to co-invest and co-create has the potential to dismantle barriers to digital payments at an accelerated pace. The advantage FinTechs have to build upon last-mile connectivity is further accentuated in the form of Aadhaar, scalable platforms to move money (IMPS, UPI or Bharat QR) and the openness to embrace more interoperability in allowing newer players to access more platforms.

Going forward, digital technologies will be the backbone of the economy. Both products and services – be it in retail, health, education or financial services – will increasingly have a digital as well as physical aspect. In the post-pandemic world, such hybrid models will pave the way towards full-fledged financial inclusion that enables long-term and sustainable economic growth for India.

I congratulate ASSOCHAM and PwC for jointly producing this report with detailed research and analysis. I hope this report will help enrich the ongoing policy dialogue on FinTech and electronic payments in India, and provide the relevant stakeholders, industry leaders, Government bodies (Ministry of Finance and Ministry of Electronics and Information Technology) and the Reserve Bank of India with ideas and insights to shape the future of the country's digital payments industry.

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Executive summary

The growth and evolution of FinTech in India

The FinTech industry worldwide has continued to see considerable momentum. Rising consumer demand as well as the advent of innovative business models and technologies to make processes and services seamless, cost-efficient and customer centric have resulted in the industry growing steadily. India currently has the third-largest FinTech market globally and is poised to expand at a compound annual growth rate (CAGR) of 31% up to 2025, which is higher than the global growth rate.^{2,3} Indian FinTechs raised funding worth USD 10.6 billion in 2021.⁴ FinTech start-ups have shown additional signs of maturity by applying for initial public offerings as well as opting for strategic mergers and acquisitions (M&A) to boost inorganic growth.

This growth has also fuelled the FinTech-focused need in the Indian talent pool. However, FinTech firms are facing two major hiring challenges in the form of high cost and attrition due to increased competition among start-ups. Platforms developed for upgrading the skills of university graduates could address this issue for the FinTech industry.

The Unique Identification Authority of India (UIDAI) was launched in 2009 and introduced a new set of infrastructure to enable the Indian FinTech ecosystem. This included open application programming interface (API) products and services such as the Unified Payments Interface (UPI), Aadhar, e-KYC, eSign, Bharat Bill Payment System (BBPS) and DigiLocker as public infra. Both private players and Government organisations are able to utilise such digital infrastructure for business innovation as well as customer empowerment.

While the intensity of the pandemic seems to be decreasing, digital adoption, seamless customer experience and low friction points continue to remain driving forces for the continued growth of FinTech products and services. Banks and other financial institutions (FIs) have accelerated the adoption of e-KYC and video KYC for online, remote and faster onboarding and verification of customers. The adoption of DigiLocker is leading to both reduced

turnaround time and cost for claims processes and insurance policy management. In March 2022, 5.04 billion transactions⁵ worth USD 125.6 billion⁶ were conducted through the UPI platform, superseding both pre-COVID volume and value.

A number of other frameworks have aided the development of the FinTech ecosystem. The launch of the Open Credit Enablement Network (OCEN) was a step forward to drive financial inclusion in the country. OCEN could enable the various parts of the lending value chain and act as a common language of communication between the various lending service providers (LSPs), technology service providers (TSPs), lenders and borrowers. The New Umbrella Entities (NUE) framework released in 2020 to boost retail payment services (RPS) could be influential in developing new payments systems. The Central Bank Digital Currency (CBDC) project which aims to regulate the cryptocurrency space and the Open Network for Digital Commerce (ONDC) which intends to democratise digital commerce are some of the potential future rails that could shape the Indian FinTech landscape.

The Government of India (GoI), during the presentation of Union Budget 2022, has proposed setting up 75 digital banking units (DBUs).⁷ This was also supported by the Reserve Bank of India's (RBI) circular establishing guidelines on setting up DBUs.⁸ These DBUs would act as business points or hubs and have the required digital infrastructure to provide banking services. They would also be capable of handling servicing requirements for other financial products for a wider consumer segment in a self-service manner.

Key factors fuelling FinTech growth

The COVID-19 pandemic, which initially restricted mobility, acted as an inflection point for the wider adoption of FinTech products such as digital payments, embedded credit products, InvestmentTech and health and life insurance.

Payments and lending, two key domains of the FinTech sector, are still being disrupted with innovations across the value chain, advancements in technology and continuous

² <https://bfsi.economicstimes.indiatimes.com/news/fintech/indias-fintech-market-size-at-31-billion-in-2021-third-largest-in-world-report/88794336>

³ [https://inc42.com/datalab/decoding-1-3-tn-fintech-market-opportunity-for-indian-startups/#:~:text=India's%20overall%20fintech%20market%20opportunity,16%25%20\(%24208%20Bn\)](https://inc42.com/datalab/decoding-1-3-tn-fintech-market-opportunity-for-indian-startups/#:~:text=India's%20overall%20fintech%20market%20opportunity,16%25%20(%24208%20Bn))

⁴ <https://www.businessinsider.in/business/startups/news/2021-indias-year-of-the-unicorn-and-its-many-high-points/slidelist/88528773.cms>

⁵ <https://www.outlookindia.com/business/transactions-worth-1-09-trillion-processed-via-upi-google-pay-phonepe-bhim-in-fy-2022-5-reasons-why-upi-is-so-popular-news-6>

⁶ *Ibid.*

⁷ <https://indianexpress.com/article/explained/everyday-explainers/what-are-digital-banking-units-7878178/>

⁸ <https://economicstimes.indiatimes.com/industry/banking/finance/banking/rbi-issues-guidelines-for-banks-to-set-up-24x7-digital-banking-units/articleshow/90712671.cms>

growth in fundraising, user adoption and revenue. The restriction in mobility caused by the pandemic aided the growth and adoption of neobanks. However, the key differentiator for these neobank start-ups is value-added services that go beyond ordinary banking services, such as business enterprise solutions for micro, small and medium enterprises (MSMEs), public finance management (PFM), rewards, buy now pay later (BNPL) and lifestyle products integrations for retail customers. Although neobanks in India operate in partnership with licensed banks and rely on bank licences for products such as current account savings account (CASA), the NITI Aayog is working on recommendations and guidelines for licensing neobanks in India through a combined effort with the RBI and the Securities and Exchange Board of India (SEBI) for investment advisory products and the Insurance Regulatory Development Authority of India (IRDAI) for insurance advisory products.

InsurTech and WealthTech segments, which had slow beginnings in the past decade, witnessed massive adoption with investors funding innovative business models to ride India's growth story and start-ups seeking various licences from regulators. FY22 also saw record growth of around 63% from FY21 in the number of fresh demat accounts created, taking the total to 89.7 million such accounts in India.⁹ The pandemic has quickened the digitisation of various parts of the financial services value chain and the FinTech-SaaS segment has been developing innovative solutions like app-based bookkeeping and zero-code payments solution to aid this change. The FinTech-SaaS segment is expected to grow from a market size of USD 4.6 billion in 2022 to USD 12.6 billion in 2025.¹⁰

Other opportunities in the FinTech landscape

Financial inclusion has been a prominent area of focus for the FinTech industry, especially in an emerging economy like India. Financial inclusion means customers being able to access not only banking products such as CASA and payments but also credit, insurance, investment and other related products requisite to their needs. MSMEs are a major area of focus as the sector has been traditionally underserved by financial companies with over 80% of 63.4 million MSMEs in India lacking access to formal lending channels.¹¹ FinTech firms have the inherent advantage of using disruptive new-age technology to provide customised products like alternative data-based lending, digital payments and insurance to these underserved groups. Apart from innovations in business models such as embedded finance, the environmental, social and

governance (ESG) aspect is poised to be a key promoter of sectoral growth. Multiple players are including ESG in their value chain to attract new-age customers who are conscious of environmental and sustainability factors as the latter has become a universal ask from the industry.

Emerging technologies such as Web 3.0, cryptocurrency and blockchain are cautiously being scaled up as well while further regulatory approvals and certainty are awaited. One outcome of this is the emergence of technologies like the metaverse which is a virtual world that emulates and amplifies the real world, and can create a digital environment for people to interact with each other. The evolution of commerce in the metaverse is opening up opportunities for FinTech solutions in the virtual space, such as virtual banking, BNPL payments utilising blockchain technology and metaverse-themed portfolio management solutions. This is aided by other technologies like 5G-enabled internet of things (IoT) and augmented reality (AR)/virtual reality (VR).

Bottlenecks in the growth journey

Growth comes with a host of challenges for the FinTech industry to tackle. Financial literacy is a major challenge as only 27% of the Indian population is financially literate.¹² The Indian banking space also suffers from an inherent trust deficit stemming from mistrust of previous products sold or services offered, and cash is still prevalent when it comes to transactions in India. The regulatory bodies are working to make the environment more transparent and empower end customers as the FinTech ecosystem may benefit from governing frameworks and laws compatible with fast-paced innovation in business and advancements in technology. With large volumes of sensitive data being generated, ensuring data privacy and security has become a major task for the regulator. With increasing cybercrimes and data leakages, there is a further call for strict laws on data storage, usage, sharing and consumer consent, and their implementation.

9 https://www.business-standard.com/article/markets/india-s-demat-account-tally-up-63-to-89-7-million-in-fy22-shows-data-122041401088_1.html

10 <https://inc42.com/datalab/decoding-1-3-tn-fintech-market-opportunity-for-indian-startups/>

11 <https://www.newindianexpress.com/business/2021/jun/02/507-million-msmes-in-india-have-no-access-to-formal-credit-report-2310642.html>

12 <https://www.financialexpress.com/money/the-growing-significance-of-financial-literacy-in-india-gaps-and-opportunities/2410548/>

The way forward for FinTech in India

As the Indian economy opens up post the pandemic, growth in consumerism and disposable income levels of the aspirational middle class, digital adoption, a superior customer experience, FinTech propositions such as BNPL and the coming together of financial services (FS) and non-FS ecosystems will further fuel the growth of the FinTech landscape. Around the globe, new initiatives in neobanking licences, virtual digital assets and financial data exchanges have seen developments that may be considered while preparing similar Indian policies and regulations. The other developments to watch out for would be rising cross-border payments with increasing global trade, and longevity finance providing holistic services and products in times of higher inflations.



The way forward

1 Embedded finance

A win-win for all stakeholders, this presents opportunities to enhance product offerings, increase revenues through cross-selling/upselling and simplifying access to financial services with better experience.

2 Neobanking licence

A potential regulatory regime for neobanks through licensing could add further clarity on their role in the Indian financial landscape and promote wider adoption among the Indian customer segment.

3 VDAs

With the increasing adoption of DeFi and NFTs, global players have been charting out policies and developments in this field to evaluate the potential use cases of virtual digital assets (VDA).

4 Digital correspondents

Formalising the roles of 'digital correspondents' could enable wider FS product distribution and financial inclusivity, and increase financial literacy.

5 Cross-border payments

It presents an opportunity if businesses can leverage tech like blockchain to tackle the challenge of time and cost of remittance. G20 has also prioritised the roadmap for tech-based low-cost solutions for international remittance.

6 Longevity finance

With the increasing ageing population, there are opportunities for tailored investments and insurance solutions, and supporting ecosystems like pension schemes and innovative reverse mortgage solutions.

7 ESG

Sustainability has become a ubiquitous ask from the industry with more customers vying for environmentally friendly products and services which can be catalysed through tech-driven solutions.

1.

The India FinTech story

a. Macro-level factors

Several macroeconomic factors have aided India's phenomenal FinTech growth over the past few years. These include ease of doing business enabled through the Government and regulators' pro-business policies, buoyed interest by both domestic and international risk capital providers in the Indian FinTech landscape and the growth of smartphone, mobile and internet penetration over the last few years. Recently, disruptions caused by the COVID-19 pandemic compelled people to adopt digital methods of conducting financial transactions. Such macro factors have resulted in India becoming one of the third-largest and fastest-growing FinTech markets in the world.¹³ It is poised to grow at a CAGR of 31% till 2025.¹⁴

A majority of the Indian FinTech start-ups are not even a decade old but the progress and growth shown by them has been exponential over the past few years.¹⁵ As of December 2021, there are more than 2,100 FinTechs in India.¹⁶ The Indian FinTech market is expected to reach USD 150 billion in valuation by 2025.¹⁷ Indian FinTech start-ups have raised USD 10.6 billion in 2021.¹⁸ As of 2022, India minted 100 unicorn start-ups across sectors with a total valuation of over USD 333 billion, out of which 21 are FinTech unicorns.¹⁹

Indian unicorn overview (2022) – numbers and total valuation



As of 2022, 100 unicorns have a total valuation of USD 333 billion

Out of the 100, 21 are FinTech unicorns

Source: Inc42

13 <https://bfsi.economicstimes.indiatimes.com/news/fintech/indias-fintech-market-size-at-31-billion-in-2021-third-largest-in-world-report/88794336>

14 [https://inc42.com/datalab/decoding-1-3-tn-fintech-market-opportunity-for-indian-startups/#:~:text=India's%20overall%20fintech%20market%20opportunity,16%25%20\(%24208%20Bn\)](https://inc42.com/datalab/decoding-1-3-tn-fintech-market-opportunity-for-indian-startups/#:~:text=India's%20overall%20fintech%20market%20opportunity,16%25%20(%24208%20Bn))

15 <https://inc42.com/datalab/decoding-1-3-tn-fintech-market-opportunity-for-indian-startups/>

16 <https://bfsi.economicstimes.indiatimes.com/news/fintech/not-just-a-slice-indian-fintechs-set-for-a-bigger-funding-boom/88004711>

17 <https://www.thehindubusinessline.com/economy/fintech-industry-expected-to-be-valued-over-150-billion-by-2025-says-niti-aayog-ceo/article37928082.ece#:~:text=India's%20fintech%20industry%20has%20raised,at%20Razor-pay's%20FTX%202021%20event>

18 <https://www.businessinsider.in/business/startups/news/2021-indias-year-of-the-unicorn-and-its-many-high-points/slidelist/88528773.cms>

19 <https://inc42.com/buzz/announcing-unicorns-of-india-report-decoding-indias-100-unicorns/>

Macro factors for FinTech growth in India are driven by the Government and regulators. These include the Jan Dhan, Aadhar and Mobile (JAM) trinity which served as the bedrock of many initiatives such as the Pradhan Mantri Suraksha Bima Yojana (accident insurance worth INR 2 lakh at just INR 12 per year), Pradhan Mantri Jivan Jyoti Bima Yojana (life insurance at just INR 330 per year) and Atal Pension Yojana (pension of up to INR 5,000 a month depending on the contribution).²⁰ Financial inclusion has expanded and aided by the JAM trinity. India, with its large and young population, was historically an underserved financial services market. Based on the Global Findex report, as of 2014, only 53% of adults in India owned a bank account.²¹ This figure was even lower in 2011 at 35%. However, due to constant and evolving impetus by the Government and regulators to formalise the economy, the number had reached 80% by 2017.²² Today, the Indian FinTech ecosystem has a wide range of subsegments, including alternative lending, payments, WealthTech, InsurTech, neobanking and EmergingTech.

The consumption of financial services and the growth of FinTech have been further accelerated post the COVID-19 pandemic, assisted by the continued rise of internet and smartphone penetration. The evolution and adoption of digital payments, paperless solutions, digital KYC along with an increased number of digital transactions are examples of the rare constructive effects of the pandemic on FS. The changes in consumer behaviour and preferences towards digitally assisted modes of interaction are expected to stay and grow further. The ease of digital adoption in mobility, e-commerce, food delivery, etc., is also translating into digital FS adoption.

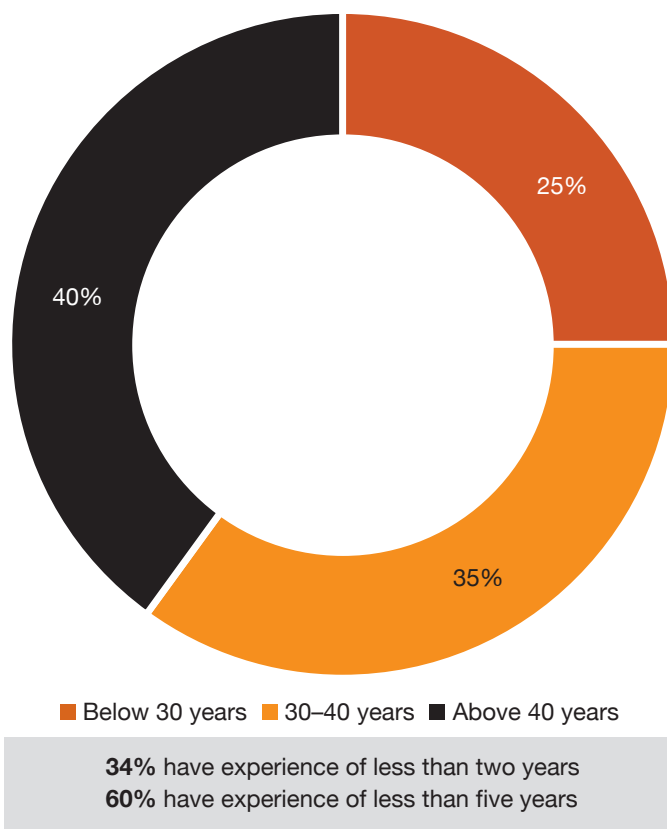
FinTechs shall continue to aid consumers with lower cost of services and ease of availability along with personalised services. India is expected to add 140 million middle-income and 30 million high-income households by 2030.²³ Higher internet penetration in rural areas over the coming years and continued Government initiatives that are favourable for growth are reasons for the bullish growth of FinTech in India. This will also be supported by India's growth in terms of financial inclusion over the next few years. In such a position, the cost of credit could reduce, insurance coverage could increase and financial investment opportunities would be more democratically available to underserved income groups. Such impetus shall also help customer segments such as small and medium enterprises (SMEs), new-to-credit consumers, lower-income bracket citizens and students to further avail financial services.

b. FinTech talent potential

With the advent and continued growth of FinTechs in India, it is imperative to have a consistently available pool of high-quality talent to meet the demand. Around 64% of Indian FinTechs have been operational for three years or less and hence, a majority of them are still in their nascent stage and looking for the right talent to join their organisations.²⁴

Skilled early-talent retention for a bootstrapped start-up is a challenge for most founders. The core of FinTech start-up employees is formed by a technology-focused workforce. Highly skilled tech personnel are high in demand and relatively low in numbers considering the vast number of technology-led and enabled start-ups in India. Such highly skilled tech workforce is most sought after and likely to be poached by various competitors. Hence, it is very important that the number of technology-focused high-skilled employees working in the FinTech sector increases.

Workforce representation in Indian FinTechs



Source: Finextra

20 https://www.pmindia.gov.in/en/government_tr_rec/leveraging-the-power-of-jam-jan-dhan-aadhar-and-mobile/#:~:text=Pradhan%20Mantri%20Suraksha%20Bima%20Yojana,month%20depending%20on%20the%20contribution.

21 <https://thedocs.worldbank.org/en/doc/681361466184854434-0050022016/original/2014GlobalFindexReportDKSV.pdf>

22 <https://economictimes.indiatimes.com/industry/banking/finance/banking/number-of-adult-indians-with-bank-accounts-rises-to-80/articleshow/63838930.cms>

23 <https://timesofindia.indiatimes.com/business/india-business/middle-class-to-boost-premium-biz/articleshow/67329796.cms>

24 <https://www.finextra.com/finextra-downloads/newsdocs/ffor%202018.pdf>.

The statistics related to current FinTech employees would shed light on the need for experienced personnel in the industry. Around 25% of the workforce working in Indian FinTech start-ups are less than 30 years of age.²⁵ Similarly, 35% are aged between 31–40. Additionally, 34% have less than two years of and 60% have less than five years of experience.²⁶ Currently, 91% of the FinTech employees have a science, technology, engineering and mathematics (STEM) background. As per a report by a private sector bank, the biggest hiring challenge for Indian FinTechs today is the lack of domain knowledge as well as deep-technology experience amongst the available talent pool.²⁷ The second-biggest hiring challenge for FinTechs is the inability to attract top talent. The other two major hiring challenges are the high cost of hiring and attrition due to the increased competition amongst start-ups. Thus, there is an immediate need to improve the quality of workforce joining the FinTech sector. This can be addressed at the grassroots level and students can be trained at the onset. A platform that can upskill young graduates with the training and knowledge essential for a job in FinTechs could be envisioned and launched. Multiple such upskilling platforms could help young graduates upgrade their knowledge of FinTechs prior to joining start-ups. Such platforms are required for students to become employable graduates in the FinTech industry, upskill themselves and be at par with global FinTech talent.

For this measure, specialised courses for FinTechs need to be developed and imparted along with the current curriculum so as to develop FinTech-employable talent.

Use cases

The Government of Maharashtra took the initiative to launch a FinTech education platform for students.²⁸ This platform has been designed by incorporating inputs from the industry on the requisite skill sets and learning curriculum to hire students. It is built on the concept of module-based learning, covering various sought-after skill sets in the technical, functional, product management and design domains. The online course further apprises students of various subsectors within FinTech, the industry norms that are to be followed and sessions by experts on the current relevant topics on FinTech. Students are given a certificate after completion of the course.

c. Tech stacks and rails driving FinTech growth

India Stack technology has provided digital rails that have interconnected various services for consumers on common unified platforms. India Stack has four core principal layers that revolve around paperless, cashless, presence-less and consent based. It envisions financial inclusion for a billion plus potential Indian internet consumers. Here are some of the important elements of India Stack driving exponential growth:

UPI

The National Payments Corporation of India's (NPCI) Unified Payments Interface (UPI) system has led to interoperable payments services between FinTechs and incumbent institutions. This has further resulted in merchants and consumers adopting the widespread use of digital payments. The use of UPI by customers has constantly increased, both in terms of value and volume, over the last few years. UPI has further proved to be a rail for other financial inclusion steps. It has led to easier merchant onboarding and the development of innovative products such as cash-flow based lending. A UPI-based QR code can not only be seen in organised large stores across the retail sector but also in kirana stores in a majority of Indian cities. At present, UPI is a major driving factor to contribute towards a less-cash economy in India. In February 2022, UPI transactions worth INR 8.26 lakh crore in value and 4,520 million in volume were recorded.²⁹ The phenomenal success of UPI was evident when Nepal became the first country apart from India to adopt UPI payments.³⁰ UPI 2.0 enables users to preauthorise transactions by issuing a mandate for a specific merchant by linking their overdraft accounts to a UPI handle. This will be further enhanced by use cases which will help consumers have a smoother payment experience while applying for initial public offerings (IPOs), etc.



²⁵ <https://www.finextra.com/finextra-downloads/newsdocs/ifor%202018.pdf>.

²⁶ *Ibid.*

²⁷ <https://www.finextra.com/finextra-downloads/newsdocs/ifor%202018.pdf>

²⁸ <https://fintecheducation.com/>

²⁹ <https://www.npci.org.in/what-we-do/upi/product-statistics>

³⁰ <https://www.moneycontrol.com/news/business/nepal-becomes-first-country-outside-india-to-adopt-upi-payments-system-8122521.html>

OCEN

Typically, small-scale entrepreneurs find it challenging to provide collaterals or lack an adequate credit history. Instead of asset-based lending, Open Credit Enablement Network (OCEN) enables a digitised credit infrastructure on a cash flow based lending model instead of traditional collateral and document-heavy risk assessment. OCEN, working in tandem with the Account Aggregator (AA) framework, is an extension of India's public digital infrastructure that is intended to democratise credit for a significantly credit-deprived population. It seeks to provide a common language for lenders and marketplaces for facilitating the different aspects of the lending value chain. This also furthers partnerships between digital platforms and lenders, also known as lending service providers (LSPs). OCEN thus results in reducing the high cost of borrowing, and turnaround time for disbursement of loans. It also easily connects customers with lenders, further helping owners of unorganised businesses to get an extended credit line.

NUEs

A framework to set up pan-India New Umbrella Entities (NUEs) was developed in 2020 to boost retail payment systems (RPS). NUEs could be influential in fostering promotion and financial inclusion of FinTechs. These entities would largely be responsible in developing new payments systems, technologies, and clearing and settlement mechanisms. They would also keenly monitor as well as address and prevent frauds and relevant risks.³¹ The framework intends to allow entities to set up, manage and operate payments systems.³²

DigiLocker

DigiLocker is the Govt's cloud platform for digitised issuance, sharing, storage and verification of documents. It is a dedicated cloud storage facility linked to the Aadhaar account of citizens to upload e-copies of relevant documents and certificates such as driving licence and voter ID. Recently, COVID-19 vaccination certificates were also issued via DigiLocker for authentication and verification. DigiLocker is further used for buying digital insurance policies and uploading the required documents, resulting in ease of use for the end consumers. Over a 100 million users have registered themselves on DigiLocker and the platform has issued more than five billion documents so far.³³

TReDS

Trade Receivables Discounting System (TReDS) is an electronic platform that facilitates the discounting/ financing of trade receivables through multiple financiers for MSMEs.³⁴ The three participants on the TReDS platform include sellers (MSMEs), buyers (corporates, Government departments, PSUs and other entities) and financial institutions (banks and NBFCs). The TReDS platform enables both receivables factoring and reverse factoring. TReDS has resulted in lower cost of financing for MSMEs thanks to its reliance on the buyer's credit profile and thus better management of working capital for MSMEs due to improved liquidity. The constant hassle of follow up for payments has also been solved for MSMEs. In FY22, the value of transactions done on the TReDS platforms doubled to INR 34,362 crore, up from INR 17,080 crore in FY21. The value of these transactions more than tripled from INR 11,165 crore compared to FY20.³⁵



³¹ <https://www.financialexpress.com/industry/banking-finance/new-umbrella-entities-explained-why-india-has-delayed-their-retail-payment-systems/2329445/>

³² <https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=11954&Mode=0>

³³ <https://www.digilocker.gov.in/>

³⁴ <https://www.rbi.org.in/commonperson/English/Scripts/FAQs.aspx?Id=3138>

³⁵ <https://www.financialexpress.com/industry/sme/msme-fin-treds-value-of-msme-invoices-financed-in-fy22-doubles-from-previous-year-triples-from-fy20/2466818/>

Potential future rails

CBDC

Central Bank Digital Currency (CBDC) is a non-interest bearing instrument. In the wake of the increased scrutiny on cryptocurrency around the world, the RBI would potentially be introducing a virtual version of India's sovereign currency as a pilot project. CBDC will be issued by the central bank itself unlike cryptocurrencies that are issued by private players. The Finance Minister during her presentation of Union Budget 2022 announced that the RBI will introduce the CBDC as India's official digital rupee in 2022–23.³⁶ CBDC can enable FinTechs to offer faster and cheaper cross-border remittance products which have a market in India worth USD 87 billion.³⁷ Other areas where CBDC can accentuate FinTech growth are retail payments, MSME lending and offline payments.³⁸

ONDC

Open Network for Digital Commerce (ONDC) aims to democratise the digital commerce landscape, thus migrating it from a platform-centric model to an open-network one. It aims to replicate what UPI accomplished with digital payments. It is intended to enable sellers and buyers set up digital presence and transact through an open network, irrespective of the platform/application they use. ONDC breaks the silos and thus works towards empowering consumers and merchants to form an exclusive network to further innovation and scale, transforming all businesses and industries spanning from food, retail goods to mobility.³⁹ ONDC received its certificate of incorporation as a private sector non-profit company on 31 December 2021 and has several companies integrated within its platform.⁴⁰ With ONDC enabling local businesses to set up online presence, it will provide attractive business opportunities for FinTechs in payments, lending and FinTech SaaS (invoice and vendor management, etc.).

d. Regulatory and policy overview

FinTech has emerged as one of India's fastest-growing sectors and garnered increasing interest from all the possible stakeholders, both within and outside the country. India's FinTech adoption rate is at 87% as

against the global average of 64%.⁴¹ FinTechs are using technology to not only offer traditional financial services but also developing innovative models when it comes to providing an interface to the customers to avail various financial products (investment, borrowings, etc.). FinTechs are also working towards making their services/offerings seamless with innovative product design and manufacturing as well as technology-assisted operations and risk management.

Historically, it has been observed that an exponentially growing sector also brings with it substantial risks, primarily regulatory. Such risks further increase when the business models within a sector itself evolve with each passing day. Financial regulators have anticipated such risks and made serious efforts at formulating regulations that on the one hand curtail the possible risks emanating in the FinTech space and on the other hand provide a supportive regulatory framework for the business models in the sector to thrive.

While certain segments of the FinTech sector remain unregulated/partly regulated, the regulators and policymakers have continually tried to work with industry bodies and players to determine regulations in a manner which benefit all stakeholders. The fact that the sector is not governed by one single regulator or a uniform set of guidelines results in both pros and cons. While the RBI continues to be the primary regulator for the payments subsector (such as prepaid payment instruments [PPIs], payment aggregators and the Bharat Bill Payment Operating Unit [BBPOU]) as well as banking and credit, the Securities and Exchange Board of India (SEBI) governs all the FinTech business models that are concerned with advising on/selling investments in capital market instruments. The Insurance and Regulatory Development Authority of India (IRDAI) governs FinTechs engaged in the selling of insurance products.

36 <https://economictimes.indiatimes.com/wealth/save/all-you-need-to-know-the-rbi-central-bank-digital-currency-or-digital-rupee/what-is-the-digital-rupee/slide-show/89409003.cms>

37 https://www.business-standard.com/article/economy-policy/india-received-87-billion-in-remittances-in-2021-world-bank-12111800329_1.html#:~:text=In%20India%2C%20remittances%20are%20projected,countries%20await%20return%2C%20it%20said.

38 <https://www.pwc.in/industries/financial-services/fintech/dp/central-bank-digital-currency-in-the-indian-context.html>

39 <https://pib.gov.in/PressReleasePage.aspx?PRID=1745611>

40 <https://www.livemint.com/news/india/open-network-for-digital-commerce-will-democratize-e-commerce-goyal-11647706189203.html>

41 <https://www.financialexpress.com/industry/banking-finance/india-beats-global-average-in-fintech-adoption-fm/2339860/>

The existing regulations are too varied and may seem complicated considering the diversity in FinTech business models. However, Indian regulators have occasionally brought in regulations that have kept pace with the innovations in the FinTech space and put India on a global map when it comes to establishing an up-to-date regulatory regime governing FinTechs. Such regulators have been supported by equally involved and active regulatory and supporting industry bodies such as:

- Ministry of Electronics and Information Technology (MeitY)
- National Payments Corporation of India (NPCI)
- Unique Identification Authority of India (UIDAI) – statutory body responsible for administering the Aadhar programme
- DigiSahamati Foundation (Sahamati), a self-organised industry alliance for the AA ecosystem has been set up as a not-for-profit private limited company under Section 8 of the new Companies Act of India.

A collaborative effort by the regulators and such industry/regulatory bodies has resulted in bringing in/proposing unique regulations, initiatives and frameworks that are expected to help the FinTech sector leapfrog further.

1. RBI's circular on DBUs

The RBI released a circular on 7 April 2022 establishing guidelines on setting up Digital Banking Units (DBUs) for domestic scheduled commercial banks (SCBs). This is part of the announcement made in the Union Budget 2022–23 to set up 75 DBUs in 75 districts. The objective of the circular is to improve the digital infrastructure required to provide banking services and accelerate the growth and reach of digital banking services in the country.⁴² The circular defines the variety of products and services that can be offered via DBUs, the model to be adopted for their operation, technology and compliance adherence, etc. The central bank hopes that the DBU initiative can pave the way for increased adoption of digital banking by incumbent SCBs, leading

to greater financial inclusion and digital adoption in India's underserved areas. The circular also looks at how DBUs can impact financial inclusion by focusing on tier 1–6 centres and mentions the need for customer education on using digital banking products. It opens the possibility of technology collaboration between banks and FinTech-SaaS firms in creating the technology infrastructure required for DBUs. It also promotes ecosystem partnerships to offer customised products and services in areas like e-commerce, MSMEs, health and education.

2. UPI-PayNow linkage

In September 2021, the RBI partnered with the Monetary Authority of Singapore (MAS) to link the respective countries' fast payments systems. The UPI-PayNow linkage is expected to become operational by July 2022.⁴³ This linkage will enable users of either of the fast payments systems to make low-cost and instantaneous payments.

3. MEITY's National Strategy on Blockchain⁴⁴

This strategy document provides guidance and support to further the evolution of blockchain technology and its use in creating a national blockchain platform. MeitY envisions the development of relevant applications using this platform in various domains. E-governance is one such domain where blockchain technology can be used as crucial governance-related data can be vulnerable to insider attacks.

The report comes as a welcome step towards furthering the adoption of blockchain technology and its potential use in the financial sector as well.

4. PIDF⁴⁵

With an intent to widen the reach of digital payments in the country, the RBI launched the Payments Infrastructure Development Fund (PIDF) scheme with a special focus on tier 3–6 cities, especially in the North Eastern states. The scheme intends to subsidise the deployment of payments acceptance devices, thereby benefiting acquiring banks/non-banks by reducing cost of such acceptance.

⁴² <https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=12285&Mode=0>

⁴³ https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=52223

⁴⁴ https://www.meity.gov.in/writereaddata/files/National_BCT_Strategy.pdf

⁴⁵ https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=52112

5. NITI Aayog's report on digital banks⁴⁶

The report provides recommendations on licensing/regulating digital banks, including neobanks. This step is expected to contribute towards elevating financial inclusion in the country. The report has been developed keeping in mind four factors – entry barriers, competition, business restriction and technological neutrality. It evaluates the regulatory regime governing digital banks in jurisdictions such as Singapore, Hong Kong, United Kingdom, Malaysia, Australia and South Korea.

Neobanks are an interesting FinTech trend and their rapid growth and the variety of products offered are making them popular in the digital finance space. The applicability of the regulations needs to be evaluated on a case-to-case basis and depending on the product being sold and the role played by neobanks. Thus, while SEBI regulates the investment advisory activities of neobanks, i.e. if they engage in advisory activities, and IRDAI regulates the distribution of insurance products by neobanks. There is currently no overarching law or a licensing regime applicable to neobanks. Neobanks are complying with regulations on outsourcing as specified by the financial regulators since such banks are indirectly regulated as outsourcing partners.

6. Digital lending framework⁴⁷

The RBI Working Group's report on digital lending was launched in November 2021 and is an important regulatory development in the digital lending space. The report acknowledges the various models of digital lending or marketing of loans (such as BNPL, peer to peer, fringe lending and mobile-based lending) prevalent in the country and highlighted the risks posed by such lending models. It also recommends how these risks can be governed to ensure customer protection and make the digital lending ecosystem safe and sound while encouraging innovation.

The report recommends that new digital lending products such as short-term and unsecured/secured credits currently disguised as deferred payments or the like, such as BNPL, can take form under and be treated as part of balance sheet lending, a recommendation that is expected to have an impact on the growing BNPL industry.

7. RBIH⁴⁸

The RBI Innovation Hub (RBIH) aims at promoting innovation throughout the financial sector. The hub envisions to leverage technology and create an environment facilitating access to financial services and products. It looks to work with financial sector institutions, the technology industry and academic institutions. It also expects to develop the infrastructure for promotion of FinTech research. Such efforts are made to boost collaboration and subsequently develop prototypes related to innovations which can promote financial inclusion and help FinTech reach the last mile.

8. e-RUPI⁴⁹

The NPCI powered e-RUPI was launched as India's digital payments solution in August 2021. Introduced as a one-time voucher in order to enable cashless payments for COVID vaccination, e-RUPI was developed in partnership with the Department of Financial Services (DFS) and the National Health Authority (NHA). This seamless payments solution enabled beneficiaries to redeem the voucher via a text message or the QR code sent to their phones.

9. GIFT IFSC

Another milestone in India's effort to further the FinTech revolution is the development of the Gujarat International Finance Tec-City (GIFT) as an International Financial Services Centre (IFSC). This tax-free gateway is a special financial zone treated as an offshore territory under the Indian foreign exchange regulations. GIFT IFSC was conceptualised to establish and operationalise a world-class FinTech hub under the aegis of the International Financial Services Centres Authority (IFSCA), India. Institutions setting up their base in GIFT IFSC are deemed as a person resident outside India for exchange control purposes and separate regulations have been implemented for FinTechs in the finance hub. It focuses on providing FinTech start-ups with access to global markets and partnerships in order to stimulate innovation across borders.

The Regulatory Sandbox, self-regulatory organisations (SROs) and CBDC are some of the other initiatives taken by the regulators to enhance the potential landscape of this ever-evolving industry.

⁴⁶ https://www.niti.gov.in/sites/default/files/2021-11/Digital-Bank-A-Proposal-for-Licensing-and-Regulatory-Regime-for-India.24.11_0.pdf

⁴⁷ <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1189>.

⁴⁸ https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=50666

⁴⁹ <https://www.npci.org.in/what-we-do/e-rupi/product-overview>



2.

Themes fuelling the growth of FinTech

a. Payments innovation, BNPL and cross-border payments

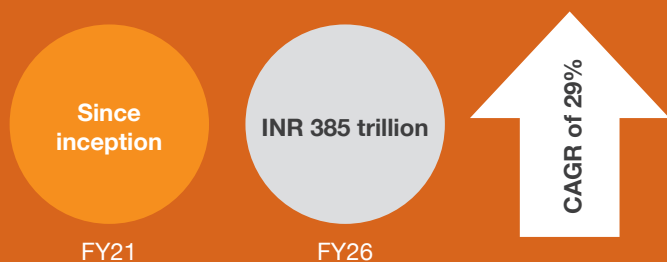
Digital payments have grown significantly in India during the last five years. While the transaction value has registered a growth of 33%, the volume itself has grown at a CAGR of 30% during the same period.⁵⁰

Shift in customer preferences, active Government support and the RBI's initiatives towards the development of better payments systems and innovative products with a focus on security and customer sensitivities have helped in this growth. The emergence of FinTechs and PayTechs has been instrumental in providing customers with easy accessibility and avenues of using these payments modes.

Market sizing

The digital payments market in India was estimated to be worth INR 63 trillion in FY21 and is expected to grow at a CAGR of 29% to reach INR 385 trillion by the end of FY26.⁵¹

India's growing digital payments market



Source: PwC

⁵⁰ <https://www.pwc.in/assets/pdfs/consulting/financial-services/fintech/payments-transformation/the-indian-payments-handbook-2021-2026.pdf>

⁵¹ *Ibid.*

While UPI will continue to be the biggest contributor to this growth, other payments modes will continue to play important roles.

- The credit card space is continuing to witness the entry of new players from both banks and FinTechs.
- Enabling of new use cases like traffic fines and parking along with the inclusion of state highways will increase the volume of transactions through the National Electronic Toll Collection (NETC).
- Enabling transit payments on cards and prepaid instruments (PPIs) will increase small-ticket transactions.
- Offline payments solutions on UPI and cards will cater to payments requirements in the hinterland and border areas.
- Card-based payments enabled through tokenisation of devices, including IoT-enabled connected devices, will lead to further use cases.
- The usage of PPIs along with the resurgence of wallets for multiple use cases like loan on PPIs and reimbursement wallets is also expected to increase.

Funding trends

Digital payments have grown sharply in the last few years due to Government initiatives and innovation from existing and emerging players. These have resulted in massive uptake from an end-user perspective. The growing user base has also resulted in considerable investment flows into the digital payments arena. In 2021, digital payments start-ups bagged one of the largest shares of venture capital inflow. This amounts to approximately 68% of the total combined funding amount for lending and digital payments, the frontrunners in the funding space.⁵²

Key developments in the digital payments space

1. Role of third-party apps

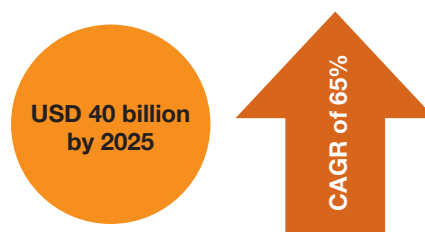
The emergence of third-party apps, including super apps supporting multiple payments modes, is one of the important drivers for growth. Apart from facilitating person-to-person (P2P) and person-to-merchant (P2M) transactions, these apps are providing marketplaces for customers. Super apps are essentially one-stop-shops for payments that can be easily integrated into marketplace features like e-commerce, personalised

finance tools and marketing. Going forward, if regulatory factors are favourable, new payments use cases like peer-to-peer cross-border payments can be built in a relatively easier manner on top of such platforms. Services like bill payments and recharges on these platforms have helped in increasing volumes on BBPS, leading to the further formalisation of the bill payment market. As these apps start offering interoperability between wallets using UPI, their usage will increase and provide convenient mobile-based payments options to consumers.

2. BNPL

BNPL has recently been gaining prominence among Indian consumers as a payment mode. Multiple FinTechs have been able to identify the need for 'on-tap' requirements for small credit. This trend has been witnessed in semi-urban areas and amongst new-to-credit customers as well as existing customers in urban areas. The Indian BNPL market is expected to become worth USD 40 billion by 2025, growing at a CAGR of 65%.⁵³

BNPL market size in India's FinTech space



Source: ET BFSI

The factors responsible for the growth of BNPL are:

- **need for credit** among customers in urban and semi-urban areas who don't have access to various credit-based financial products
- **access** to customers through digital platforms and mobile applications for onboarding and limit assignment have made customer acquisition significantly easier and economical
- **alternative underwriting** practices adopted by FinTechs have allowed them to target customers who remained outside the ambit of traditional unsecured credit
- **payment options** through cards as well as direct merchant integration along with small-value payments has been instrumental for BNPL growth.

52 <https://inc42.com/datalab/decoding-1-3-tn-fintech-market-opportunity-for-indian-startups/>

53 <https://bfsi.economictimes.indiatimes.com/news/fintech/indias-buy-now-pay-later-market-to-touch-40-bn-by-2025/89791825>

The growth potential in BNPL has also attracted the attention of established financial institutions like banks and NBFCs. This provides them with an opportunity to reach out to the untapped customer segments and help develop credit behaviour. This will help these lenders to build a customer base which can be offered more matured and complex lending products in the future.

Cross-border remittances

A large Indian diaspora and growing trade relations have continued to fuel cross-border remittances. Over the last few years, India has emerged as the largest beneficiary of foreign inward remittances. According to the World Bank, India received INR 6 trillion as inward remittances in 2020.⁵⁴

India's current remittance market size (both outward and inward) is estimated to exceed INR 7 trillion in 2021 and reach INR 11 trillion by 2026.⁵⁵

While SWIFT continues to be the primary mode of remittance, various money transfer operators (MTOs) continue to play a key role in the business-to-consumer (B2C) and consumer-to-consumer (C2C) space. Compared to SWIFT, which has largely remained in the banking domain, these MTOs have leveraged local establishments, viz. post offices and travel agents apart from banks to provide convenient remittance touchpoints.



Challenges of cross-border remittances⁵⁶

| | |
|------------------------------------|---|
| Cost | <ul style="list-style-type: none"> • Ranges between 0.3–20%⁵⁷ of the transaction amount • Charges linked to transaction amount, payment mode, destination and exchange rates • Compliance and operational aspects impact cost |
| Speed | <ul style="list-style-type: none"> • Checks and controls, multiple layers and lack of information affect the speed of remittance |
| Lack of standard regulation | <ul style="list-style-type: none"> • Asymmetry in territorial and entity-level regulations |
| Message format | <ul style="list-style-type: none"> • Multiple message formats used in different territories/regions • Lack of interoperability |
| Customer experience | <ul style="list-style-type: none"> • Different customer experience across countries based on demographics, culture, language, etc. |

⁵⁴ <https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT?locations=IN>

⁵⁵ <https://www.pwc.in/assets/pdfs/consulting/financial-services/fintech/payments-transformation/the-indian-payments-handbook-2021-2026.pdf>.

⁵⁶ <https://www.pwc.in/industries/financial-services/fintech/dp/the-evolving-landscape-of-cross-border-payments.html>

⁵⁷ <https://www.pwc.in/industries/financial-services/fintech/dp/the-evolving-landscape-of-cross-border-payments.html>

Growth drivers

i. Expansion of UPI: UPI's expansion in international territories will provide remitters and beneficiaries with options to transfer funds quicker and at a lower cost compared to available modes.

ii. Partnerships and collaborations: Partnerships between payments companies across countries along with leveraging faster payments rails will impart much needed interoperability between countries for remittances.

iii. Rise of FinTechs: Various FinTechs with presence across countries are entering the cross-border remittances space with cross-country channels. They have not only leveraged UPI but also reduced the cost of remittance along with implementing strong controls around identification, anti-money laundering, etc.

iv. DLT-based solutions: FinTechs, banks and technology companies are developing distributed ledger technology (DLT) based solutions which will facilitate low-value cross-border fund transfers. Central banks are exploring remittances as a potential use case for CBDCs.

Regulatory updates

Across FinTech segments, digital payments have consistently recorded the highest growth over the years. The subsegments of payments include cross-border remittances, payment aggregators (PAs) and payment gateways (PGs), billing management, PPIs/wallets/cash cards, loyalty programmes and ATM/point of sale (PoS) devices. Enabling yet flexible regulations have earmarked the growth of payments in the country. The table below outlines some of the regulations responsible for the growth of digital payments in India.

Regulated payments entities with regulations

| Regulated payment entities | Regulations |
|----------------------------|---|
| PPI | Master Direction on Issuance and Operation of Prepaid Payment Instruments |
| Payment aggregators | Guidelines on Regulation of Payment Aggregators and Payment Gateways |
| White Label ATMs (WLAs) | White Label ATMs (WLAs) in India –guidelines |
| BBPOUs | Implementation of Bharat Bill Payment System (BBPS) – guidelines |

A few notable innovations and developments in the payments space are discussed below.

1. RBI's Regulatory Sandbox: First and second cohort on retail and cross-border payments: The first cohort, opened in November 2019, shortlisted six entities by November 2020 to test products around offline payments solutions, feature phone based payments services, contactless payments, etc.⁵⁸ The testing phase of the first cohort ended in September 2021.

The second cohort, opened in December 2020, shortlisted eight entities by September 2021, to test products around facilitating the purchase of assets listed on foreign exchanges, providing a common platform for outward remittances to the leading cross-border payments providers, using the Rupee Drawing Arrangement (RDA) mechanism to route inward remittances to the beneficiary's Aadhar number as a virtual bank account.⁵⁹

2. CBDC: CBDC was introduced by the Finance Minister during the presentation of Union Budget 2022 to further encourage financial digitisation and cater to the growing demand for digital currencies. It is set to be launched early next year. This development has the potential to curb expensive management of currency and build an efficient payments system. This move is expected to boost financial inclusion as it does not require citizens to be bank account holders. It showcases India's inclination to be at par with global developments and demonstrates the country's willingness to be on the same level with worldwide FinTech regulations.

The Finance Bill, 2022, proposes to amend the definition of a bank note under the RBI Act, 1934. It aims to include digital notes issued by the RBI.⁶⁰

58 https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=52217

59 https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=52218

60 <https://www.financialexpress.com/economy/budget-2022-digital-rupee-from-fy23/2423334/>

3. Master Direction on PPIs: The RBI issued new PPI guidelines in the last quarter of 2021 to reach a wider consumer base and further work towards improving financial inclusion. From introducing the concept of small and full-KYC PPIs (previously classified as closed, semi-closed and open-system PPIs) to mandating interoperability for full-KYC PPIs, the new guidelines intend to further examine this payments segment.

b. Shift to digital banking and growth of neobanking

In India, digital banking is a banking service offered online by established banks, whereas neobanking is offered by FinTechs who are in partnership with licensed banks.

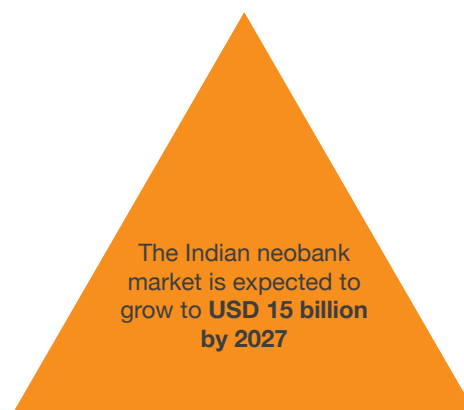
Various factors are driving the growth of digital banking and neobanking in India. Players in these sectors have been able to capitalise on growth opportunities by targeting traditionally underbanked customer segments through innovative tech-led acquisition and engagement strategies, smart ecosystem partnerships, intuitive user interface/user experience (UI/UX), and personalised and contextual value propositions and services that cater to the financial services (FS) and non-financial services (non-FS) needs of their customers, while managing unit economics in order to make such strategies economically viable.

Many customer segments like micro, small and medium enterprises (MSMEs), gig workers, teenagers etc., are underserved. Hence, neobanks have started offering specific services to solve the needs of these customer segments. The superior customer service and experience offered to these underserved customer segments have helped neobanks to find their own niche. For example, tech-savvy millennials prefer to have advanced banking features like mobile banking, digital wallets, personal finance planning along with non-financial value-added services delivered in an engaging UI/UX vis-à-vis the offerings of normal brick-and-mortar banking institutions. Hence, they are more likely to opt for digital banks and neobanks that offer them contextual services at the touch of a button.

Market sizing

The adoption of technologies like artificial intelligence, cloud computing and IoT plays a key role in the growth of neobanks in India. The Indian neobank market is expected to grow to USD 15 billion by 2027.⁶¹

India's neobank market growth



Source: YourStory

Funding trends

The neobanking sector received funding of almost USD 406 million in India in 2021.⁶²

Latest innovations and developments, global best practices from last year

The latest innovations in this space include a number of new customer-first services like paperless customer onboarding processes, video KYC, personalised offerings through AI and analytics, contactless debit cards, API-led banking, and adoption of cloud technologies to ensure secure data collection.

Neobanks have developed products and services to cater to niche segments such as working millennials, teenagers and MSMEs. These neobanks have improved their technologies to offer services like user-friendly banking services with high security, 24x7 customer support, finance tracking and insights, instant account activation, holistic dashboards with an overview of finances, along with non-financial services like e-commerce, ticket reservation, and skill development applications which are focussed on the core requirements of target customers.

A neobank in India is targeting millennials through its digital-only platform model. It acts as an intelligent hub that offers customers a variety of services. The most notable innovative service it offers is a three-in-one card that customers can use for forex, debit, and credit transactions.

61 <https://yourstory.com/2020/09/india-digital-banking-neobanks-opportunity/amp>

62 <https://inc42.com/datalab/decoding-1-3-tr-fintech-market-opportunity-for-indian-startups/>



Regulatory update

The product offerings of neobanks in India fall under the purview of the Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), and Insurance regulatory and development Authority (IRDAI). While some of these products require licensing approvals from the concerned regulator, such governing principles are not mandatory in cases where only an indirect regulatory regime is applicable.

At present, a typical neobank model entails tie-ups between FinTech entities with financial institutions (traditional banks or NBFCs) who are licence holders from their respective regulators (RBI, SEBI, IRDAI). For instance, if a neobank is partnering with a traditional bank, then the onus is on the traditional banking institutions to comply with the applicable banking regulatory regime. On the other hand, entities offering WealthTech and InsurTech services (mutual fund investments, policies, stocks, insurance, etc.) require approvals from SEBI and the IRDAI.

The table below captures the existing as well as recent regulations that are applicable to FinTechs:

Recent regulations in the Indian FS space

| | RBI | SEBI | IRDAI |
|-----------------------------------|---|--|--|
| Indirect regulatory regime | Guidelines for engaging Business Correspondents (BCs) under the Master Circular on Branch Authorisation dated 1 July 2014 | Guidelines on Outsourcing of Activities by Intermediaries dated 15 December 2011 | IRDAI (Outsourcing of activities by Indian Insurers) Regulations dated 20 April 2017 |
| | Framework for Outsourcing of Payment and Settlement-related Activities by Payment System Operators dated 3 August 2021 | | |
| | Guidelines on Managing Risks and Code of Conduct in Outsourcing of Financial Services by Banks dated 11 March 2015 | | |
| | Master Direction on Digital Payment Security Controls dated 18 February 2021 | | |
| | Directions on Managing Risks and Code of Conduct in Outsourcing of Financial Services by NBFCs dated 9 November 2017 | | |

Recent regulations in the Indian FS space

| | RBI | SEBI | IRDAI |
|--------------------------|--|--|--|
| Direct regulatory regime | Extant RBI regulations pertaining to licensing of banks | SEBI (Investment Adviser) Regulations, 2020 (updated as on 3 August 2021) | IRDAI (Registration of Corporate Agents) Regulations, 2015 |
| | RBI Master Directions on Prepaid Payment Instruments dated 7 August 2021 | AMFI Code of Conduct for distribution of mutual fund products (as updated in April 2022) ⁶³ | IRDAI (Insurance Web Aggregators) Regulations, 2017 |
| | Master Direction - Non-Banking Financial Company - Systemically Important Non-Deposit taking Company and Deposit taking Company (Reserve Bank) Directions, 2016 dated 1 September 2016 (updated as on 02 May 2022) | | |
| | Guidelines on Regulation of Payment Aggregators and Payment Gateways dated 17 March 2020 | | |
| | Directions regarding Registration and Operations of NBFC - Account Aggregators under section 45-IA of the Reserve Bank of India Act, 1934 | | |

The recent RBI circular on digital banking units is a significant step in formalising this space from a regulatory standpoint. While the circular is applicable to scheduled commercial banks, it provides direction on the larger potential for FinTechs and tech players to be partners with banks in their digital bank journey.

Furthermore, in order to chart a roadmap for regulating the ever-growing subsegments of FinTech, NITI Aayog published a digital banking report recommending the way forward for regulating digital banks in India. Going by the proposed recommendations, the adoption of a two-stage approach for licensing of digital banks seems viable. The report proposes that the initial step could be the introduction of a specific digital business bank licence, followed by the rollout of a digital (universal) bank license once regulators and policymakers have jotted down the pros and cons of the former. The suggestion is careful to avoid any policy or regulatory arbitrage while continuing to create a level playing field for industry players.

c. Digital lending innovation

India's GDP has had one of the fastest growth rate (8.2%)⁶⁴ in the past. With the fifth largest GDP⁶⁵ in the world, total credit demand in India is projected to be worth USD 1.26 trillion⁶⁶ by FY 2024. Driven by strong macro factors, the sector presents significant potential for lending players. Digital lending has seen significant traction, with FinTechs introducing innovative business models to provide credit to underserved segments. It has evolved and grown as credit demand remained unfulfilled via traditional lending models and mechanisms. Traditional lending models continue to face some key challenges which curtail the scope for expansion towards underserved segments, as explained in the following page:

⁶³ https://www.niti.gov.in/sites/default/files/2021-11/Digital-Bank-A-Proposal-for-Licensing-and-Regulatory-Regime-for-India.24.11_0.pdf

⁶⁴ https://www.business-standard.com/article/economy-policy/gdp-grows-at-8-4-in-q2-india-still-fastest-growing-large-economy-in-world-121120100036_1.html

⁶⁵ <https://www.businesstoday.in/latest/economy-politics/story/india-surpasses-france-uk-to-become-world-5th-largest-economy-imf-250640-2020-02-23>

⁶⁶ <https://inc42.com/datalab/digital-lending-in-india-the-rise-of-consumer-lending-report-2020/>

- Lack of formal data for credit assessment, which traditional lending models are dependent on
- Standardised banking products that do not adjust to risk profiles of different borrower segments
- Requirement of collaterals/guarantees
- Cumbersome onboarding and complex application procedures

Digital lenders have utilised innovative strategies in order to overcome these barriers. Indian digital lending has been driven by three major shifts in the last few years: increased access to smartphones; demonetisation and the subsequent push to digital payments; and the Government-driven initiative of India Stack along with growing API-based data availability, which has led to fundamental transformations across the credit value chain. These factors have allowed digital lenders to simplify processes, acquire customers digitally at lower cost, develop alternative data-driven underwriting models where traditional data access is scarce, and create customised products tailored to segment-specific needs, thus addressing the barriers faced by traditional lenders.

Macro conditions favouring lending



700 million internet subscribers in 2020⁶⁷



42% smartphone penetration⁶⁸



25.5 billion annual digital payment transactions in 2020⁶⁹



0.03 credit card penetration per capita⁷⁰

Market sizing

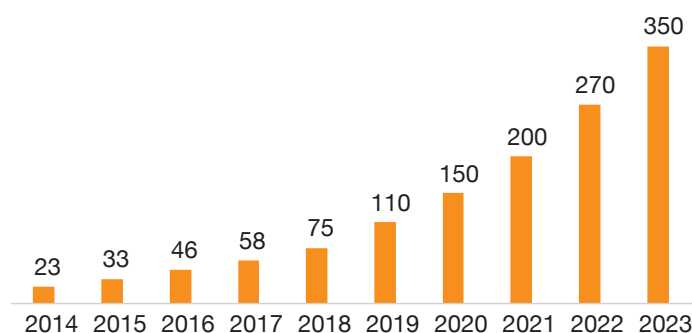
Driven by increased digitisation in the lending space, the digital lending market in India is poised to grow to USD 350 billion by 2023.⁷¹ This will increase the share of the digital lending market (in overall credit) from 23% in 2018 to 48% by 2023.⁷²

Digital lending market in India – a USD 350 billion opportunity⁷³

Funding trends

FinTechs are increasingly capitalising on the digital lending opportunity, with some focused on experimenting across the lending value chain, while others are focusing on specific value chain points such as customer sourcing, underwriting, collections and product innovation. The disruption caused by start-ups in the lending area is apparent from venture capital (VC) investor confidence – India has nearly 1,263 digital lending start-ups, of which over 194 were funded by VC funding as of 2021.⁷⁴

Digital lending market in India (in USD billion)



Source: Statista

67 <https://www.statista.com/statistics/255146/number-of-internet-users-in-india/>

68 <https://www.statista.com/statistics/1229799/india-smartphone-penetration-rate/#:~:text=In%20financial%20%20year%202020%2C%20the,mobile%20subscribers%20were%20using%20smartphone.>

69 <https://government.economicstimes.indiatimes.com/news/digital-payments/india-beats-china-with-25-5-bn-digital-payment-transactions-in-2020/81779116>

70 <https://bfsi.eletsonline.com/indias-credit-card-industry-is-expected-to-improve-marginally-in-fy-21-22-r-v-ramanathan-founder-and-ceo-hyperface/#:~:text=Credit%20card%20penetration%20continues%20to,million%20debit%20cards%20in%20circulation>

71 <https://www.statista.com/statistics/1202533/india-digital-lending-volume/>

72 Ibid.

73 Ibid.

74 <https://www.bloomberquint.com/business/indian-fintechs-raised-a-record-amount-of-venture-capital-funds-in-2021>

Latest innovations and developments

1. Embedded finance takes centre stage

- Banking as a service technology is opening up embedded lending opportunities across sectors.
- Digital lenders have tied up with vertical software-as-a-service (SaaS) businesses across sectors such as healthcare, EdTech and e-commerce to enable seamless lending to customers.
- Embedded lending enables these companies to increase customer spending as well as diversify into new revenue streams. In return, financiers are gaining insights into customer spending and enabling smoother customer onboarding.
- For instance, in healthcare, embedded lending via vertical SaaS businesses (hospital management system, diagnostic management software, etc.) is powering consumer payments and lending, provider practice enablement and insurance.
- Similar opportunities are being explored by digital lenders in other ecosystems – for instance, a start-up is enabling digital credit for students as well as institutions by partnering with educational SaaS platforms.

2. Crypto lending

- Cryptocurrency has witnessed a huge increase in popularity with greater participation from investors of varied risk profiles.
- While some investors are looking for short-term gains, others believe it to be the future growth engine and continue to stay invested.
- For these long-term investors, new-age digital lenders have started offering crypto lending, which would allow them to pledge crypto assets as security for loans.
- Globally, the crypto lending demand is estimated to be worth USD 20 billion as of January 2022.⁷⁵

3. ESG loans

- Lenders are increasingly providing loans that have a positive environmental, social, and corporate governance (ESG) impact, with this market expected to grow by 2025 to USD 11 trillion globally, based on the past five years' growth rate.⁷⁶

- ESG-linked loans act as an incentive for companies to commit to sustainability by linking the financial terms of a loan to pre-negotiated targets and rewards/punishment.
- Borrowers are rewarded/punished as per their progress with interest rate adjustments.

4. Collateral assessment such as home property valuation goes virtual

- Home listings have traditionally been overvalued or undervalued and this has led to lenders employing multiple property verifiers.
- Advancements in artificial intelligence (AI) and deep learning combined with accurate satellite imaging are resulting in an overhaul of traditional valuation models and enabling automated valuation models. Start-ups are providing analytical underwriting models that have the ability to classify room types, room articles, etc.,
- Models that can identify home features, condition of the property and project the room type.
- This technology will help reduce the turnaround time reduction for remote property loans and enable better customer service.

Regulatory updates

Uptake in EMI-based purchases on e-commerce apps, easy loan disbursal to MSMEs, FinTech-bank partnerships and medical loans are some of the factors accelerating the growth of digital lending in India across sub-segments.

As mentioned earlier, the RBI Working Group's report on digital lending largely focused on consumer protection, followed by the other two pillars, viz. regulatory and legal, and technology and data security. A total of 26 recommendations were laid down, out of which the key recommendations proposed in the paper include:

The RBI also recommended that the Telecom Regulatory Authority of India (TRAI) be included as a member/need-based invitee of the State Level Coordination Committee (SLCC) due to the critical role played by mobile network operators as well as mobile phones in the financial ecosystem.

75 <https://www.forbes.com/sites/christopherbrookins/2022/01/04/defi-lending-platforms-continue-to-attract-capital-in-2022/?sh=748aafd04e6f>

76 <https://www.bloomberg.com/professional/blog/esg-assets-may-hit-53-trillion-by-2025-a-third-of-global-aum/>

Digital lending pillars



Customer protection

- i. Provision of a key fact statement in a standardised format by the lender to the customer
- ii. SMS/email to borrowers with summary of product information and lending terms



Legal and regulatory

- i. Principle-backed regulations
- ii. Addressing regulatory arbitrage
- iii. Setting up a self-regulatory body
- iv. Setting up a nodal agency to verify the technological credentials of lenders



Technology and data security

- i. Digital lending applications (DLAs) to comply with available policies regarding data storage, its usage and privacy
- ii. Storing data in servers located in India
- iii. Purpose/usage and implication of data collected from the customer must be consensual
- iv. Standards for handling data breach

d. WealthTech and investment management innovations

WealthTechs can be defined as platforms offering products and solutions which enable digitisation of the traditional value chain of the personal financial management and/or investment journey. WealthTech players capitalise on technologies such as artificial intelligence and analytics to digitise, innovate and transform traditional products and services such as

acquiring, onboarding, advisory, investment, and monitoring and servicing the customer. WealthTech offerings range from digital financial advisory to expense management applications, and from research tools, investment platforms and trading to white-label software solutions.

Factors driving growth and adoption of WealthTech

Advancements in the WealthTech space in India can be attributed to factors such as growth in the working population, participation by young salaried professionals, increasing disposable income and higher retail participation in asset classes in equity and mutual funds. Another market trend prevalent among the retail investor base – which was amplified during the pandemic and following the bull run after substantial correction in March 2020 – is long-term financial security and the fear of missing out. This led to a nearly 400% increase in the number of new demat accounts opened per month, from 400,000 in FY20 to 20,00,000 in FY21.⁷⁷ As of FY22, the total number of demat accounts stands at 89.7 million.⁷⁸

Typically, while the older generation relied on risk-averse fixed income options and physical assets, such as insurance, bank deposits, fixed deposits, physical gold, and real estate, digitally adept millennials are also comfortable investing in asset classes such as equity and mutual funds too. This preference has been driven not only by higher yields but also by increasing financial literacy and new age wealth and investment management platforms that simplify accessibility and user experience. Although multiple cohorts have started investing digitally, millennials form 70%⁷⁹ of the customer base of new-age WealthTech platforms. An increase in smartphones, access to internet connectivity and low-cost data packages are also propelling the adoption of digital platforms in Bharat (tier 2+ cities), leading to an increase in first-time investors from earlier underserved hinterland.⁸⁰

Market sizing

Although wealth management is at a nascent stage in India, there is immense scope for growth in the market. Fuelled by increasing retail participation, digitisation, financial literacy and innovation in products and solutions, the size of the WealthTech market in India is poised to reach USD 63 billion by 2025 from USD 20 billion in 2020.⁸¹ Additionally, it is also estimated that by FY25, the WealthTech investor base will reach 12 million, growing three times from a base of 4 million in FY20.⁸²

Funding trends

The pandemic catalysed the growth of digital platforms through adoption by new investors as well as growth in the average ticket size of investments on these platforms. This growth also drew risk capital into the WealthTech space from angels, corporate VC, accelerators, VC and private equities.

This period saw the maturing of a number of WealthTechs who gained significant ground by acquiring customers and increasing ticket sizes for their products and solutions, proving the viability of their business models. FY20–21 also witnessed acquisitions by established financial institutions, particularly in the US and Europe, to drive their own investment and wealth management innovation.

Global investments in WealthTech grew to USD 13.7 billion across 330 deals in H1 2021 from USD 9.2 billion across 435 deals in 2020 and USD 7.9 billion across 375 deals in 2019. In H1 2021, about 85% of the investment, i.e. USD 11.7 billion, went to large-scale deals of USD 50 million and above.⁸³ In India, while 2017 was a record year for WealthTech funding with USD 818 million raised across 53 funding rounds, H1 2021 recorded about USD 120 million in funding across 13 deals.⁸⁴

Global WealthTech investments



Source : FinTech Global

77 https://www.business-standard.com/article/markets/number-of-demat-accounts-have-more-than-doubled-since-march-2019-tyagi-122010501552_1.html

78 https://www.business-standard.com/article/markets/india-s-demat-account-tally-up-63-to-89-7-million-in-fy22-shows-data-122041401088_1.html#:~:text=The%20number%20of%20active%20dematerialised,shows%20data%20provided%20by%20depositories

79 <https://www.businesswire.com/news/home/20210618005490/en/India-Wealthtech-Market-Report-2020-A-60-Billion-Opportunity-by-Fy25---ResearchAndMarkets.com>

80 <https://economictimes.indiatimes.com/news/india/indias-growing-data-usage-smartphone-adoption-to-boost-digital-india-initiatives-top-bureaucrat/article-show/87275402.cms>

81 <https://www.financialexpress.com/industry/sme/indian-wealth-tech-segment-to-be-60-billion-opportunity-by-fy25-redseer-report/2151226/>

82 <https://www.financialexpress.com/industry/sme/indian-wealth-tech-segment-to-be-60-billion-opportunity-by-fy25-redseer-report/2151226/>

83 <https://member.fintech.global/2021/07/28/global-wealthtech-funding-sets-a-new-record-in-2021-after-13-6bn-raised-in-the-first-six-months/>

84 Traxcn data and PwC analysis

Innovation in wealth and investment management business models

Multiple business models have emerged, driven by the vast opportunity in the WealthTech sector and various customer cohorts. While incumbent full-service brokers typically target both high net worth and retail customers, digital discount stockbrokers primarily target

retail customers. Robo advisors enable easy discovery, automated portfolio suggestions and purchase of mutual funds. Hybrid advisory platforms offering tailored advisory and portfolio analysis for mutual fund investments have also seen growth.

Some of the key differentiators between the operating and service models of WealthTechs and incumbents are as follows:

WealthTech models and services

Digital discount brokers

Start-ups that have created tech-first and low-cost broking offerings to empower retail investors and traders with the right tools for investing.

Digital wealth-management platforms

Start-ups providing clients with a 360-degree view of their investment portfolio and tools and assistance to optimise and invest towards their goals.

Robo advisory and mutual fund distributors

Start-ups offering financial advice for achieving goals with moderate-to-minimal human interaction and a platform for mutual fund firms to distribute their offerings.

FS wrapped around non-FS business offering

Start-ups creating value for their end customers by offering non-FS services and bundling WealthTech offerings such as intuitive tax filing services along with inputs on optimising investments for tax savings.

Thematic investing and alternative investment platform

Start-ups enabling retail investors with sophisticated tools, allowing them to create tailored baskets of stocks prevalent to a theme or access to products such as asset-backed security (ABS) for fixed-income returns.

Back and mid-office transformation

Start-ups providing a consolidated investor portfolio management platform for wealth management firms and providing automated insights and decision parameters for advisors.

Foreign equity investment

Start-ups that have launched options to invest in stocks and commodities listed in foreign exchanges.

Simplification of complex trading/algo trading

Start-ups providing platforms enabling simplification of trading in products such as future and options, thereby creating their own algorithms which can allow users to carry out automated trades.

Digitisation and formalisation of independent advisors

Start-ups that have developed a platform for independent advisors, enabling them to provide their services to customers via a digital platform. These start-ups provide the advisors with a digital platform, along with operations support, marketing insights and certifications.

Source: PwC analysis

Regulatory updates

With increasing support from the Government and regulatory assistance, the WealthTech sector has seen significant growth momentum.

Subject to the specifics of a FinTech's business model, WealthTechs typically come under the regulatory purview of SEBI. The regulator has introduced norms (a few are mentioned below) to ensure that the growth of the segment is in consonance with the safeguarding of customer interests:

- allowing selling of mutual funds by e-commerce platforms
- enabling investments towards such mutual funds through PayTechs while placing a limit on the total investment amount
- subject to certain net worth criteria (INR 100 crore+), allowing FinTechs to procure by applying for licences for mutual funds. A few WealthTech players have already obtained such a licence.

e. Innovation in InsurTech

The Indian InsurTech landscape comprises business models such as digital native insurers, policy discovery and delivery aggregators, claims enablement and management, and infrastructure providers. Based on the number of start-ups, the most active category in India has been aggregation and policy management. However, in recent years, some exciting value propositions have been observed in the InsurTech landscape, such as pure-play digital insurance, IoT and telematics enablers, embedded insurance propositions and technology infrastructure in the insurance domain.

In 2020, global insurance penetration was 4.1% in the non-life segment and 3.3% in the life segment. India's insurance penetration, which includes both non-life and life and is calculated as an insurance-premium-to-GDP percentage, was 4.2% in 2020 as compared to the global average of 7.23% as per Economic Survey 2021-22.⁸⁵ In 2020, at 3.2%, India's life insurance penetration was close to the international average but at 1% for non-life insurance, it still lags behind the global rate of non-life insurance penetration.⁸⁶

India's low insurance penetration has been attributed to factors such as mistrust and predatory selling by agents and lack of awareness about the need and benefits of an insurance product amongst customers. Insurance is considered as a cost rather than a risk and cost mitigation product. Low adoption can also be attributed to complicated paperwork for issuance of a policy and timelines to settle a claim.

However, the pandemic led to an increase in user awareness about insurance and its benefits with respect to securing the health, assets and life of oneself and family. According to the IRDAI's 2019–2020 annual report, the total real premium growth of India was 6.9% compared to the global average of 2.9%.⁸⁷ The pandemic also increased the adoption of digital channels for new policy issuance, renewal and claims management. A growing middle class in India, increasing economic activity, initiatives by both Government and private players to instil awareness, favourable regulatory policies and increasing digital penetration are some of the factors expected to catalyse both life and general insurance penetration in a country of 1.3 billion. Additionally, business model innovations and developments such as contextual insurance products, jargon-free policy wording, transparent policy benefit explanation and credit options for insurance premiums could also drive deeper penetration.

Market sizing

In the Asia Pacific region, the Indian insurance technology market was the second-largest market as of 2021.⁸⁸ In FY20, insurance density in India was USD 78 per capita as compared to the global average of USD 809 per capita.⁸⁹

Though traditional channels such as third-party distribution and agency command a major share of the market, online distribution channels are fast evolving. Increase in smartphone usage, internet penetration and digitally savvy millennials are expected to provide a fillip to digital adoption of policy comparison and issuance platforms.

⁸⁵ <https://www.livemint.com/budget/economic-survey/insurance-penetration-inches-up-but-stays-much-below-global-average-eco-survey-11611923743756.html>

⁸⁶ <https://economictimes.indiatimes.com/wealth/personal-finance-news/covid-brings-life-insurance-penetration-in-india-to-global-levels/articleshow/89243583.cms>

⁸⁷ https://www.irdai.gov.in/admincms/cms/uploadedfiles/annual%20reports/IRDAI%20Annual%20Report%202019-20_English.pdf

⁸⁸ https://m.economictimes.com/tech/startups/india-is-second-largest-insurtech-market-in-asia-pacific-sp-global-says/amp_articleshow/82735254.cms

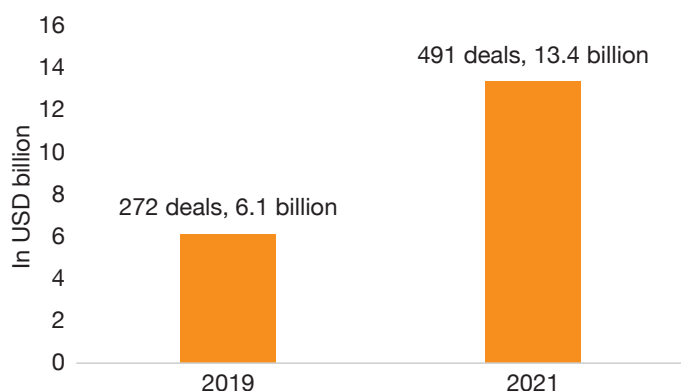
⁸⁹ https://www.irdai.gov.in/ADMINCMS/cms/frnGeneral_Layout.aspx?page=PageNo4641&flag=1

Funding trends

Riding on the growth of the insurance market driven by increasing adoption, favourable demographic factors, product and distribution innovations and a conducive regulatory environment, global investments in InsurTech have grown to USD 13.4 billion across 491 deals in 2021 from about USD 6.1 billion across 272 deals in 2019. In FY 2021, about 64% of the investment, i.e. USD 8.6 billion, was in large-scale deals of USD 100 million and above.⁹⁰

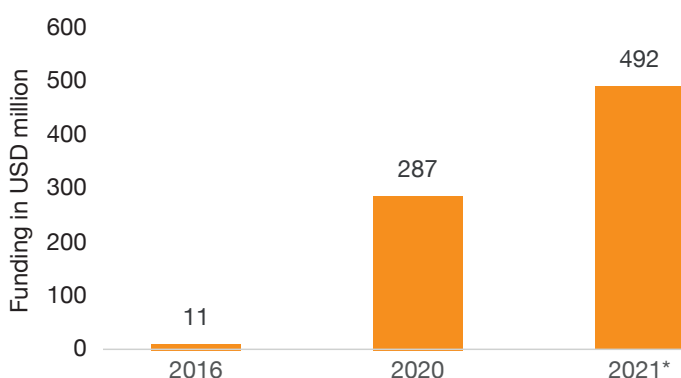
In India, InsurTech funding has seen a boost from a small base of USD 11 million in 2016 to USD 287 million in 2020.⁹¹ Until September 2021, InsurTech deals amounted to USD 492 million across 30 deals, showing promising growth activity during the pandemic.⁹²

Global InsurTech investments



Source: FinTech Global

InsurTech investments in India



Source: PwC

*Data till September 2021

Innovations, developments and global best practices

There has been resistance towards the adoption of InsurTech in India largely due to lack of transparency in plans, difficulties in claim filings and minimal customer education about choosing the most suitable product. By leveraging technology across the value chain, InsurTechs aim to simplify the customer journey, products and services. Some of innovations by InsurTech companies to mitigate these challenges are listed below:

- bite-sized insurance provisioning for a very specific need or duration of protection
- products catering to niche segments such as daily wage earners and new age needs
- products that allow users to switch from protection to prevention such as subscriptions to exercise platforms for a health insurance product or periodic checks, servicing and maintenance of a vehicle for an auto insurance product
- services and solutions beyond insurance such as teleconsultation and medicine delivery for a health insurance product
- enhancing customer, channel partner (B2C, B2B2C and SaaS providers) and employee experience through faster and seamless onboarding and claims management
- building open API stacks to allow channel partners to easily integrate, innovate and issue policies.



90 <https://www.livemint.com/budget/economic-survey/insurance-penetration-inches-up-but-stays-much-below-global-average-eco-survey-11611923743756.html>

91 <https://www.businesstoday.in/technology/story/tech-enabling-innovation-across-insurance-sector-india-insurtech-founder-320898-2022-01-31>

92 Traxcn Sep 2021 data and PwC analysis

Critical pillars for InsurTech growth in India⁹³

Distribution innovation

Addressing the changing business environment and adapting to digital-savvy customers – direct distribution, assisted distribution and affinity distribution (targeted to a particular community, niche market or class).

Product ecosystem

Interconnected system of offerings from a variety of participating providers, allowing customers to fulfill multiple needs through an integrated user experience and higher level of stickiness.

Data formalisation

Spate of unstructured data from digital channels, IoT devices, telematics can be leveraged to drive innovation and insights, e.g. assessing customer needs for product design, behaviour analysis for marketing and distribution, and customised pricing in underwriting.

Millennials as target segment – niche and trending needs

- The emergence of new-age professions like gig work and influencers warrants a change in how the insurance market assesses risk.
- Target the millennials by catering to their specific needs as in India, millennials account for 450 million of the total population, of which 300 million are from rural areas.
- Millennials in rural parts of the country could account for USD 220 billion worth of annual spending

Regulatory updates

The IRDAI is the key regulator for InsurTechs in India. Innovation and enabling factors have led to considerable growth in the segment. The initiatives below aim to create integrated digital health infrastructure and are believed to be some of the key factors contributing to the overall expansion of InsurTechs in the country.

1. IRDAI's Regulatory Sandbox

In line with the RBI's Regulatory Sandbox initiative, the IRDAI created a Regulatory Sandbox for companies (including FinTech solutions) to experiment with innovative use cases in a conducive and contained environment. The two main areas of focus of this sandbox are policyholder protection and flexibility in dealing with the regulatory requirements in the insurance sector.

2. Video KYC enablement

In order to simplify the KYC process and make it customer friendly, the IRDAI permitted life and general insurers to use the video-based identification process (VBIP) to onboard prospective policyholders.

3. Health Ministry and NITI Aayog's National Digital Health Mission (NDHM)⁹⁴

Launched in September 2021, this initiative aims at developing the digital healthcare infrastructure of the country. With NDHM, the Government aims to address the fragmented nature of the Indian healthcare industry by establishing open standards for the medical system to adopt.

Unique digital health IDs, telemedicine, digital doctors and e-pharma, an integrated record of a customer's health history, national electronic facilities register, and a digital health analytics platform are some of the features of NDHM.

93 <https://www.livemint.com/industry/retail/millennials-in-rural-india-shaping-consumption-patterns-in-the-hinterland-1553026089886.html>

94 <https://abdm.gov.in/home/abdm>

4. The Digital Information Security in Healthcare Act (DISHA)

DISHA, the basis for building digital health records in India, elaborates on the security and standardisation of the data shared, data privacy norms for the electronic health records of patients, and maintenance of the confidentiality of such data. The provisions of this yet-to-be-enacted act touch upon regulating the health data of an individual collated right from its generation and collection to the access, storage and transmission of that information.

5. The National Health Stack (NHS)

Comprising three technology stacks, the NHS aims to bring healthcare services to the most remote parts of the country:

- The first stack called the Ayushman Bharat Health Account (ABHA) enables hospitals, laboratories, doctors, etc., to upload the digital health data of a customer to the ecosystem which is then integrated with the account of the user.
- The second stack is the United Healthcare Interface (UHI). It is responsible for payments related to healthcare services procured by the patient. Here, customers can receive telemedicine services provided by doctors via a single platform.
- The third stack of the NHS is the Health Claims Exchange (HCX). It deals with smooth processing of insurance claims, which is largely paper based at the moment.

f. FinTech-SaaS innovations

FinTech SaaS refers to technology firms providing new-age financial services in the SaaS model. They can serve the overall financial services industry, and any other relevant partner looking to embed financial capabilities in their value chain. A simple example can be a technology company providing KYC solutions to banks/NBFCs/ insurance companies or other FinTechs which enable faster onboarding of their customers. These firms help their clients incorporate new technological innovations and also comply with regulatory requirements.

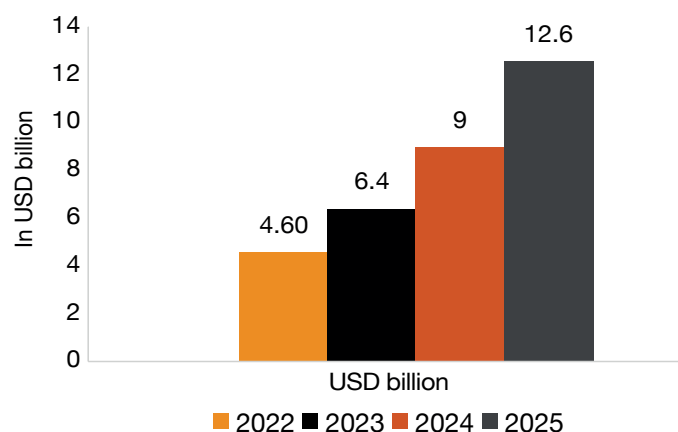
COVID-19 has accelerated the digitisation of the financial services industry, as the number of consumers, both retail and business, choosing digital channels for their financial services needs has increased. With the increased volume of digital financial transactions, the industry needs to scale up technology support in order to handle these higher volumes and provide a seamless experience to customers. Hence, various FinTech SaaS firms offering innovative solutions in the financial product value chain have now become mainstream.

Market sizing

By incorporating SaaS business models into financial solutions, FinTech SaaS firms have an advantage of being valued like SaaS companies, which typically have higher valuations owing to their subscription revenue model and its high retention rates. Further, by using a cloud business model, SaaS companies are able to expand their business without much investment.

The Indian FinTech-SaaS market is projected to see a surge of 2.7 times from USD 4.6 billion in 2022 to USD 12.6 billion in 2025, with a CAGR of 40%.⁹⁵

Indian FinTech-SaaS market



Source: Inc42

⁹⁵ <https://inc42.com/reports/state-of-indian-fintech-infocus-bnpl-q1-2022-report/>

Funding

In 2021, the Indian FinTech-SaaS players raised over USD 267 million through 24 deals.⁹⁶ Compared to other FinTech domains, FinTech SaaS is still in at an early stage. More firms are likely to emerge, leading to higher deal activity in the future.

Latest innovations and developments

Some examples of focus areas among FinTech-SaaS players over the last couple of years are:

- MSME solutions such as accounting and bookkeeping tools, payment aggregation solutions etc. The COVID-19 pandemic pushed **MSMEs to digitise rapidly** and several SaaS solutions have emerged to address their needs.
- Open banking is another area where several SaaS solutions have emerged over the last couple of years. **Open banking standards** have led to partnerships with financial institutions and third-party players to **develop innovative products for their customers using APIs** of banks. A number of API infrastructure providers are supplying the technology tools required for such integration between banks and third-party partners.
- Post the COVID-19 pandemic, FS players are looking to adopt **e-KYC and v-KYC solutions** to ensure seamless digital onboarding of customers. Various FinTech-SaaS players are providing such KYC solutions.
- India registered over 25.5 billion real-time payment transactions in 2020, and the value of digital payments is set to touch USD 1 trillion by 2026.⁹⁷ To capitalise on these growth prospects, banks and FinTechs need a robust payment environment. Various FinTech-SaaS enabler firms are offering plug-and-play platforms with **payment acquisition and processing solutions** which offer faster go to market, low integration costs and a minimal failure rate.

Regulatory updates

Innovation in the IT sector is led by digital and cloud computing services, followed by SaaS. SaaS has been spearheading innovation in the IT sector. With increased use of digital means of doing business, the safety and security of users is always at risk of being compromised. Cyber security/frauds, money laundering, identity fraud, etc., are on the rise with FinTechs claiming their place across the global financial services market.

Some of the regulatory and policy developments that aim to address these issue include:

- a. Regulatory Sandbox:** The theme of the fourth cohort of the RBI's Regulatory Sandbox is prevention and mitigation of financial frauds. With a view to strengthen the governance structure of fraud detection, the regulator aims to use technology to reduce the time taken between occurrence and detection of a fraud.
- b. Prevention of Money Laundering (PML) Act, 2002:** As a precautionary measure, the RBI has been taking appropriate action to address concerns and provide mechanisms in terms of storage, collection and processing of data. The PML rules allow agents and organisations to accept Aadhaar-based e-KYC for electronic identity verification. Introduction of e-KYC aims to reduce both the paperwork required and time spent on documenting customer data.
- c. Tokenisation framework:**⁹⁸ The RBI introduced this framework to address data security concerns pertaining to storage of card data while preserving the convenience of digital modes of payments.
- d. Account Aggregator (AA) Framework:** This first-of-its-kind framework was published with the aim of building a consent-based data-sharing system, making financial data easily accessible to different parties in the financial ecosystem. For example, this framework would help lending institutions/parties to accurately make credit decisions through access to data while ensuring that the power of data-sharing consent remains with the customer.

⁹⁷ <https://timesofindia.indiatimes.com/business/india-business/explained-how-india-is-outpacing-the-world-in-digital-payments/articleshow/88580555.cms>

⁹⁸ <https://rbi.org.in/Scripts/NotificationUser.aspx?Id=12159&Mode=0>



3.

Emerging FinTech themes and opportunities

a. Inclusive finance

Inclusive finance can be defined as the products and services designed to improve access to financial services for the underserved or unserved groups in society. MSMEs, workers in the informal sector, farmers, etc., have traditionally been underserved by incumbent FS firms. Women, generally, have limited access to FS as compared to men. According to the 2017 Findex report, the gender gap among bank account holders in developing countries is at 9%.⁹⁹



About one out of every third adult (1.7 billion) in the world doesn't have access to banking services

Inclusive finance snippet¹⁰⁰

Inclusive finance initiatives can be both financial and non-financial in nature. For example, an application providing credit lines to blue-collar workers using alternative data for underwriting is a financial product improving financial inclusion. On the other hand, an educational initiative that aims to increase awareness about various financial services and channels to access them among working women can be considered as a non-financial service boosting financial inclusion.

⁹⁹ <https://www.worldbank.org/en/topic/financialinclusion/overview#1>

¹⁰⁰ Ibid.

FinTechs, when compared to incumbent financial institutions, have certain advantages in designing products driving financial inclusion. One such advantage is their use of new-age technology which disrupts the traditional ways of providing financial services and their low operating overhead business model. Also, FinTechs are better equipped to offer customised products, so they can extend their services to the underserved groups. A few prominent areas where FinTechs can develop inclusive financial products include alternative data-based lending, digital payments, cross-border transfers and insurance.

The market size for inclusive finance varies according to the types of products offered. According to the Inclusive Finance India Report 2021, the market size for P2P digital remittances is around USD 9.45 billion. Digital lending is another area which can potentially grow in the coming years. With the Open Credit Enablement Network (OCEN) acting as a standard for communication for various stakeholders in lending, innovative credit products can be developed with a reduced go-to-market time.

Use cases

Awareness and financial literacy

A financial literacy platform created by the biggest stockbroker in India receives more than 80k page visits every day and has one million+ app downloads.¹⁰¹

Acquisition of unserved customers

A FinTech in the assisted payments category raised USD 15 million in series B funding in February 2022. The FinTech offers assisted payment solutions to businesses and a digital banking super app for retail merchants in the underbanked areas of the country.¹⁰²

b. Green/sustainable finance

Sustainable finance refers to the process of integrating environmental, social, governance (ESG) metrics while considering investment decisions. It helps to evaluate the impact that an investment can have in building an inclusive and sustainable economy for the future. In the post-COVID world, we are seeing increased focus on green and sustainable finance. Some prominent institutional investors and asset management companies are looking to add the ESG criteria to the set of standards to be applied for their investment allocation. Regulators are also taking action to formalise ESG data disclosures that can help in better understanding a firm's ESG standing. Firms are also cognisant of the rising importance of sustainability – over 200 companies have signed the Climate Pledge, an initiative where companies promise to become carbon neutral by 2040.¹⁰³

FinTechs can play a major role in driving sustainable finance. For example, challenger banks with their branchless, paperless model can have a positive impact on the environment. Apart from their inherent digital model, many FinTechs are offering products through which they aim to create a positive environmental and social impact:

A Sweden-based FinTech provides its customers the opportunity to invest in solar projects and offers returns with interest once the project is implemented.¹⁰⁴

An Irish-American payment processor has launched a new initiative in which businesses can route a portion of their revenue into financing carbon-removal projects.¹⁰⁵

A Hong Kong based FinTech provides a blockchain-based solution which is focused on solving pain points in the creation of green digital products.¹⁰⁶

101 <https://www.businessinsider.in/business/startups/news/zerodha-has-a-booming-content-platform-within-but-it-has-no-plans-to-milk-it/articleshow/78768073.cms>

102 <https://inc42.com/buzz/rapipay-raises-15-mn-to-launch-digital-banking-super-app-and-scale-up-existing-payment-services/>

103 <https://abcnews.go.com/Business/200-companies-pledge-net-emissions-2040-pressure-private/story?id=80124841>

104 <https://trine.com/>

105 <https://stripe.com/in/climate>

106 <https://treelionfoundation.com/en/structure.html>

According to Bloomberg, the global sustainable investment industry saw growth of 15% over 2018–2020, reaching USD 35 trillion. By 2025, this number is expected to reach USD 53 trillion.¹⁰⁷ India is also expected to witness growth in the sustainable finance industry, with projects emerging to help India achieve its commitment of net zero emissions by 2070. As part of these efforts, India aims to grow climate-related debt markets by issuing green bonds. With green bonds worth USD 6.11 billion already issued till November 2021,¹⁰⁸ it is expected that the trend will continue in 2022. With such Government initiatives to fuel climate-friendly projects, India is looking to incentivise participation from banks and the private sector in sustainable projects. Sustainable finance projects show considerable potential for growth in future, and this will provide many business opportunities to both incumbent financial institutions as well as FinTechs. However, how each participant aims to capitalise on these opportunities remains to be seen. Some of the possible areas in green/sustainable finance which FinTechs can explore are:

- a. solutions for monitoring, reporting, and quantifying ESG risks and opportunities
- b. business intelligence and analytics services to help educate and engage individuals and institutions in reducing environmental impact through the identification of possible threats to the environment and generation of insights
- c. use of technologies such as intelligent process automation (IPA) and distributed ledger technology (DLT) which help in issuing and transacting ESG-related bonds and other securities in a cost-effective manner.

c. CBDC

In Union Budget 2022–23, the Finance Minister of India announced that the RBI would roll out a ‘digital rupee’ based on blockchain technology in this financial year. This adds India to the long list of countries that are developing a digital currency.

CBDC is a digital form of the fiat currency issued by the central bank on a distributed ledger and is the direct liability of the central bank.

A few reasons for undertaking the development of CBDCs are as follows:¹⁰⁹

- helps to reduce the use of paper money and encourages adoption of digital money
- makes the issuance and control of money in the country’s economy more efficient
- seeks to limit the damaging effects of using private cryptocurrencies by meeting the public’s need for digital money.



¹⁰⁷ <https://www.bloomberg.com/news/articles/2021-07-18/european-esg-assets-shrank-by-2-trillion-after-greenwash-rules>

¹⁰⁸ <https://economictimes.indiatimes.com/markets/bonds/decoding-green-bonds-india-market-and-how-to-invest-in-it/articleshow/90230488.cms?from=mdr>

¹⁰⁹ https://www.rbi.org.in/Scripts/BS_SpeechesView.aspx?Id=1111

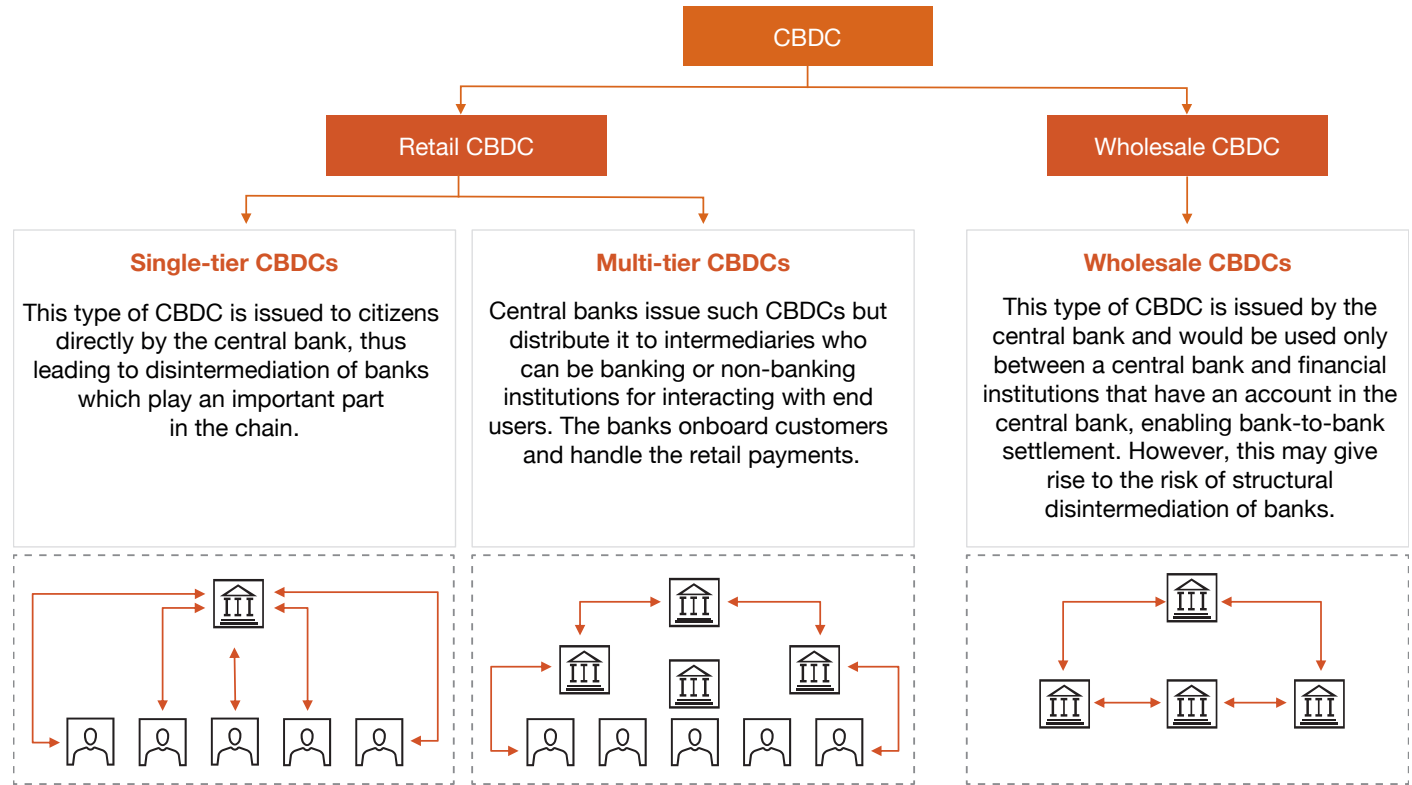


CBDC: Possible models

CBDC is a digital version of physical cash. Thus, it is expected that the digital currency will be a non-interest-bearing payment instrument.

The two major categories of CBDCs are retail and wholesale.

Categories of CBDC



Source: PwC analysis

The major use cases of CBDC are given below.

Use cases of CBDC

Retail

Programmable money

This is used for the purpose it was intended for, making it a fit for subsidy distributions by governments and employee benefits distribution (e.g. fuel expenses).

Retail payments

The irrefutable nature of CBDC, when combined with ownership record transfers, can provide evidence of proof of ownership.

Cross-border remittance

Reduction in cost and time required is achievable if the country collaborates with major economies on CBDC infrastructure and services.

Retail

Instant settlement

Instant settlements through automation and decentralisation, thus reducing counterparty risks.

Securities market

Delivery versus payment risk in the securities settlement can be minimised by automating the entire process using smart contracts.

Corporate payments

Conditions-based payments and automation of compliance payments like taxes and streamlined financial compliance processes such as audits.

CBDC and the role of FinTechs

Technology

- FinTechs and technology providers need to develop DLT networks which can coexist with the existing payment rails.
- Existing technology stacks in banks need to be integrated with a distributed ledger in order to offer a seamless experience to customers.

Product innovation

- FinTechs and banks can earn additional revenue streams by creating value-added services such as digital wallets, cards linked to wallets, a mobile application that acts as a customer touchpoint for DLT, interoperability between a customer's digital money and other digital assets around CBDC.

Upskilling

- FinTechs and banks can undertake awareness campaigns that will not only boost customer confidence in CBDC but also establish trust in their brand among stakeholders.
- Corporates should perform upskilling of their employees on DLT technologies and CBDC for future readiness.

Miscellaneous

- Interoperability between the fiat currency and CBDC needs to be seamless for greater reach and acceptance among end users.
- Customer convenience and a simple user interface would be required to make the CBDC user friendly.
- Running and maintaining the CBDC infrastructure efficiently at a low cost, along with support for high transaction volumes, would prove to be key success factors.

Use cases

1. Retail CBDC: Sand Dollar by Central Bank of Bahamas

The Central Bank of Bahamas launched its retail CBDC ‘Sand Dollar’ in October 2020, after the pilot phase was conducted in December 2019.¹¹⁰ With 90% mobile penetration and a high per capita income, the islands were ideal for the launch of the world’s first CBDC. The CBDC is issued in a public–private partnership through authorised financial institutions, and all residents can access the Sand Dollar using a mobile application or a physical payment card. The Sand Dollar is available 24x7x365 and also supports an offline functionality, making payment possible on an island with limited network connectivity. There are three types of wallets that users can opt for, each with different transaction limits. These limits are based on the KYC and anti-money laundering (AML) compliance of the retail customer while merchants need to be fully KYC compliant.

The preliminary goals of the project are to deliver a robust, scalable and trustworthy CBDC system. Interoperability and universal acceptance are also considered in the project design. The NZIA Cortex DLT is the foundation of this CBDC, with a hybrid mobile network at the top with multi-factor authentication for wallet users.

2. Wholesale CBDC: Inthanon-LionRock by the Hong Kong Monetary Authority (HKMA) and Bank of Thailand (BOT)

One of the wholesale CBDC (w-CBDC) projects is Project Inthanon-LionRock, which is a joint initiative between the BOT and the HKMA. This project aims to increase the efficiency of cross-border fund transfers. The processing fee for a cross-border fund transfer is generally 7% of a transaction on average. Moreover, the entire process is heavily dependent on corresponding banking, which makes it time consuming and costly. Therefore, an alternative is required.¹¹¹

Launched in September 2019, Project Inthanon-LionRock seeks to build a proof of concept (PoC) where a THB-HKD cross-border corridor network is set up as a bridge between the two countries. It allows participant banks in each country to conduct foreign exchange transactions, fund transfers on a P2P basis in real time and carry out atomic payment-versus-payment (PvP) settlements, thereby increasing settlement efficiency.

Wholesale CBDC (w-CBDC) was powered by R3’s Corda wherein the w-CBDCs of Thailand and Hong Kong, i.e. Inthanon of the BOT and LionRock of the HKMA, were amalgamated by a corridor network developed specifically for providing interoperability. The central banks of the respective countries provided token-conversion services between domestic and corridor nodes using depository receipt conversion.



110 <https://www.forbes.com/sites/vipinbharathan/2020/10/21/central-bank-digital-currency-the-first-nationwide-cbdc-in-the-world-has-been-launched-by-the-bahamas/?sh=2a6077e2506e>

111 https://remittanceprices.worldbank.org/sites/default/files/rpw_report_december_2016.pdf

d. Web 3.0 and the metaverse

Web 3.0

The World Wide Web (WWW) has evolved from basic, read-only Web 1.0 to Web 3.0 which is readable, writable and executable. Web 3.0 is the third generation of internet services, which comprises a decentralised web based on blockchain technology and enables the adoption of crypto assets and currencies. The deployment of blockchain technology makes all the data exchange and transactions in Web 3.0 secure and transparent. Web 3.0 is more ubiquitous and connective as it aims to connect everyone without any hardware or software limitations.

Evolution of WWW

Web 1.0

Desktop | Banner ads | Browser |
Basic content delivery | E-commerce |
Static web pages

Web 2.0

B2B and P2P file sharing | Sharing economy |
Social media | Marketplaces | Subscriptions |
Dynamic web pages | SaaS | Mobile and OS

Web 3.0

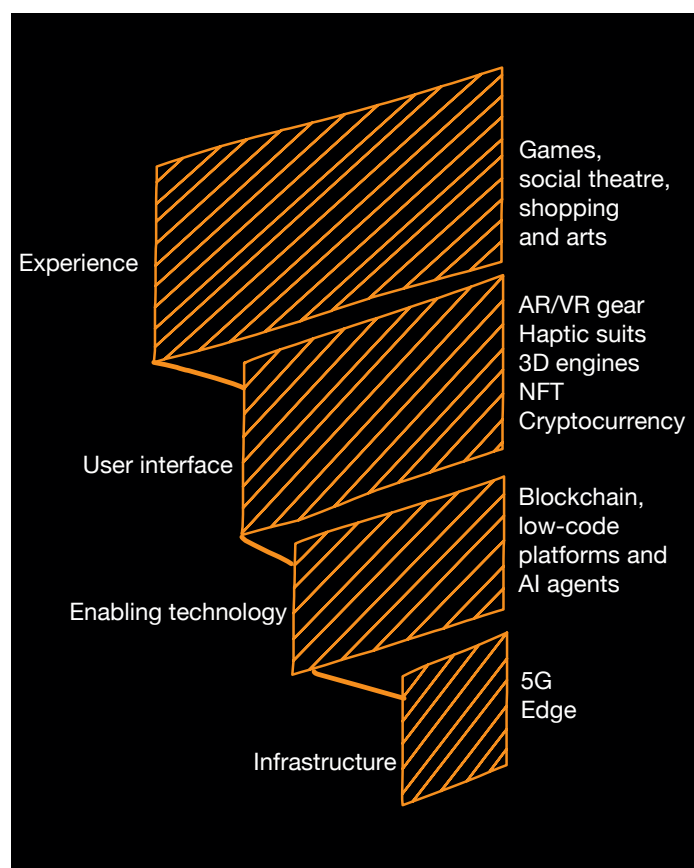
Creator economy | ESG-friendly e-commerce |
Augmented reality | Decentralised web |
Intelligent web | Metaverse | Digital world |
Semantic web

Enabled with technologies such as AI, AR and VR, Web 3.0 has the potential to improve the efficiency of financial services to deliver better and personalised user experiences. Additionally, it presents a host of opportunities to integrate embedded finance product offerings – including payments, BNPL, and insurance – through applications such as the metaverse. The blockchain technology used in Web 3.0 makes cross-border payments smooth and instant. It also helps in the development of decentralised financial structures in the traditional banking sector.

Apart from this, Web 3.0 has also paved the way for financial innovations like crypto assets and currencies and concepts like decentralised finance (DeFi).

Metaverse

Metaverse building blocks



The metaverse is a digital environment that imitates the real world through the use of emerging technologies. Here, people can use various avatars to socialise and build communities virtually. Hardware devices like AR/VR glasses bring the metaverse environment to life, and haptic suits help people to touch and experience the objects in them. Cryptocurrencies can be used to purchase various items in the virtual world, and non-fungible tokens (NFTs) are digital assets that can be purchased, owned and sold in the metaverse. The key technology drivers for the metaverse include AI, blockchain, 5G, edge computing and data storage.

The applications of FinTech in the metaverse are huge. Current facilities like digital payments and identity and fraud detections are required in the metaverse where people can shop and own assets virtually. With more people getting on board the metaverse, services like crypto wallets and crypto bookkeeping will also need to be introduced. Financial institutions and FinTechs would be required to develop AI-based predictive response models to enable faster transactions as the

traditional request–response model would be too slow for the virtual world. Moreover, the metaverse will also provide embedded financial opportunities, and FinTechs would be required to develop the necessary crypto technologies to implement the same.

Use cases

A state-owned bank in South Korea is planning to enter the metaverse platform to provide a range of financial products to the virtual market through a social media platform and its currencies. Through this, the bank plans to address new customer segments like creators, artists and gamers.¹¹²

Financial organisations can help develop AI assistants for their metaverse customers. These assistants would aid in tracking and reporting a client’s virtual financial data. As the metaverse develops from its current nascent stage, it is expected that various new opportunities could emerge for the FinTech industry.

e. Decentralisation– DeFi and blockchain

DeFi refers to a decentralised cryptocurrency platform that can run independently without the support of a company or a group of persons. DeFi platforms are generally enabled by smart contracts on a blockchain network, primarily based on Ethereum which is a blockchain-powered crypto asset. The smart contracts on which DeFi is built have predefined triggers that are embedded on this platform and enable the execution of financial agreements or obligations. Below are some of the use cases associated with DeFi protocols:

Indian context

India ranks sixth on the overall DeFi Adoption Index.¹¹⁵ DeFi relies heavily on a P2P network and provides a unique value proposition to the Indian economy. It enables financial institutions and banks to build new models around accessing loans and deposits that are not reliant on a centralised model for banking.

Use cases of DeFi



Asset management

Allows to earn profit on digital assets by the way of interest earned, trading, etc.



Lending

Enables P2P lending with high interest rates and low risk



Derivatives

Helps in the creation of tokenised derivative securities with added security



Digital identity

Helps in the creation of a portable digital identity that is secure and private

Use cases


- **Lending:**¹¹³ A London-based start-up has created a decentralised, open-source and non-custodial protocol built on Ethereum, which enables users to participate as both lender and borrower in blockchain-based currency.
- **Derivatives:**¹¹⁴ A P2P trading platform founded in 2014 has enabled users to trade in derivatives using bitcoin. In this type of a setting, there is no need for a broker, and the transactions are executed when the terms and conditions of the contract are fulfilled.
- **Digital identity:** A FinTech founded in 2002 offers decentralised access and identity management services which are open source and can be easily integrated using APIs.

112 <https://www.forbes.com/sites/forbestechcouncil/2022/03/15/banking-on-the-metaverse/?sh=5ceb88776068>

113 <https://www.reuters.com/article/uk-crypto-currencies-lending-insight-idUKKBN25M0GQ>

114 <https://www.pymnts.com/cryptocurrency/2022/crypto-exchange-bitmex-buy-268-year-old-german-bank/>

115 <https://inc42.com/buzz/india-ranked-6th-on-global-defi-adoption-index-chainalysis/#:~:text=Indians%20are%20now%20fast%20moving,by%20blockchain%20data%20firm%20Chainalysis>



Regulatory framework

The RBI has made it amply clear that crypto assets cannot be used for any payment purposes. For this reason, the Government of India has announced its intention to roll out a CBDC. However, DeFi applications are still operating in a regulatory vacuum, and there will be greater clarity once the Crypto Bill gets tabled. There are around 200–300 companies in India that offer the DeFi model – although without any formal regulations.¹¹⁶ However, the expectation from the industry is that a stable framework with focused regulations that can reduce the risks around blockchain-powered decentralised models will be set up.

¹¹⁶ <https://www.livemint.com/industry/banking/defi-can-help-with-financial-inclusion-but-it-needs-to-be-regulated-11640636654241.html>



4.

Challenges faced by India's FinTech industry

Though the Indian FinTech ecosystem has seen significant progress and increased market traction recently, the industry has its share of impediments and challenges as well. FinTech players find it challenging to keep pace with the constant technological advancements, enable customer adoption and brand-building, endure long fundraising cycles, and comply with an array of regulations and compliances. Further, as financial information is vulnerable to threats from hackers and cybercriminals, transmission of data can be at risk of fraud, among other risks. While financial technology has ushered in growth and development, it also exposes the entire ecosystem to various internal and external risks. Some of the key risks and challenges faced by FinTech companies are highlighted below.

Demand side challenges

Low financial literacy and lack of awareness: More than 70% of India's population lives in rural areas and villages,¹¹⁷ and adoption of FinTech services by consumers as well as the target segment for a majority of the platforms is largely concentrated in metro and tier I and II urban cities. India makes up for about 17% of the world population. Currently, over 45%¹¹⁸ of its population has an online presence, and only 24% is financially literate.¹¹⁹ This creates an additional hurdle to acquire and service customers, impeding the country's vision for financial inclusion. Last-mile reach through models using 'phygital' approaches in rural areas will be pivotal in driving market awareness, adoption of and trust in new-age FinTech platforms for the underserved.

¹¹⁷ <https://www.thehindu.com/news/national/About-70-per-cent-Indians-live-in-rural-areas-Census-report/article13744351.ece>

¹¹⁸ <https://www.financialexpress.com/money/digital-literacy-making-way-for-indias-financial-inclusion/2356008/>

¹¹⁹ <https://timesofindia.indiatimes.com/home/education/news/why-encouraging-literacy-in-finance-matters/article-show/78060694>

Shifting from cash to digital modes: As a significant segment of the Indian population is underbanked, it is difficult to introduce a mindset shift from cash transactions to online purchases. Sustained preference for cash,¹²⁰ especially in some developing countries like India, increases the barriers for new entrants with innovative models. Online financial services are often associated with frauds and digital scams. Apart from this, low financial literacy and low internet penetration make it difficult to access and adopt digital financial services solutions. The Government's adoption policies to address these gaps have been a positive step towards this change. However, the same will only reflect over a long period.

Supply side challenges

Lack of talent: As per industry estimates, India produces close to 1.5 million engineers annually.¹²¹ However, there is a considerable gap between the available and new-age tech skillset requirements for FinTech jobs. Beyond core engineering and technology skills, FinTech start-ups also demand practical and domain knowledge in areas such as design and product management. Hence, employability is difficult at an early stage of one's career, and talent availability becomes a key issue to be addressed.

Lack of early-stage funding: Despite the FinTech segment in India attracting sustained venture capital funding over the past few years, there is still lack of access to early-stage capital for many small start-ups, halting their potential to scale up. According to India FinTech Opportunities Review (IFOR) report 2017, 71% of pre-revenue and 81% idea-stage FinTech start-ups noted 'severe difficulty' in raising funds. The respondents highlighted that PoC funding is another major challenge – only 11% reported that they received funding, and 19% stated that their industry partners funded the PoCs.¹²²

Regulatory, compliance and technology challenges

Managing regulatory uncertainty: Although FinTechs in India have the advantage of an enabling regulatory environment, they are not immune to regulatory uncertainties. Early-stage start-ups face greater difficulties in this regard since they lack an in-house legal and compliance team that can stay abreast

with regulatory reforms and changes. Although FinTech players have helped create a diverse financial services ecosystem, this has also led to an increase in interconnectivity and a need to comply with and manage interjurisdiction laws. Thus, it is imperative for market regulators to keep up with technological advancements in order to understand the evolving risks of the FinTech ecosystem and innovations. For example, cryptocurrencies could potentially be used for money laundering, and algorithm trading driven by AI could lead to systemic risks by accelerating market volatility.

The absence of a single umbrella regulation governing multifaceted business models of the FinTech domain, constantly evolving regulations, uncertainty over the existing regulatory regime, and requirements to seek applicable authorisations are some of the challenges faced by FinTechs in India.

Cybersecurity and data-privacy: With the accelerated pace of technological advancements, cybercrime has also become more sophisticated. The internet revolution and digital business models of FinTechs have made confidential customer information accessible to trustworthy entities. As a larger population adopts digital transactions, detection and prevention of such frauds are critical. The onus is on FinTech players (and their partners) to ensure that adequate digital controls are available to secure customers' trust. Contactless payments, fraudulent identities, phishing, etc., entail a host of cybercrime and data privacy issues. Market regulators finding it challenging to balance the industry's call for open data to offer targeted and personalised services and consumer needs for data privacy and sharing. A breach in data privacy is one of the biggest compliance threats faced by the FinTech ecosystem and could lead to huge financial losses and reputational damage. While the Account Aggregator framework is a positive step to seamlessly aggregate and share customer data (with consent) from multiple financial information providers to financial information users, data security and privacy still remains a key domains for FinTechs to address.

¹²⁰ <https://www.bis.org/cpmi/publ/d173.pdf>

¹²¹ <https://timesofindia.indiatimes.com/home/education/news/only-3-engineer-graduates-get-high-quality-tech-jobs-in-india-report/articleshow/76998063.cms>

¹²² <https://inc42.com/buzz/indian-fintech-opportunities-review-yes-bank-report/>

5.

Road ahead

a. Learnings from global regulatory practices

Globally, India stands at the forefront of FinTech development. From an average adoption rate that is higher than that of most other countries to the introduction of enabling and supportive regulations, India's FinTech ecosystem continues to flourish. Below are a few global practices that India can benefit from.

Neobanking licences

Neobanks simplify financial services and benefit customers by providing them with user-friendly interfaces, quick payments (international and domestic), tailor-made services, etc. The business processes and technology stacks are digital, agile, lean and have light-touch regulations, which translate into a low cost of operations and compliance.

The Monetary Authority of Singapore, Financial Supervisory Commission of Republic of China (FSC Taiwan), Bank Negara Malaysia (BNM), Bangko Sentral ng Pilipinas and HKMA are a few regulators that have issued digital banking frameworks and commenced granting digital banking licences. In contrast, the Bank of Thailand (BoT) is inclined towards regulating the digital banking space, while the Bank Indonesia has issued the guidelines for digital banks recently.¹²³

With the recent RBI DBU circular¹²⁴ and NITI Aayog's paper on digital banking,¹²⁵ India has taken a step towards introducing a potential regulatory regime for neobanks in the country. To this end, it may look to use best practices from neighbouring regimes to add further clarity on the role and scope for Indian neobank FinTechs.

¹²³ <https://www.pwc.in/assets/pdfs/consulting/financial-services/fintech/publications/the-evolution-of-neobanks-in-india.pdf>

¹²⁴ <https://www.rbi.org.in/Scripts/NotificationUser.aspx?d=12285&Mode=0>

¹²⁵ https://www.niti.gov.in/sites/default/files/2021-11/Digital-Bank-A-Proposal-for-Licensing-and-Regulatory-Regime-for-India.24.11_0.pdf

Cross-border payments

The Group of Twenty (G20) has prioritised the roadmap for enhancing cross-border payments in order to deliver low-cost and tech-driven solutions for international remittances. Globally, governments of countries such as the UK, Turkey, Spain and Italy have combined efforts to promote the usage of novel digital means for cross-border payments. Backed by rapid digitisation, countries are working towards moving to mobile-only cross-border transfers.

India's cross-border remittances have grown at CAGR of 8% since 2016. Furthermore, India is one of the largest markets for inward remittances in the world, valued at around USD 83 billion.¹²⁶ Recently, in India, the RBI shortlisted a neobanking platform that caters to MSMEs and aims to build a product that uses blockchain technology to facilitate cross-border transactions, making them convenient, cost-effective and user-friendly.

VDAs

Global players have been charting out policies and developments with the increasing adoption of DeFi, NFTs, digital assets, and more. From the virtual currency regulator of the US – the Commodity Futures Trading Commission (CFTC) – to the German regulator – the Deutsche Bundesbank – recent trend across nations has been to evaluate the potential use of VDAs in furthering financial stability and transparency in financial systems.

In the Union Budget 2022–23 announcements in India, the finance minister announced the taxability of VDAs, thus bringing digital assets under partial regulatory control. While the Government has taken a step forward to define the taxation regime for VDAs, there is a potential to take inputs from international developments on the legal definition and regulatory stance.

Taking a cue from global regulatory guidelines

So far, regulators worldwide have taken into consideration all of the above-mentioned trends. Thus, while keeping the core principles (such as licensing, KYC/AML norms, customer fund protection, data privacy, etc.) intact, Indian regulators can leverage the best practices globally for determining the regulatory regime. Although the regulatory practices followed will be diverse, India may choose to adopt the practices that best cater to its FinTech industry and are consistent with the overall vision of the Indian regulators for FinTechs in India.

b. Business opportunities

FinTech encompasses a number of themes, each of which has its own growth prospects and provides attractive business opportunities to serve consumers. Below, we discuss some of these and chart a road map for innovation.

Embedded finance

Embedded finance presents a win-win business opportunity for all stakeholders involved. For non-financial players, it is an opportunity to enhance their product offerings to their customers and reduce customer drop-offs. For banking partners, it provides increased revenue opportunities and a channel for new customers with future cross-selling or upselling opportunities. For customers, it simplifies the access to financial services and provides a better overall experience. The global embedded finance market is estimated to reach USD 7 trillion by 2030.¹²⁷ With the APIfication of financial products promoting easy integration and initiatives like OCEN – which aims to standardise data transfer processes – embedded finance will provide attractive business opportunities for FinTechs in the future.

Use cases

A digital asset exchange platform for the tokenisation and trading of asset-backed digital securities in Singapore has been granted a licence by the Monetary Authority of Singapore. The platform is used to connect accredited investors and institutions to businesses and asset owners. It also enables investors to seamlessly access, trade and invest in high-value and illiquid assets through tokenisation.



¹²⁶ <https://www.pwc.in/assets/pdfs/consulting/financial-services/fintech/point-of-view/pov-downloads/the-evolving-landscape-of-cross-border-payments.pdf>

¹²⁷ <https://www.forbesindia.com/blog/finance/embedded-finance-will-drive-financial-inclusion-for-the-next-500-million-indians-vasanth-kamath/#:~:text=bank%20technology%20companies%2C-,which%20is%20estimated%20to%20be%20%247%20trillion%20globally%20by%202030.,-Embedded%20finance%20via>

Ecosystem strategies

FinTechs that serve the needs of an ecosystem have potential for high growth. Considering ecosystems such as MSMEs, agri and education, which have both financial as well as non-financial needs, FinTechs are developing focused platforms with embedded financial and non-financial services. These platforms deliver holistic value propositions through ecosystem partnerships with service providers. For example, in the MSME ecosystem, a major financial services opportunity is created as it is estimated that there is a credit gap of USD 219 billion¹²⁸ existing in the Indian MSME market as of June 2020. However, apart from lending, MSMEs require other financial and non-financial services such as access to markets and raw materials, account receivable/payable management, payment processing, invoice management, GST filing, inventory management and enterprise resource planning (ERP) services. Digital platforms that combine these services by stitching together offerings of different providers have a higher chance of customer engagement and retention. Further, pooling of the acquisition channels of all partners involved generates insightful data, thereby benefiting these platforms. Similar strategies of coupling financial and non-financial solutions on a platform can be adopted for other ecosystems as well. The emergence of tech disruption in these ecosystems (e.g. AgTechs, EdTechs) has further increased the potential opportunities from ecosystem-based digital platform strategies.

ESG

Over the past few years, sustainable finance has been gaining traction throughout the world. Globally, FinTechs are already taking an active role in integrating ESG into their service offerings. A US-based neobank valued at USD 2.3 billion is differentiating itself by ensuring that its customer deposits are not invested in industries that harm the environment, successfully creating a sustainable brand.¹²⁹ With the developing ESG landscape in India, FinTechs can use this opportunity to offer innovative sustainable products and services. Moreover, FinTechs can contribute by creating solutions focused on monitoring and reporting, business intelligence and analytics for ESG-related opportunities.

Cross-border payments

India has an inward remittance market worth USD 83 billion.¹³⁰ Conventional methods of cross-border transfers have an average charge of 7%¹³¹ of the transferred amount and an associated delay of one to five days. These challenges pose a lucrative business opportunity for FinTechs – if they can reduce the time taken and cost of transfer. The development of faster payment rails to other countries, like UPI, can help enable such products. Products leveraging blockchain technology for cross-border transactions is another area that can be explored. One example is that of a US-based real-time remittance firm which wrote its own open-source protocol¹³² to enable instant transfers to any part of the world.

Longevity finance

India's elderly population is expected to grow from 138 million in 2021¹³³ to 300 million in 2050. This age group will account for 18% of the population.¹³⁴ Innovations in medical science will extend the average life expectancy of this generation. This transformation in the demographic will create new opportunities to design tailored investments and insurance solutions and their supporting ecosystems. A few areas of opportunity include pension schemes, differentiated life and health insurance, innovative solutions like reverse mortgage and robo-advisory products targeted at elders.

Digital correspondents

Nearly 70% of the Indian population lives in rural areas where access to proper financial services, banking infrastructure can be further improved.¹³⁵ Even with growing smartphone penetration, Indian rural areas still score low on digital and financial literacy. The rural population faces problems in opening bank accounts and in depositing and withdrawing money. It is also usually unaware of basic insurance and investment products. Banking correspondents are people who are appointed by banks to provide basic banking services to the rural population. Even with these correspondents in place, there still exists a huge segment of unbanked and underbanked population

128 <https://economictimes.indiatimes.com/small-biz/sme-sector/funding-and-msmes-can-banks-fintech-together-address-the-credit-gap-for-small-businesses/article-show/81087510.cms?from=mdr>

129 <https://www.finextra.com/newsarticle/38683/socially-conscious-fintech-aspiration-to-go-public-via-23bn-spac-merger>

130 <https://bfsi.economictimes.indiatimes.com/news/fintech/what-are-cross-border-payments-and-how-are-fintechs-revolutionising-it/87499027>

131 https://remittanceprices.worldbank.org/sites/default/files/rpw_report_december_2016.pdf

132 <https://timesofindia.indiatimes.com/business/cryptocurrency/blockchain/all-you-need-to-know-about-ripple-network-and-its-crypto-xrp/articleshow/88424114.cms>

133 <https://www.bloomberqint.com/business/in-charts-how-india-is-ageing>

134 <https://timesofindia.indiatimes.com/business/india-business/govts-focus-on-silver-economy-as-number-of-elders-rises/articleshow/79831302.cms>

135 <https://economictimes.indiatimes.com/small-biz/money/addressing-the-need-gaps-how-indias-fintechs-can-make-deeper-inroads-in-rural-india/articleshow/88084255.cms?from=mdr>

Digital correspondents might provide a solution to this problem. With the increasing digital adoption in the agri, e-commerce and logistics sectors – along with established physical distribution networks present in tier III cities and beyond – use of these channels along with the assisted digital capabilities can further the proliferation of financial services. These correspondents may be employed or contracted by financial institutions and new-age FinTechs to provide basic financial services seamlessly at the last mile, whether as self-service or assisted. Moreover, they can be trained using technology to acquire and impart financial knowledge and onboard and service customers. For example, these digital correspondents can be grocery store owners, delivery executives and digital players from sectors that have large distribution networks (like e-commerce and food delivery) and can also be digital correspondent partners for banks and FinTechs. The digital correspondents could supplement the RBI's newly proposed guidelines on DBUs.¹³⁶

The Indian FinTech ecosystem continues to see impressive momentum and growth opportunities. The digitisation and disruption of allied ecosystems as well as emergence of the next wave of technology disruption bode well for the country's FinTechs. While the sector has always had a positive impact on financial inclusion, there will be a marked opportunity for FinTech players to have a larger ESG impact as well as drive innovations, partnerships and transformations for sustained and inclusive economic growth.



¹³⁶ <https://www.livemint.com/news/india/rbi-unveils-guidelines-for-digital-banking-units-here-s-10-key-points-1164933355898.html>

About ASSOCHAM

The Associated Chambers of Commerce & Industry of India (ASSOCHAM) set up in 1920, is the country's oldest apex chamber. It brings in actionable insights to strengthen the Indian ecosystem, leveraging its network of more than 4,50,000 members, of which MSMEs represent a large segment. With a strong presence in states, and key cities globally, ASSOCHAM also has more than 400 associations, federations and regional chambers in its fold.

Aligned with the vision of creating a New India, ASSOCHAM works as a conduit between the industry and the Government. The Chamber is an agile and forward looking institution, leading various initiatives to enhance the global competitiveness of the Indian industry, while strengthening the domestic ecosystem.

With more than 100 national and regional sector councils, ASSOCHAM is an impactful representative of the Indian industry. These Councils are led by well-known industry leaders, academicians, economists and independent professionals. The Chamber focuses on aligning critical needs and interests of the industry with the growth aspirations of the nation.

ASSOCHAM is driving four strategic priorities - Sustainability, Empowerment, Entrepreneurship and Digitisation. The Chamber believes that affirmative action in these areas would help drive an inclusive and sustainable socio-economic growth for the country.

ASSOCHAM is working hand in hand with the government, regulators and national and international think tanks to contribute to the policy making process and share vital feedback on implementation of decisions of far-reaching consequences. In line with its focus on being future-ready, the Chamber is building a strong network of knowledge architects. Thus, ASSOCHAM is all set to redefine the dynamics of growth and development in the technology-driven 'Knowledge-Based Economy'. The Chamber aims to empower stakeholders in the Indian economy by inculcating knowledge that will be the catalyst of growth in the dynamic global environment.

The Chamber also supports civil society through citizenship programmes, to drive inclusive development. ASSOCHAM's member network leads initiatives in various segments such as empowerment, healthcare, education and skilling, hygiene, affirmative action, road safety, livelihood, life skills, sustainability, to name a few.

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