

# The role of technology in shaping the financial services sector for Viksit Bharat

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# 1. Executive summary

A robust financial services (FS) sector can support capital accumulation, serve micro small and medium enterprises (MSMEs) and startups, and enable economic advancement through modern, inclusive, digital services. It can provide insurance and pension plans for financial security and support infrastructure development in critical areas to facilitate trade and competitiveness. Furthermore, the sector can also adopt sustainability principles through ESG strategies and shift away from profit maximisation towards a holistic approach for conducting business in the sector.

Within FS, banks are the largest beneficiaries of digital disruption, leveraging modern technologies for steady credit growth while also ensuring credit distribution to the last mile. The banking sector has a high credit-to-deposit ratio which indicates that banks have been more aggressive in lending which is essential for economic activities like investment, consumption and infrastructure development. By June 2024, the financial wealth of households hit a record 115.9% of GDP in India. This reflects the rapid growth of household gross financial assets and relatively stable household debt. Indian households have allocated an increasing share of their savings towards financial assets, with net financial savings accounting for almost 30% of the total savings.<sup>1</sup> Penetration into the mutual funds (MFs) as an asset class has been slowly but consistently rising over the years, and this can be gauged from the steadily increasing systematic investment plan (SIP) contributions as well as the increasing proportion of smaller cities in total MF assets under management (AUM). As a result, current account and savings account (CASA) deposits have declined, as customers switch in favour of higher yielding term deposits. More than ever, technology is playing an integral role in obtaining new customers – accounts that were acquired digitally outnumbered offline accounts. Digital payments have been increasing at a CAGR of 44% for the past five years, and UPI alone is responsible for 70% of these digital transactions. Digital payments in aggregate make up 40% of all transactions across the country.<sup>2</sup> Technology is at the heart of this growth while internet and telecom penetration are the enablers. Tablet banking, Aadhaar enabled Payment System (AePS) and micro and biometric ATMs are helping in boosting this number.

NBFCs are spending more on digitisation of their credit value chain from sourcing to servicing. FinTechs and NBFCs are collaborating to experiment with emerging technologies. Though technology has changed the face of FS, challenges such as unrealised business benefit per unit investment in technology, digital literacy, skill gap, legacy systems and related latencies, cyber security threats and infrastructure deficiencies still persist. To resolve these challenges, a complete restructuring of the operating model needs to be undertaken with a focus on technological transformation. Therefore, technological interventions and digital transformation should be aligned with the overall business objective to give rise to a future ready infrastructure – an integrated, interoperable, composite, resilient and scalable infrastructure. FIs should enable themselves to develop products and innovate on delivery channels to bridge the urban-rural divide. Upskilling employees is the need of the hour as the growing need for reskilling the workforce in emerging technologies and developing an innovation-oriented culture is more important than ever before.

The financial system in Viksit Bharat will be technology-led and inclusion oriented by 2047. It will be the backbone of a prosperous economy, driving sustainable development, encouraging innovation and delivering shared prosperity for all citizens. These institutions will perform the dual role of providing financial support to the individual as well as to the enterprise and, will also play a significant role in making these aspirations come true.<sup>3</sup>

1 [https://sansad.in/getFile/annex/265/AU895\\_D2Rk6h.pdf?source=pqars#:~:text=\(a\)%20As%20per%20the%20National,and%2018.4%20per%20cent%2C%20respectively](https://sansad.in/getFile/annex/265/AU895_D2Rk6h.pdf?source=pqars#:~:text=(a)%20As%20per%20the%20National,and%2018.4%20per%20cent%2C%20respectively)

2 <https://financialservices.gov.in/beta/en/page/growth-various-modes-digital-payment>

3 <https://www.news18.com/business/banking-finance/banks-role-in-viksit-bharat-2047-rbi-household-savings-india-9043333.html>



## 2. Viksit Bharat 2047: Major goals and components



Viksit Bharat 2047 is the roadmap for making India a completely developed nation by 2047 – a century after India’s independence – wherein the core objective is stimulation of inclusive economic participation by all the citizens.

The intent of Viksit Bharat 2047 is to turn India to a USD 30-trillion developed economy in the next two decades for a projected 1.65 billion population. This means that there will be an increase in per capita income from USD 2,698 as of March 2024 to USD 18,181 by 2047 (a 9x growth).<sup>4</sup> The vision encompasses economic growth, sustainable development goals, improving India’s ranking in the ease of doing business, and enhanced infrastructure and social welfare initiatives.

One of the ways to develop a thriving, sustainable and developed economy is establishing a robust FS sector. An initial estimate suggests a need for a 20-fold increase in FS sector.<sup>5</sup> This entails:

- a financial sector which supports capital formation, promotion of trade and businesses as well as investments in MSMEs and startups
- a modern, competitive, inclusive and digital FS system to facilitate economic development
- a financial system which provides insurance protection and retirement security to all citizens while promoting overall financial well-being
- a system that fuels the infrastructure development, especially in Tier-1 cities and upcoming industrial clusters, to foster growth of trade and commerce and deliver a competitive advantage
- incorporating ESG factors into the corporate strategy of banks, requiring a transition from short-term financial gains to adopting a more holistic approach which considers the long-term effects of business decisions on the environment, social and governance practices.

4 <https://www.pwc.in/assets/pdfs/role-financial-services-making-viksit-bharat-vision-2047.pdf>

5 Ibid.

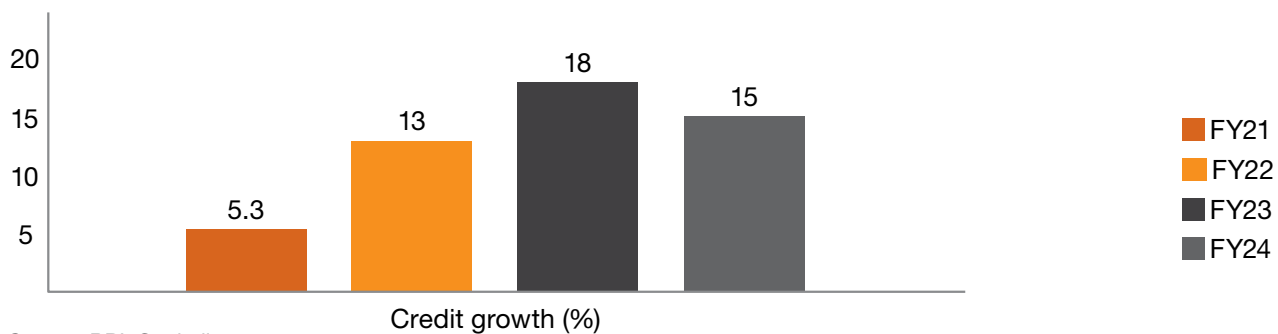
# 3. FS as an enabler

The FS sector in India has experienced substantial growth in recent decades, fueled by technological advancements, regulatory reforms, greater financial inclusion and rising consumer demand. Given below is an overview of the current state, challenges and opportunities shaping FS in India:

## (i) Banks:

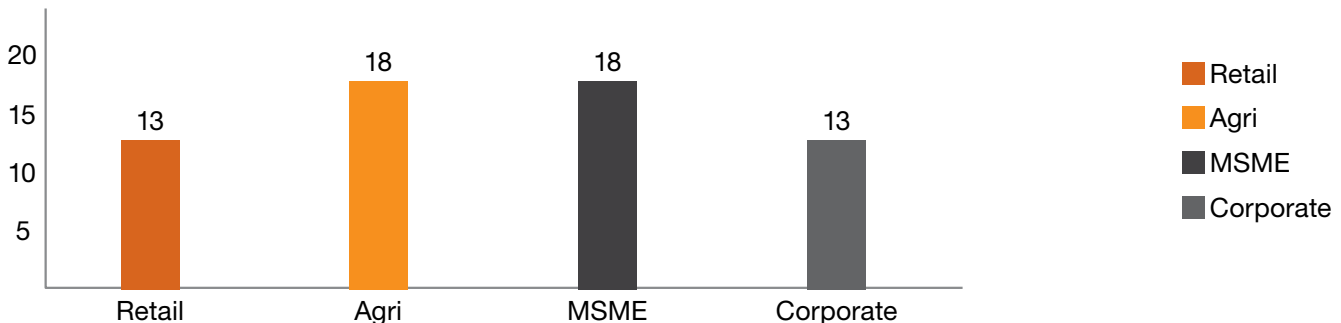
In FY24, banking sector's profitability surpassed INR 3 lakh crore and due to factors such as low credit costs, an increased credit growth and fee income growth. As far as year-on-year (YoY) advances and deposits growth in FY24 is concerned, the credit grew at 15% with MSME segment contributing 18% while deposits grew at 13%.<sup>6</sup>

**Figure 1: YoY growth trend In advances from FY21 to FY24**



Source: RBI; Capitaline

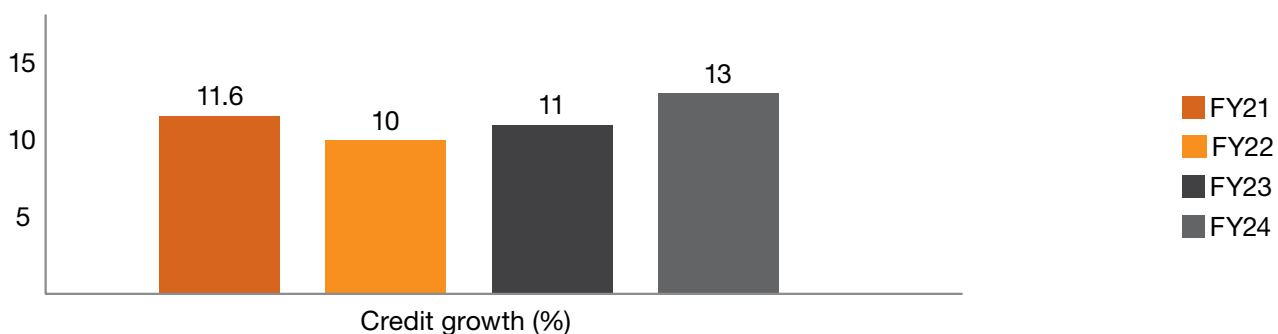
**Figure 2: YoY growth trend for various loan types in FY24**



Source: RBI

Public sector banks (PSBs) lead the growth in retail credit at 15% and private banks lead the growth in MSME segment at 24%.

**Figure 3: YoY deposit growth trend for banks in India**

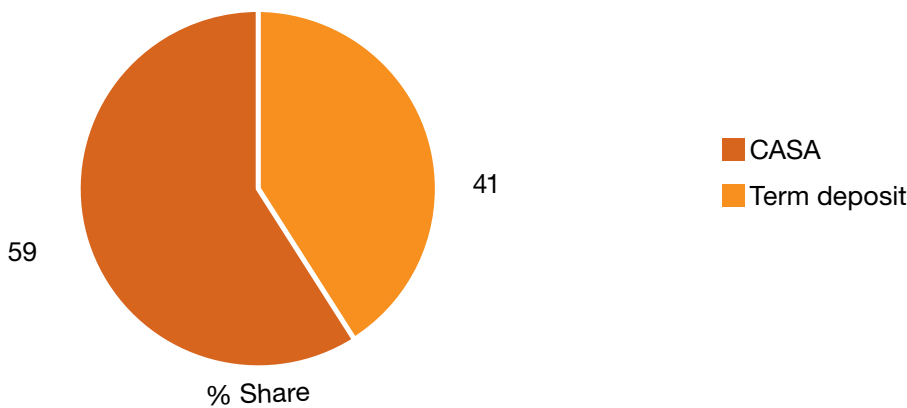


Source: RBI; Capitaline

<sup>6</sup> <https://www.capitaline.com/>



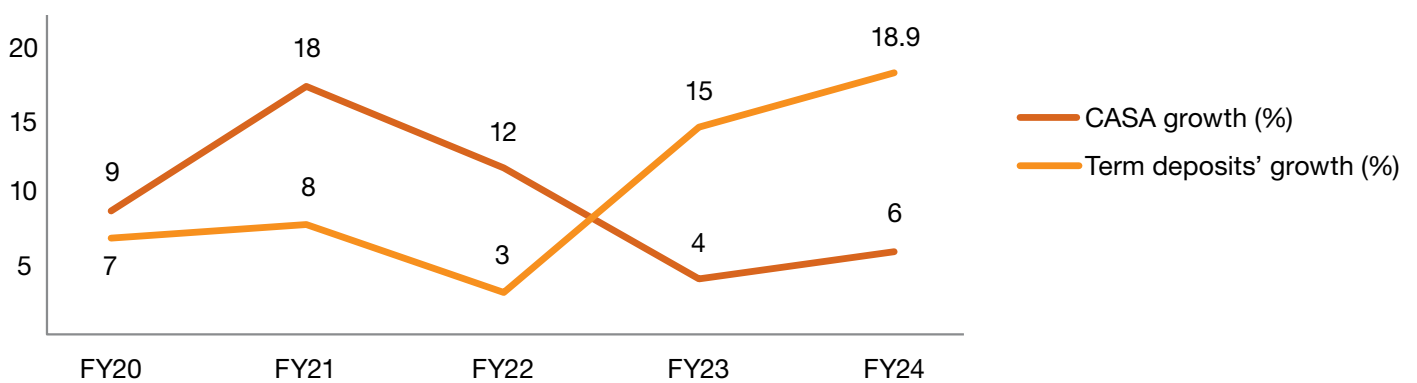
**Figure 4: Proportion of CASA and term deposit in India in FY24**



Source: RBI; Capitaline

Although the deposit growth is seeing an upward trend, PSBs are losing their share to private lenders. In deposits, CASA's share is declining as customers are now preferring high-yielding term deposits. CASA products also face intense competition not only from other banks but also from mutual funds and various other asset classes, as customers are becoming more interested in investing rather than saving. Term deposits' YoY growth for these private players in FY24 stands at about 30%.<sup>7,8</sup>

**Figure 5: YoY CASA growth and term deposit growth rate in India**



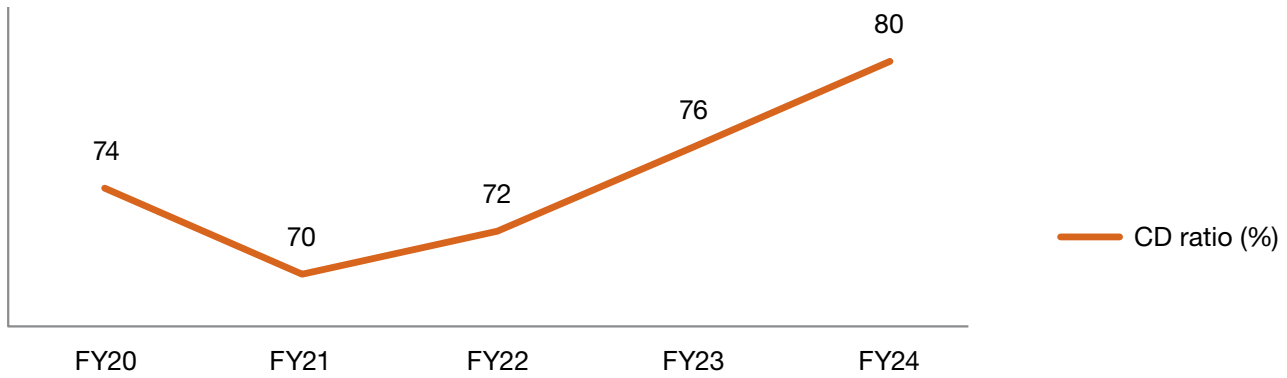
Source: RBI; Capitaline

The credit-to-deposit ratio trend (CD ratio) which is at a two-decade high of ~80%, signifies that banks are actively lending, which supports economic activities like investments, consumption and infrastructure development. On the flip side, this reflects a liquidity crunch for banks, largely driven by slowing down of CASA deposits.

7 <https://m.economicstimes.com/industry/banking/finance/banking/term-deposits-outpace-casa-growth-in-september/articleshow/115700334.cms#:~:text=Mumbai%3A%20Term%20deposits%2C%20which%20offer,ago%2C%20as%20per%20RBI%20data>

8 <https://tradingeconomics.com/india/deposit-growth>

**Figure 6: YoY trend for cash-to-deposit (CD) ratio**



Source: RBI

A high CD ratio also indicates increased demand in the market for credit and for banks it can indicate an increased exposure to high-risk, high-yield assets to manage the high cost of funds. To safeguard themselves, banks need to invest in developing a robust technological infrastructure and analytics capability in order to target the right customer, assess creditworthiness effectively and disburse as well as collect the borrowed amount seamlessly.

### Digital banking trends:

Overall, for some of the top PSBs and private sector players, the proportion of deposits and advances sourced digitally remains higher than those sourced via physical modes. In FY23, top public sector and private banks sourced ~70% of its accounts digitally via tablets while the proportion of personal loans disbursed digitally was ~80%.<sup>9</sup>

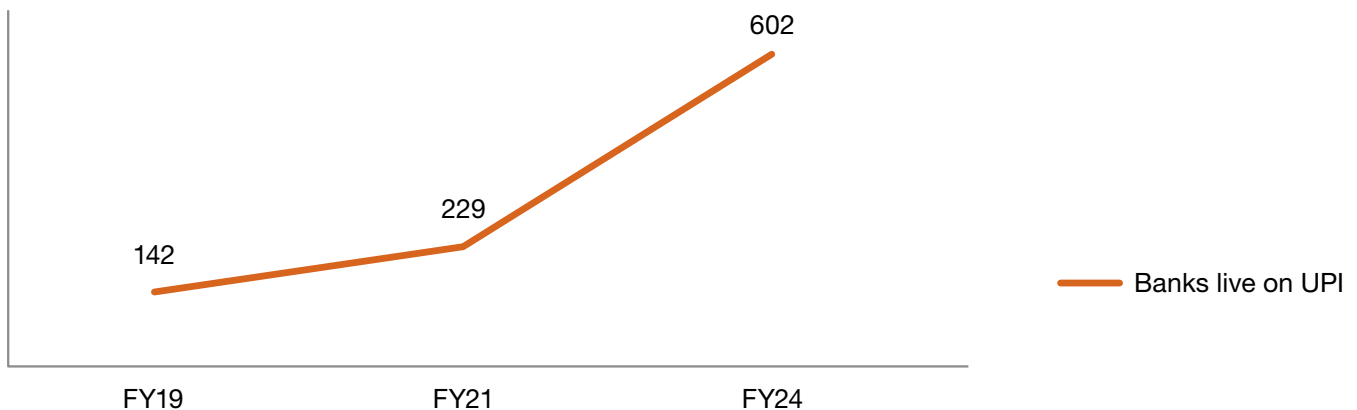
For opening an online account, Aadhaar/biometric-based authentication and OCR based video KYC are being leveraged with some banks partnering with FinTechs for opening accounts via their platforms. Digital account opening witnessed significant success in attracting new customers, resulting in a surge in downloads, a decrease in operational costs and a boost in the conversion rate. Similarly, many leading private sector banks revamped and digitised the entire corporate internet banking system across all business sectors to enhance user adoption and drive higher transaction volumes by launching MSME and corporate focused ecosystem.

### Digital payment trends:

India is the country with highest digital transactions in the world followed by Brazil, China, Thailand and South Korea. Digital payments transactions volume grew at a CAGR of 44% from FY 2017-2018 to FY 2023-2024; the corresponding growth in transaction value has been 11%. UPI has been India's biggest success story in digital payments witnessing a CAGR of 129% from FY 2017-2018 to FY 2023-2024.<sup>10</sup>

FIs such as banks are also catching onto the UPI growth story with a number of banks live on UPI seeing an upward trend:

**Figure 7: Number of banks in India live on UPI**



Source: RBI; NPCI data

<sup>9</sup> <https://www.rbi.org.in/>

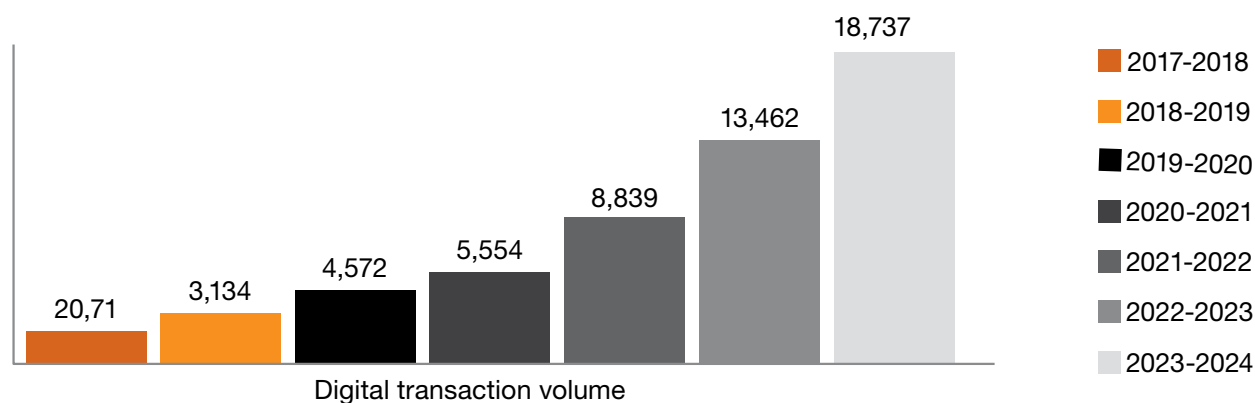
<sup>10</sup> <https://www.npci.org.in/what-we-do/upi/product-statistics>





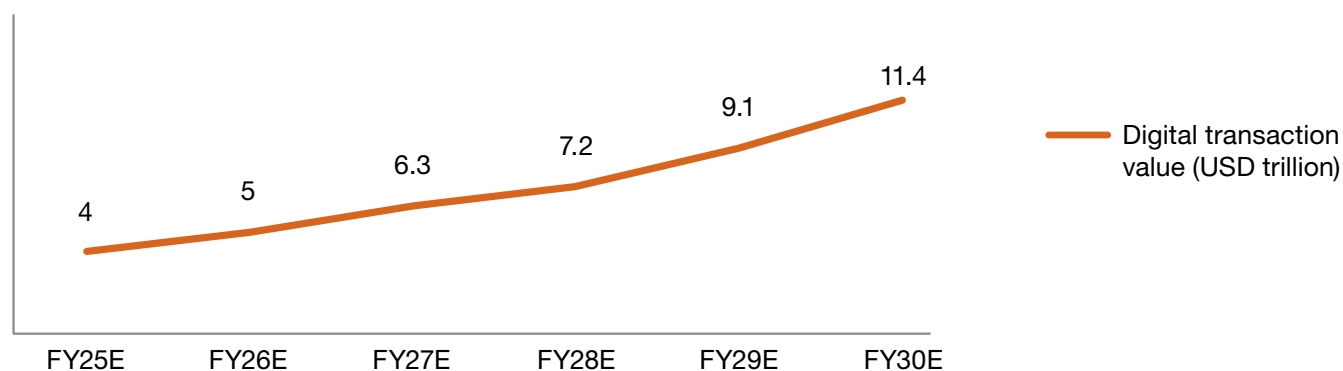


**Figure 8: YoY trend for digital transactions volume (in crore)**



Source: NPCI data

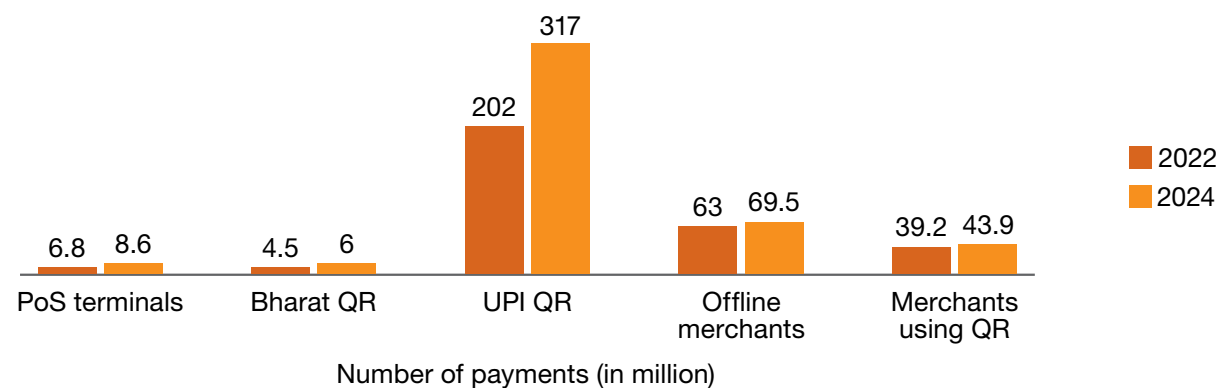
**Figure 9: Yearly projections for the growth in digital transaction value (USD trillion)**



Source: RBI; NPCI data

As digital payments continue to grow, merchants in India are increasingly implementing infrastructure to accept payments in various forms.

**Figure 10: Absolute growth in number of payments accepting modes from 2022 to 2024 ((in million)**

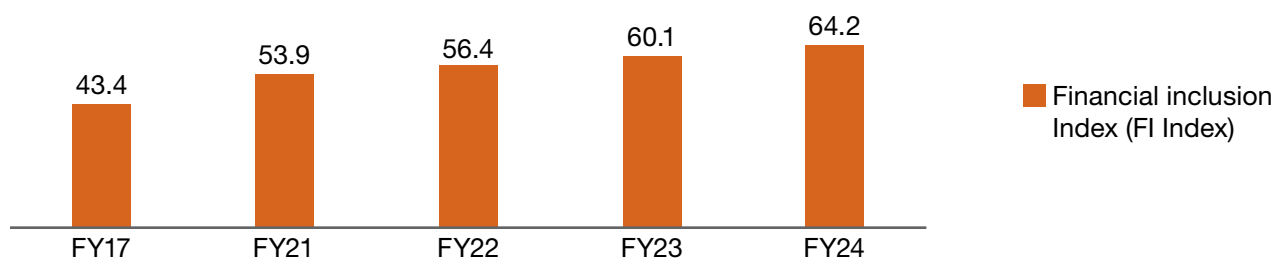


Source: RBI; NPCI data

Some of the digital payments methods in India are credit cards, debit cards, point of sales (PoS) devices, payments via near field communication (NFC) such as smartwatches, contactless cards and QR soundboxes. The growth of UPI transactions has surged significantly with a broader acceptance of the digital payment ecosystem. Also, the average ticket size of UPI transactions has decreased from INR 1,600 to INR 1,400 indicating increased use of UPI for small ticket payments like grocery shopping and dining out.<sup>11</sup>

The Reserve Bank of India (RBI) releases data on financial inclusion and measures it via a metric called 'Financial Inclusion Index', which measures the ease of access to and usage of formal FS in India. The FI Index values of the previous years are given in Figure 10.<sup>12</sup>

**Figure 11: Growth trend of FI-Index in India over the years**



Source: RBI

Technology-enabled transactions have a major role in the growth in the FI Index. While internet and telecom players are enablers, solutions such as tablet banking, AePS, micro and biometric ATMs are also contributing to this increase of the FI-Index.

In the next 25 years, groundbreaking technology will transform India's banking industry as GenAI, account aggregator platforms, UPI and Open Network for Digital Commerce spearhead the growth of the sector.

- **Account aggregator (AA) platforms:** AA platforms will prove to be the biggest enabler of open banking. Since customer data is shared across multiple platforms, the scope for increased personalisation in provision of products and services can also increase. By ensuring customer's financial details such as bank statements are readily available and shared via the platform, AA framework strengthens supply chain financing for lenders. Not only do lenders get a digital framework for obtaining quality data with an AA platform, but they also get better evaluation of small medium enterprises (SMEs) and reduced credit risk.
- **Credit on UPI:** India's credit to GDP growth is low at 52% as compared to other developed nations such as US (216%) and China (182%).<sup>13</sup> Linking of UPI with government backed RuPay Credit Card is an encouraging step to promote credit in India. The RuPay Card is expected to bank upon existing QR code UPI network which will open more avenues for credit expansion. In the next 5-6 years, digital transaction value, powered by UPI, would surpass USD 11 trillion.<sup>14</sup>
- **Growth of ONDC:** ONDC is an open-protocol network designed to facilitate local commerce across various sectors, including mobility, groceries, food delivery, hotel bookings and travel.<sup>15</sup>

Key features of ONDC which are particularly beneficial for MSMEs are:

- **Interoperability:** It allows MSMEs to connect with various platforms and access a broader audience of 500 million potential customers, without being confined to a single ecosystem.<sup>16</sup>
- **Inclusivity:** ONDC seeks to encompass all types of commerce, including retail, mobility, insurance and finance. By October 2023, ONDC had processed more than 5,000 orders in the social sector, featuring products from underserved communities.<sup>17</sup>

11 <https://www.npci.org.in/statistics>

12 [https://indianexpress.com/article/business/economy/financial-inclusion-index-rises-to-64-2-in-march-20249443459/#:~:text=The%20Financial%20Inclusion%20Index%20\(FI,%2Dindices%2C%20the%20RBI%20said](https://indianexpress.com/article/business/economy/financial-inclusion-index-rises-to-64-2-in-march-20249443459/#:~:text=The%20Financial%20Inclusion%20Index%20(FI,%2Dindices%2C%20the%20RBI%20said)

13 <https://mospi.gov.in/data>

14 <https://www.npci.org.in/what-we-do/credit-line-on-upi/product-overview>

15 <https://ondc.org/>

16 Ibid.

17 Ibid.



- **Hyperlocal commerce:** Hyperlocal commerce facilitates connections between local businesses and nearby customers. This can range from fresh produce at a local farmer's market to handmade souvenirs from a nearby artisan. By prioritising local commerce, ONDC helps sustain community businesses and encourages sustainability.
- **Transparency:** By standardising protocols and minimising the power of dominant platforms, ONDC guarantees that MSMEs can access fair pricing, impartial search results and equal treatment.

ONDC's FS also enable credit access and digital transactions for MSMEs. It utilises alternative data sources for credit underwriting, facilitates seamless access to credit for MSMEs by integrating it with digital public infrastructure like AA and UPI. The integrated solution allows lenders to assess the MSMEs creditworthiness based on granular financial data such as transaction data and utility bills. ONDC also promotes the transition of MSME transactions into the digital spectrum, thereby increasing operational efficiency as well as transparency. ONDC facilitates businesses with digital tools and solutions such as e-KYC and e-signatures to streamline the transition from online-to-online commerce.

- **GenAI as enabler:** GenAI has a wide range of use cases across the FS value chain to make the operations customer friendly, cost-effective with minimal errors. Some of these use cases are listed below:
  - **Customer acquisition:** Customer analysis and profiling, further sales and purchase recognition, virtual assistants for customers, preparing customer emails, personalised recommendations
  - **Risk and compliance:** Cybersecurity, threats detection and response, improved credit risk assessment, interpretation and documentation of risk analysis, AML and fraud analytics solutions
  - **Service and products:** Portfolio management, product test planning (time-to-market), optimisation of investment strategy, optimisation of trading strategy, research-capital market
  - **Operations:** Recording and processing of corporate actions, Contract Preparation, KYC/onboarding, bridging process disruption, processing of credit application, reconciliation of accounts and transaction, contract preparation, recording and processing of corporate actions
  - **Central functions:** Screening of applicants, purchasing management, onboarding/training of employees, optimised knowledge management
  - **Finance:** Treasury optimisation, financial simulation, preparation of financial reports, optimisation of controlling, further accounting automation
  - **Information technology (IT):** IT service/help desk, translation of legacy codes, error diagnosis of incidents, accelerated generation, testing and generation of codes
- **Emergence of unified lending interface (ULI):** Introduced in August 2024, ULI is transformational for the lending space, just like UPI was to the payments market. ULI is a technology platform which allows lenders the ability to access diverse data from many data providers using standard APIs and contact lenders in a simple plug and play manner. It connects lenders to a wide-range of essential financial, non-financial and alternative data across a single interface, for instance, digitised state land records, milk collection data maintained by different milk federations, satellite imagery and property search services. This means that a lender using the platform only needs to integrate its platform once to access data from many different sources rather than performing multiple one-off integrations with each individual service provider.<sup>18</sup>

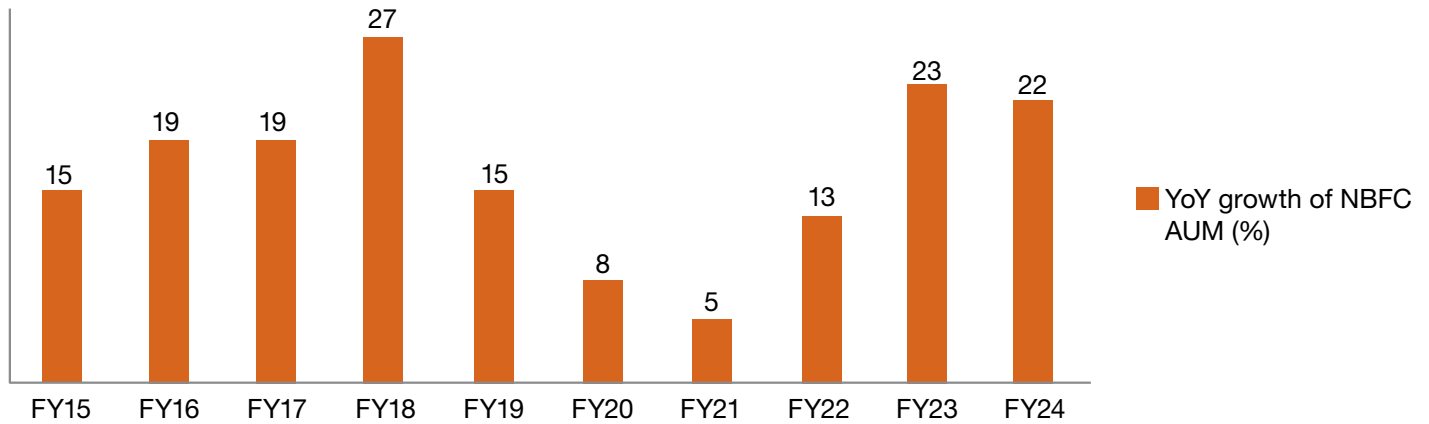
18 <https://rbihub.in/unified-lending-interface/>



## (ii) NBFCs

Given below is a representation of the YoY AUM growth trend for NBFCs in India over the last decade.

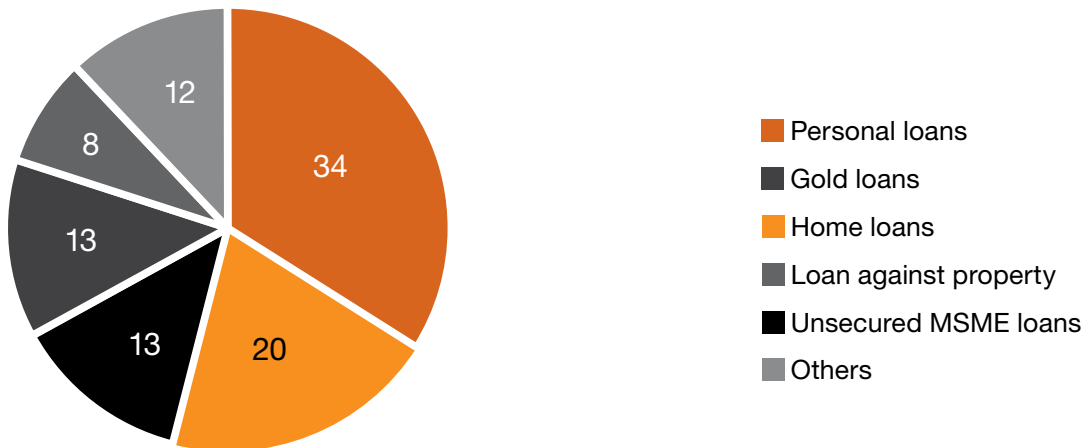
**Figure 12: YoY growth rate of NBFC AUM**



Source: <https://www.fidcindia.org.in/nbfc-data/>

The AUM as of March 2024 stood at INR 47 lakh crore. The lending focus of NBFCs has shifted to unsecured loans, MSME loans and micro-finance loans. In FY23, growth of unsecured loan was higher (28.1%) than that of secured loan (11.5%), and this resulted in decrease in YoY share of secured loan from 72.4% to 69.5% and increase in YoY share of unsecured loan from 27.6% to 30.5%. In FY24, for the retail segment, the proportion of housing and affordable housing segment stood at 31%, MSME and loan against property as well as vehicle finance stood at 18%. The share of gold loans was 7%.<sup>19</sup>

**Figure 13: Percentage share of co-lending AUM (Q3 FY24)**



% Share of co-lending AUM (as of Q3FY24)

Source: Inc42 - State of Indian Fintech; The Hindu Business Line

NBFCs are actively using technologies such as artificial intelligence (AI), machine learning (ML) and big data across the customer lifecycle to mitigate lending risk, attract quality leads and ensure lower non-performing assets (NPAs). Some of the areas where NBFCs are adopting technology-based solutions are.<sup>20</sup>

- Customer acquisition and onboarding:** By employing different advanced technologies, NBFCs can optimise their customer acquisition and onboarding processes. Once they develop an online portal for applications, the onboarding process can become seamless and efficient, leading to higher customer satisfaction. By enabling the use of digital marketing tools and customer relationship management (CRM) systems with embedded data analytics, NBFCs can recommend certain audiences, discover quality leads, and send tailored messages, improving conversion rates. Furthermore, using e-KYC, central KYC (CKYC), or video KYC (VKYC) allows NBFCs to meet regulatory norms while improving customer onboarding.

<sup>19</sup> <https://www.fidcindia.org.in/nbfc-data/>

<sup>20</sup> <https://www.pwc.in/assets/pdfs/pioneers-of-change-building-resilient-nbfc-final.pdf>

- **Loan origination:** Loan origination systems (LOS) are at the core of any digital loan application process. An LOS simplifies a digital application journey for NBFCs and enhances the user experience. LOS is also used to integrate with document management system (DMS) that helps in facilitating ineffective handling and storage of application documents, thus reducing manual errors and processing time. Moreover, LOS integration with credit bureaus enables the creation of superior credit scoring models, improving an NBFC's risk assessment capability which enables it comply with regulatory requirements and take informed decisions.
- **Underwriting and disbursement:** NBFCs can leverage risk assessment tools and automated decision-making systems to accurately assess borrower profiles and make timely credit decisions ensuring improved compliance with regulatory standards alongside enhanced credit-related decision making. Additionally, through the implementation of a loan management system (LMS), NBFCs can manage the entire loan disbursement process, improving customer experience and satisfaction, as well as reducing operational costs and processing time.
- **Repayment, collection and recovery:** An early warning system (EWS) is implemented in NBFCs to identify at-risk or distressed assets before they become delinquent. Using advanced collections management software and predictive analytics, the EWS proactively identifies potential delinquencies and, in turn, helps the organisations take the right action at the right time. Regulatory technology (RegTech) solutions are also utilised in the repayment, collection and recovery stages to mitigate compliance risks and ensure compliance with regulatory standards.<sup>21</sup>

NBFCs can strengthen their resilience towards changing market conditions, create a niche with improved operational efficiency and gain a competitive edge by adopting technology and RegTech solutions while complying with regulatory obligations.<sup>22</sup> In addition, NBFCs are also bracing themselves with new age technologies which can be implemented in various phases of the customer resources meets, leading to a better customer experience.

### Future trends in NBFCs

NBFCs are adopting new-age technologies like AI, blockchain and data analytics to enhance credit assessment, fraud detection and customer experience capabilities and cater to a larger customer base with lower risk. Blockchain will help in making loan disbursements and repayments to be more transparent and efficient while smart contracts will automate processes and minimise costs.

- Digital lending could expand 7x as banks and NBFCs build myriad partnerships with digital consumer lending companies. AA, DigiLocker can enhance lending options across various segments like buy now, pay later (BNPL) as well as instant loans with 3, 6, 9-month repayment; e-commerce platforms consolidate supply chain financing solution.
- Digital lending ecosystems, mobile banking apps, and Aadhaar-based solutions can make FS accessible and affordable for remote locations.
- NBFCs can create products such as low-cost home loans, agriculture-linked loans and self-help group (SHG) financing for the upliftment of underprivileged classes.
- To align with India's climate goals, NBFCs can prioritise providing funding renewables projects, electric vehicles (EVs) and sustainable agriculture.
- For upskilling the workforce, NBFCs can ensure that its workforce is trained in emerging technologies.
- NBFCs can collaborate with FinTech platforms to adopt innovative solutions and deliver services to customers at a lower operational cost.
- As RBI regulations evolve, adoption of cutting-edge RegTech solutions will enable NBFCs to ensure compliance and operational efficiency.
- Investment in cybersecurity can help in keeping sensitive customer data secure and build trust among customers when they engage with digital FS.

<sup>21</sup> [https://www.business-standard.com/finance/news/reserve-bank-of-india-tightens-norms-for-deposit-housing-finance-companies-124081201680\\_1.html](https://www.business-standard.com/finance/news/reserve-bank-of-india-tightens-norms-for-deposit-housing-finance-companies-124081201680_1.html)

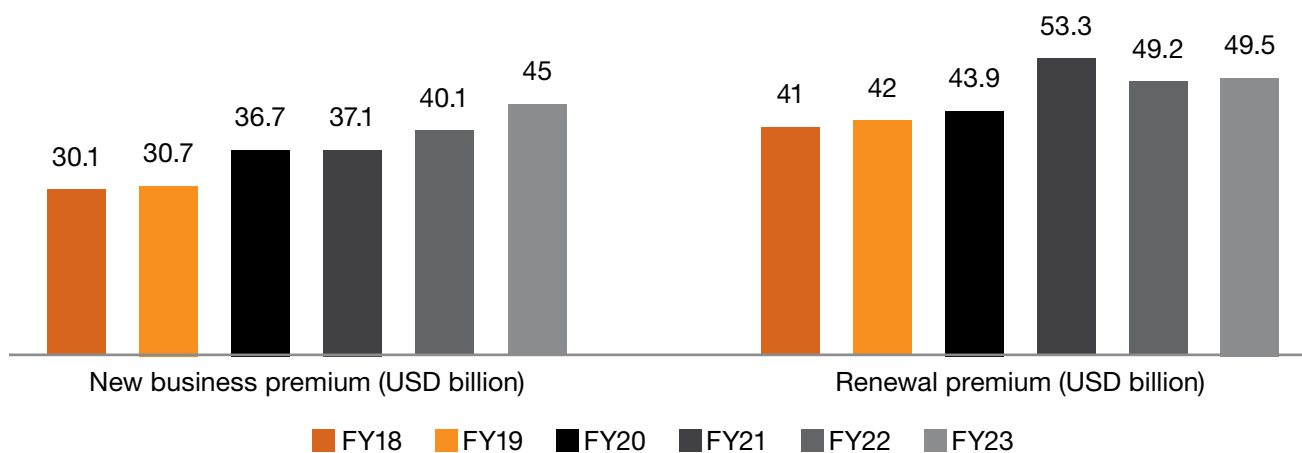
<sup>22</sup> [https://www.business-standard.com/finance/news/reserve-bank-of-india-tightens-norms-for-deposit-housing-finance-compa21nies-124081201680\\_1.html](https://www.business-standard.com/finance/news/reserve-bank-of-india-tightens-norms-for-deposit-housing-finance-compa21nies-124081201680_1.html)



## (ii) Insurance

As of 2023, India has 73 registered insurers – 26 of them are from the life insurance sector, 27 are general non-life insurers, 7 of them are standalone health insurers and 13 are re-insurance agents. By 2032 it is expected that India will become the sixth largest insurance market. India has also doubled its share in global insurance gross written premium from 1% (2019) to 2% (2023), after the US, China, Japan, the UK and France. Life insurance sector witnessed a 0.8% growth between FY02 and FY23, while non-life insurance sector witnessed a 0.5 growth.<sup>23</sup>

**Figure 14: YoY growth (in USD billion) of new business premium and renewal premium**

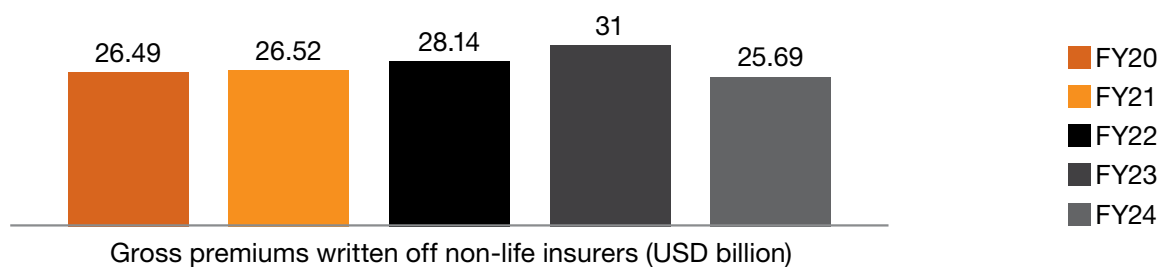


Source: <https://www.investindia.gov.in/sector/bfsi-insurance>; <https://www.statista.com/topics/6514/insurance-industry-in-india/#topicOverview>; <https://www.ibef.org/industry/insurance-sector-india/infographic>

<sup>23</sup> <https://www.investindia.gov.in/sector/bfsi-insurance>



**Figure 15: YoY growth trend (in USD billion) for gross premiums written off non-life insurers**

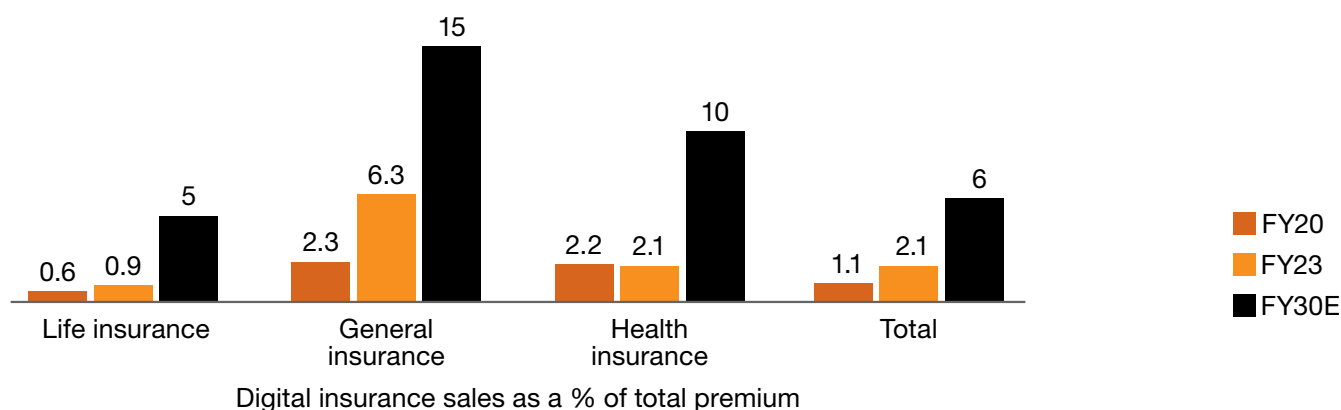


Source: <https://www.ibef.org/industry/insurance-sector-india/infographic>; <https://www.investindia.gov.in/sector/bfsi-insurance>; <https://www.statista.com/topics/6514/insurance-industry-in-india/#topicOverview>

Technology has a major role to play in these growth trends observed and the following four trends are seen considering these:

- **Preference for online mode:** More than 70% and 60% customers prefer online mode for general insurance and health insurance products respectively. There is 20% increase in customer satisfaction due to the adoption of digital interaction methods and 47% of insurance buyers make their decisions through digital channels.<sup>24</sup>
- **Focus on sales/services agent productivity:** Not just customers, technology is also helping sales agents meet their targets efficiently. Around 63% of agents use video-calling tools to engage with their clients and more than 50% of them use technology for virtual renewals. The COVID-19 pandemic also accelerated digital adoption of insurance products, with 67% of the agents claiming greater inclination of customers towards online portals and mobile applications to access and use insurance products.<sup>25</sup>

**Figure 16: Trend of digital insurance sales as a percentage of total premium over the years for different types of insurance**



Source: PwC reports; IRDAI Handbook

**Faster claim settlement:** Claims management utilising advanced communication technologies allows insurers to capitalise on real-time data and analytics. This approach offers policyholders personalised solutions and quicker claims resolution by drawing on insights from their historical data.

- **Rise of InsurTech:** The success of homegrown, digital-first insurers has prompted many distribution-oriented InsurTech companies to apply for new licenses from Insurance Regulatory and Development Authority of India (IRDAI) to become insurers and using data-driven approaches for underwriting. Additionally, the rising demand for customised, smaller insurance products is driving the need for agile technology in underwriting and claims management which is further boosting the growth of InsurTechs.

<sup>23</sup> <https://irdai.gov.in/handbook-of-indian-insurance>

<sup>24</sup> <https://www.pwc.com/gx/en/industries/financial-services/publications/financial-services-in-2025/insurance-in-2025.html>



Technology has transformed every stage of the insurance sector's lifecycle, as seen on deep diving into digitalisation of the value chain:

**Underwriting process:** By using AI and big data, insurers are able to make better sense of historical data claims, credit scores and social media activity. This allows them to make more accurate risk profiles of the customers and provide a more relevant policy pricing.

- **Claims settlements:** Digitisation of claim submission, management and approval involves straight-through online processes, predictive behavioural analysis and verification of digital identity. This helps minimise fraudulent claims, reduces scope for human errors, and increases speed and efficiency of claim settlements. In a country where 15% of insurance claims are fraudulent annually, technology can come to the insurers' rescue.<sup>26</sup>
- **Risk management:** For auto insurance, telematics devices monitor driving behaviour which allows insurers to take this driving data into account to offer driving usage pattern-based policies and encourage safe driving habits via relevant incentives.

Similarly, the internet of things (IoT) devices assist in farm yield insurance cover. These devices use remote sensing and satellite data to support farmers throughout every stage of the cropping cycle.

In future, the growing shift from life insurance to health insurance will be a major trend. In FY23, the YoY growth of health insurance was 23%, while the corresponding growth for life insurance was 13%.<sup>27</sup> This is supported by a decline in mortality risk and changes in health trends as well as increase in life expectancy. Technology will be crucial in facilitating this shift. The growing availability of data and the increasing use of connected devices, especially wearables, will enable life insurance companies to influence and improve customer health more effectively.

Shared-value life insurance products could gain popularity in this sector within the next decade. These insurance products are mutually beneficial for both insurers as well as policymakers. For example, one of the players rewards its customers via lower premiums for showing healthy behaviours such as regular check-ups and exercise. The product has a wellness ecosystem and collects data digitally via external sources such as wearables.

New business models emerging in the insurance sector include insurance-as-a-service (IaaS), pay-as-you-go, and Insurtech companies which aim to enhance the efficiency of the insurance value chain, including policy administration, underwriting and claims processing, along with providing value-added services.

Insurtech can grow 4x if it is supported with technology interventions such as unified KYC integrated with DigiLocker, gamified and personalised experiences, intuitive web and mobile interfaces featuring paperless workflows, real-time pricing and personalised purchase suggestions; issuance of digital policies, customer servicing, and claims management; advanced payment solutions and biometric authentication, or AI-driven identity verification IaaS and omnichannel distribution will enable API-based insurance for FIs and retailers.<sup>28, 29</sup>

26 <https://www.insurance.ca.gov/0300-fraud/0100-fraud-division-overview/05-ins-fraud/>; <https://www.fbi.gov/stats-services/publications/insurance-fraud>

27 <https://www.ibef.org/research/case-study/growth-and-overview-of-the-insurance-sector-in-india-a-comprehensive->

28 <https://guidingmetrics.com/content/insurance-industrys-18-most-critical-metrics/>

29 <https://irdai.gov.in/>

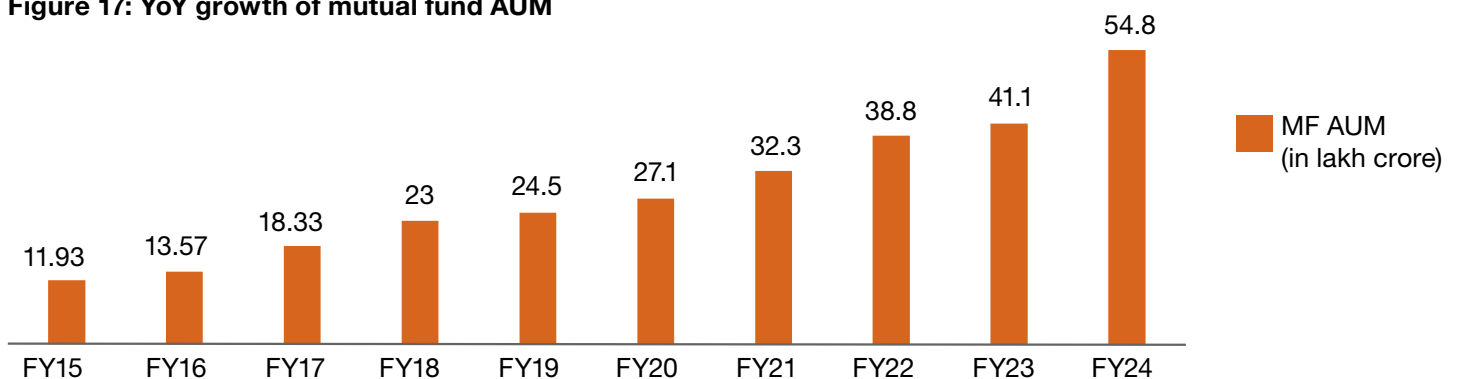


#### (iv) Capital markets: Mutual funds and brokering

The Indian mutual fund industry has experienced tremendous growth, reaching an AUM of 67.26 lakh crore by 31 October 2024, up from 10.96 lakh crore a decade ago.<sup>30</sup>

While it took five decades to achieve the first 10 lakh crore AUM, the industry added the most recent 10 lakh crore within the past year alone. This rapid expansion includes a significant increase from 26.33 lakh crore in October 2019, representing a 2.5x growth in just five years. This surge is primarily driven by increased retail investor participation which is evident from the rise in monthly SIP investments from 3,000 crore in April 2016 to over 25,000 crores in October 2024. SIP assets now account for over 20% of the industry's total AUM.<sup>31</sup>

**Figure 17: YoY growth of mutual fund AUM**



Source: Association of Mutual Funds of India (AMFI) data

This growth is driven by digital innovation, especially in the form of intuitive, execution-only platforms which allow an investor from even the most remote location to participate.<sup>32</sup> The wealth management market in India is expected to grow at 12–15% CAGR over the next five years, on the back of rising audience, higher per capita income, and job creation. More than 100 million Indians are expected by 2027 to fall into the middle-class category.<sup>33</sup> This force of digital transformation is promoting a move to self-service platforms that reduce costs and give clients power. A hybrid, phygital model is evolving managing a hybrid mix of digital and in-person interactions — where niche wealth management relationship managers (RMs) are servicing the mass affluent/affluent segments via a differentiated service model and high net worth and ultra high net worth individuals (HNI/UHNI) clients via selective services.

Indian capital market RMs are expected to play a pivotal role in realising the Viksit Bharat Vision. As enablers of economic growth, financial inclusion and wealth creation, they will help by ensuring efficient capital allocation, innovation, and empowering retail and institutional investors.

<sup>30</sup> <https://www.amfiindia.com/research-information>

<sup>31</sup> <https://www.amfiindia.com/>

<sup>32</sup> <https://dipam.gov.in/>

<sup>33</sup> <https://www.oecd.org/en/data/datasets/income-and-wealth-distribution-database.html>



Some of the key trends which are likely to shape the future for capital market RMs to support the Viksit Bharat agenda are:

- capital market firms will focus on bringing more retail investors into the fold, especially from Tier-2 and Tier-3 cities, through digital platforms and investor education.
- simplified investment options like exchange-traded funds (ETFs), small-ticket mutual funds, and goal-based portfolios will democratise investing.
- nationwide programmes to improve financial literacy will empower individuals to participate actively in equity, debt, and derivative markets.
- capital market firms will play a significant role in financing India's infrastructure development by promoting instruments like infrastructure investment trusts (InvITs) and real estate investment trusts (REITs).
- specialised platforms for startup and SME funding will be expanded, fostering innovation and entrepreneurship.
- products enabling small-ticket investments, like fractional shares and micro-savings schemes, will attract individuals from rural and underserved regions.
- development of low-cost, accessible debt instruments catering to small businesses and local entrepreneurs will enhance financial inclusion.
- blockchain technology will improve transparency, efficiency, and security in trading, settlement, and asset management.
- tokenisation of assets (real estate, bonds, and commodities) will open up new investment avenues.
- firms will use AI and big data for predictive analytics, robo-advisory services, and personalized investment strategies.
- they will play a key role in developing carbon trading platforms to help meet India's net-zero goals.
- capital market firms will facilitate easier access to capital for MSMEs through dedicated bond markets, SME exchanges, and simplified IPO processes.
- firms will implement stronger investor grievance redressal systems and transparent communication strategies to build confidence.

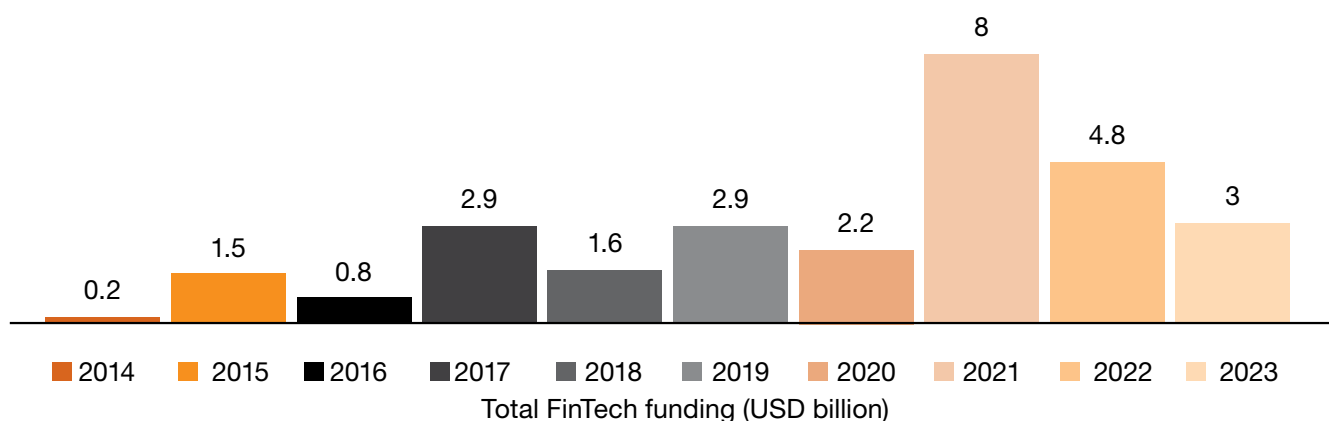




## (v) FinTechs

- In Q3, FY24, the Indian FinTech ecosystem saw a growth of 66% YoY in funding, with a recorded amount of USD 778 million. India's FinTech landscape is ranked fourth in the number of unicorns in the world after the US, China and the UK, and has the third rank for the number of registered FinTechs globally, which have grown 5x over the last three years, increasing from 2,100 in 2021 to 10,200 in 2024.<sup>34</sup>
- Indian FinTechs have raised over USD 28 billion in 1,486 deals 2014-2023.<sup>35</sup>

**Figure 18: YoY trend of total FinTech funding (in USD billion)**

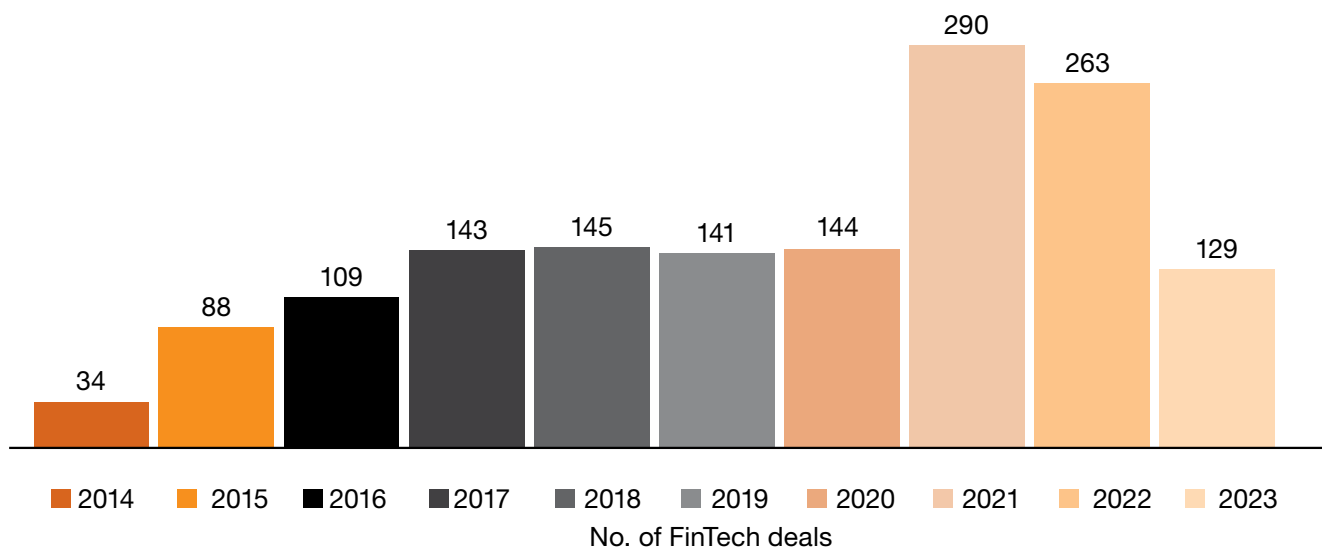


Source: <https://www.investindia.gov.in/sector/bfsi-FinTech-financial-services>;  
<https://www.startupindia.gov.in/nsa2021results/fintech.html>

<sup>34</sup> <https://www.investindia.gov.in/sector/bfsi-fintech-financial-services>

<sup>35</sup> Ibid.

**Figure 19: YoY trend of total FinTech deals**



Source: <https://www.investindia.gov.in/sector/bfsi-FinTech-financial-services>; <https://www.startupindia.gov.in/nsa2021results/fintech.html>

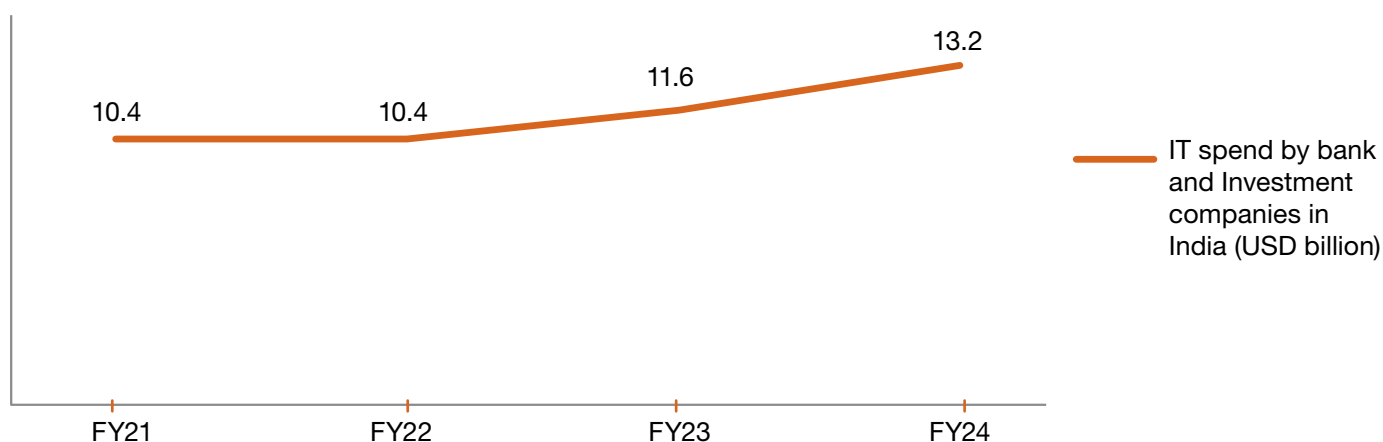
The payments and lending sector have reported the maximum revenues and funding together to reach 85% of the total capital raised. FinTech and property tech (PropTech) have been the largest enablers for the two sectors, with FinTechs across digital payments, digital lending, FinTech infra/SaaS, InsurTech and WealthTech bringing home nearly USD 32 billion.<sup>36</sup>

AI has emerged as the leading technology that drives the growth of BFSI SaaS and infra in the country. FinTechs are using AI for:

- customer relationship management
- analysing customer behaviour
- data analytics and visualisation
- chatbots
- fraud detection.

Since the BFSI sector is increasing their IT spend, it is giving rise to many opportunities for FinTech Infra and SaaS companies to grow their business.

**Figure 20: YoY trend of IT spend (in USD billion) by banks and investment companies in India**



Source: <https://mospi.gov.in/financial-and-external-sector-statistics>; <https://data.gov.in/>

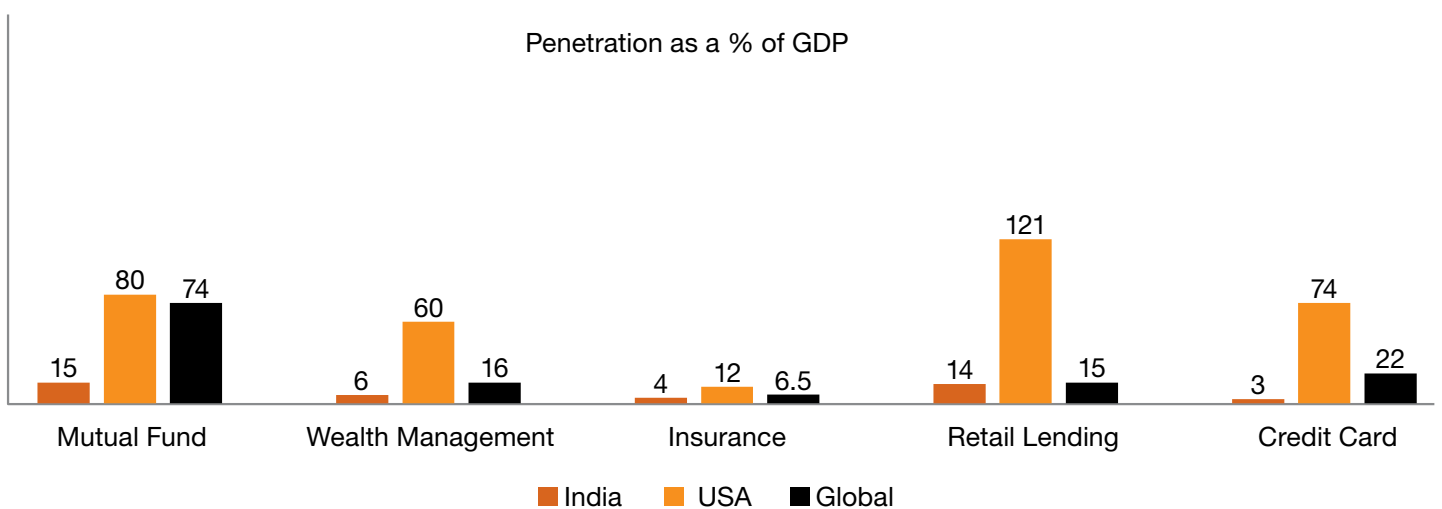
36 Ibid.





So, it is for a tremendous opportunity for infra, API, data and analytics, KYC, fraud management, BankTech, BaaS, and investments and wealth management providing FinTechs. India is relatively unpenetrated in terms of FinTech solutions and AI can be a crucial enabler to ensure last-mile penetration of FinTech services in the country.

**Figure 21: Penetration of various FinTech solutions as a % of GDP in India, as compared to USA and global average**



Source: <https://www.investindia.gov.in/sector/bfsi-fintech-financial-services>

With ~20% growth in the income scale, India can potentially have 150 unicorns in the next 5-6 years.



## (vi) Regulation

Given below are some notable regulatory initiatives which have significantly impacted the BFSI industry.<sup>37</sup>

- **Sandboxes:** A regulatory sandbox provides a framework that allows businesses, primarily FinTech startups, to test innovative products, services and business models in a controlled environment within the jurisdiction of the regulatory authority, with limited compliance with existing regulatory requirements. A regulatory sandbox has the following key features:
  - **consumer protection safety measures**
  - **limited duration projects**
  - **set environment as far as number of clients, deal volumes.**

The sandbox covers areas such as: payments, lending and borrowing models, settlements, Insurtech, Blockchain, financial inclusion and the use of AI.

- **Focus on new ways of working:** The RBI Parivartan Programme is an initiative launched by the RBI to enhance the professional development of its employees. The term 'Parivartan' translates to 'transformation' or 'change' in Hindi, reflecting the programme's primary objective: to foster a culture of continuous learning, innovation, and adaptation to the rapidly changing financial and technological landscape. The RBI Parivartan Programme was introduced to ensure that RBI's workforce remains well-equipped with the skills, knowledge, and capabilities needed to meet the evolving demands of the financial sector. It is a key part of the broader vision for RBI to stay agile and responsive to the emerging economic, banking and technological trends which are increasingly shaping the global financial system.
- **Fostering innovation:** Regulatory measures like NEFT/RTGS for non-banking entities, real-time business transactions, payment aggregator/payment gateway (PA/PG) licensing, zero merchant discount rate (MDR), and RBI-managed sandboxes for testing business models are driving continued growth and innovation in the digital payments sector. As far as digital lending is concerned, regulatory clarity established by the Digital Lending Guidelines and related regulations greatly enhances the credibility of participants in the digital lending ecosystem. For InsurTech, government initiatives are expected to significantly increase insurance coverage in India, with the objective of achieving 'Insurance for all by 2047'.
- **Streamlining compliance processes:** There has been an emergence of RegTech platforms which provide specialised software solutions designed to help businesses, especially in the financial sector, manage regulatory compliance and risk. These platforms leverage technology such as AI, ML, big data, and cloud computing to streamline and automate the processes related to regulatory compliance, reporting, monitoring and risk management.
- **PRAVAAH portal:** Platform for Regulatory Application, Validation and Authorizations Portal is a centralised and secure web-based platform for individuals and organisations to submit applications for different regulatory approvals from the RBI. This system simplifies the process by providing a single point of contact, enhancing the efficiency of RBI's approval procedures.

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<sup>37</sup> <https://www.rbi.org.in/>

# 4. The future of FIs – 2024 to 2047

Viksit Bharat envisions transformational changes across FIs, driven by technology, inclusion and sustainability. Below are a few key areas across which FIs of today will differ from those of 2047:

## 1. Financial inclusion

### Today (2024):

- Formal financial delivery is hampered by low penetration in rural and semi-urban areas due to limited branch presence and low digital literacy.
- eKYC-based on Aadhaar has simplified onboarding, but demand in rural and semi-urban regions has been sporadic.

### Future (2047):

- Satellite-powered internet and biometric technology will make banking and credit services available to every citizen, no matter how remotely they are located.
- Regional language-based voice banking will provide access to the digitally illiterate, enabling them to perform transactions through AI-powered chatbots.

## 2. Loan approval and credit assessment

### Today (2024):

- Loans approval requires multiple days or weeks. There is a high dependency on conventional credit score-based systems (e.g. CIBIL).
- Informal sector workers and small entrepreneurs have limited access to credit as their incomes are unreported.

### Future (2047):

- Alternative data such as utility payments, social behaviour and IoT-driven business activity will be analysed via AI to approve loans instantly.
- Personalised and dynamic loans will be made available, where terms are adjusted in real time according to borrower activity and/or macroeconomic conditions.

## 3. Payments and transactions

### Today (2024):

- Although UPI has become a global benchmark for real-time payments, it still needs the internet.
- Cash transactions are still important in the economies of rural and small-town areas.

### Future (2047):

- Rural users will be able to make digital payments without the Internet via blockchain-backed offline-transactions.
- Wearables (e.g. smartwatches, augmented reality [AR] glasses) will allow for seamless, biometric-authenticated transaction processes that require no physical card or phone.

## 4. Wealth management and investment

### Today (2024):

- Investors trust mutual funds, fixed deposits and stocks, which are accessible to a small financially literate and urban population.
- Robo-advisory is at a nascent stage, offering basic algorithm-based advice.

### Future (2047):

- Investments in tokens will enable users to hold fractions of real estate properties or stocks from all over the world.
- AI robo-advisors will deliver on-demand investment advice and personalised portfolio management using ESG indicators.

## 5. Risk management

### Today (2024):

- Risks are identified only in hindsight – banks and NBFCs have a reactive approach that involves using historical data to assess risks.
- Cybersecurity continues to be a concern as institutions ramp up their defences against emerging threats.

## 6. Customer experience

### Today (2024):

- Banking apps and portals are quickly becoming attractive, but their level of complexity is high for older/less tech-savvy generations.
- Customer service is usually done through IVR systems or chatbots, which have limited conversation capabilities.

## 7. Capital markets

### Today (2024):

- There is little awareness among the people about how capital markets, which are concentrated in urban areas.
- Trading and settlements traditionally usually take 1-2 days (T+1).

### Future (2047):

## 8. Green finance and sustainability

### Today (2024):

- Green bonds and ESG investing are growing but remain niche markets.
- Climate finance is largely driven by institutional investors.

## 9. Collaboration and ecosystems

### Today (2024):

- Banks, NBFCs, FinTechs and regulators work in silos.

## 10. Operating models and workforce

### Today (2024):

- Financial services is human-intensive industry with limited automation.
- Workforce training emphasises specific skills related to technical or regulatory aspects.

### Future (2047):

- Quantum computing and predictive risk management systems will assess economic disruptions, customer defaults and geopolitical risks in real time.
- AI-based cybersecurity frameworks will disable cyber breaches before they arise.

### Future (2047):

- Users can walk into a virtual bank branch and be served in an AR environment.
- Emotional chatbots, driven by AI, will respond to customers in an empathetic manner with personalised advice. They will also enable seamless resolution of issues.

- Blockchain-enabled capital markets with instant settlements (T+0) will effectively reduce counterparty risks.
- Access platforms will facilitate global investment by rural investors with minimal ticket sizes on a universal basis.

### Future (2047):

- AI-enhanced climate finance platforms will direct capital to renewable energy, carbon capture and sustainable agriculture.
- Personalised green portfolios directly funded by retail investors will benefit local institutions.

### Future (2047):

- Seamless ecosystems will enable integration of banks, NBFCs, FinTechs and regulatory bodies, allowing real-time regulatory compliance and services to be offered across institutions.
- Decentralised finance (DeFi) systems will enable direct peer-to-peer lending and borrowing.

### Future (2047):

- Hyper-automation will reduce the scope for manual intervention, as AI will oversee operations from end to end.
- Employees will focus on innovation and strategy, supported by lifelong learning ecosystems tailored to the subjects related to emerging technologies.





## Examples of future use cases

### 1. AI-powered farmer loans:

By analysing climate patterns and crop yields, AI tools provide farmers with instant loans — helping to cut the dependency on middlemen.

### 2. IoT-linked insurance:

As part of real-time premium adjustments, IoT devices monitor vehicle usage, encouraging driving styles that pose less risk.

### 3. Decentralised networks:

Decentralised enable instant cross-border payments at negligible fees.

### 4. Ensuring sustainable project financing:

AI-based platforms connect investors with renewable energy and social impact projects directly.

# 5. The role of technology in enabling FIs to shape the future of Viksit Bharat

Technology will play a transformative role in enabling FIs to contribute positively to the country's economic growth and shape the future of Viksit Bharat by 2047. Complex technologies hold the key to seamless inclusion, operational efficiency, sustainability and innovation, enabling FIs to realise the possibilities of a globally competitive as well as equitable financial ecosystem.

## 1. Driving financial inclusion

- 5G, satellite internet and mobile banking apps will remove the need for brick-and-mortar financial services in rural and remote regions.
- Biometric authentication and Aadhaar-linked services will provide access to the masses.
- AI and ML will use alternative data (i.e. utility bills, mobile use, social media) to make decisions for people who lack formal credit histories.
- Regional natural language processing (NLP) powered apps will help rural and semi-literate customers to gain access to financial services.

## 2. Improving operational efficiency

- Robotic process automation (RPA) will help eliminate the need for human intervention in mundane back-office operations such as loan processing, compliance checks and account reconciliation, lowering costs and errors.
- Data will be used to achieve scalability, real-time processing and provision of cost-effective digital banking solutions through cloud-based systems.
- Smart contracts built on blockchain technology will automate loan disbursement, repayments and compliance with regulations, thus reducing the role of intermediaries and increasing transparency.

## 3. Tailoring customer experience

- AI will assess customer behaviour patterns to provide hyper-personalised financial products (be it loans or investments) based on individual requirements.
- **Robo-advisory platforms:** Robo-advisory services could democratise wealth management and investment planning solution even for small-scale investors.
- **Chatbots and virtual assistants:** State-of-the-art conversational AI will answer customer support queries 24x7, in several languages and in real time.

## 4. Improving risk management and security

- Predictive analytics will enable banks to proactively discover and prevent credit, market and operational risks.
- Quantum encryption and AI-based threat detection will protect financial systems from more advanced cyberattacks.
- Anomalies in transactions will be monitored by ML algorithms, allowing for real-time detection and prevention of fraud.



## 5. Promoting sustainable finance

- Green bonds, carbon trading platforms and financing for renewable energy projects will be enabled by technology.
- AI tools will analyse and track ESG metrics, ensuring responsible lending and investing practices.
- In agriculture and infrastructure projects, IoT sensors will offer steady streams of data that can be used to reduce waste and costs.

## 6. Broadening access to capital markets

- Blockchain will allow real assets (e.g. infrastructure and real estate) to be owned fractionally, making them available to small investors.
- Personalised investment suggestions and market predictions powered by AI will be supercharged and unlocked for both retail and institutional investors.
- Continuous trading will be supported through distributed ledger technology, with no restrictions in terms of geography or time.

## 7. Simplifying regulatory compliance

- AI-based solutions will be deployed to automate compliance with regulations, thus lowering the costs for meeting ongoing regulatory requirements.
- Blockchain will help provide tamper-proof audit trails, making compliance less burdensome.
- AI and data analytics will help in monitoring financial transactions in real time, thereby minimising regulatory violations and fraud.

## 8. Making financial products more accessible

- FinTech solutions will allow investments in small amounts, thus democratising access to wealth creation tools.
- DeFi platforms will enable peer-to-peer lending, borrowing and investing without intermediaries, thereby fostering inclusivity.

# 6. Challenges to the technology-enabled transformation of FIs

Achieving the ambitious technology transformation required for FIs to contribute to the vision of Viksit Bharat by 2047 poses several challenges. These challenges span operational, regulatory, infrastructural and human factors, making it imperative for institutions to address them strategically.

## 1. Digital divide and infrastructure gaps

- Limited access to reliable internet and digital infrastructure in rural and remote areas of the country restricts the adoption of digital financial services.
- Inconsistent 4G/5G networks and lack of widespread digital infrastructure hinder seamless financial operations in underserved regions.

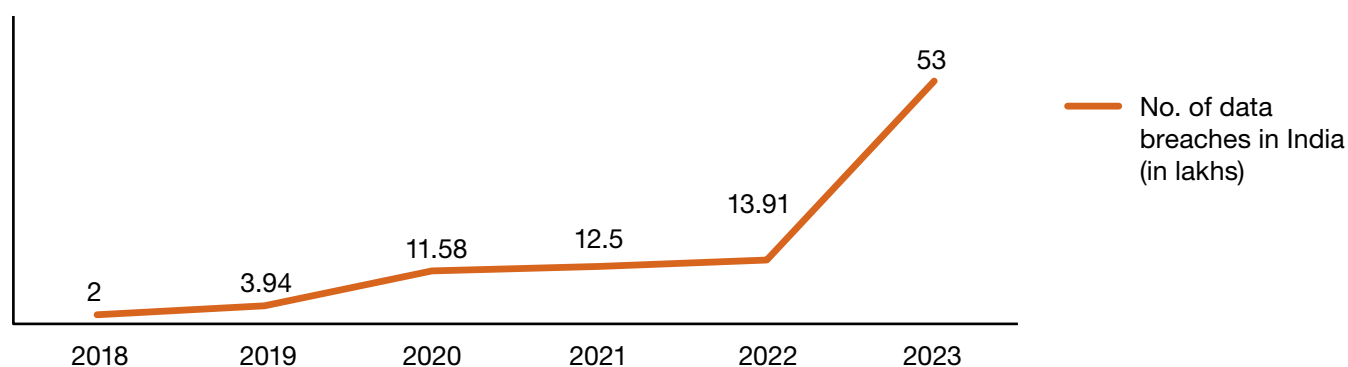
## 2. Regulatory and compliance complexity

- There is uncertainty around keeping up with the pace of regulatory changes with respect to emerging technologies such as blockchain, AI and DeFi.
- Increasing global investments and international operations are creating compliance challenges for institutions spanning multiple regulatory frameworks.
- It is difficult to balance compliance with stringent data privacy laws (e.g. India's Digital Personal Data Protection Act) and optimisation of customer data for providing personalised experiences and supercharging innovation.

## 3. Cybersecurity risks

- As digital adoption continues to increase, FIs have become a prime target for more sophisticated cyberattacks such as ransomware and data breaches.

Figure 22: YoY trend for number of data breaches (in lakhs) in India



Source: [https://www.business-standard.com/finance/news/average-cost-of-data-breaches-in-india-hits-2-18-million-rbi-report-124072900610\\_1.html](https://www.business-standard.com/finance/news/average-cost-of-data-breaches-in-india-hits-2-18-million-rbi-report-124072900610_1.html)

- It is challenging to transition from outdated legacy systems to secure modern digital platforms without compromising data integrity or operational continuity.

## 4. Workforce and talent readiness

- The current workforce has insufficient knowledge or experience of new technologies like AI, blockchain and quantum computing.
- Employees and stakeholders already used to traditional banking systems may not want to adopt new technologies or may take time to learn them.



## 5. Cost and investment barriers

- Many advanced technologies powered by AI, blockchain, IoT, etc., require a lot of investment upfront, which can be difficult for smaller institutions to absorb.
- There are doubts about the long-term return on investment (RoI) from digital transformation spend, especially in low-margin markets.

## 6. Customer adoption and trust

- Much of the population in India lacks the digital literacy they need to make use of sophisticated financial services.
- Customers may be hesitant to adopt fully digital services due to concerns about data privacy, fraud or loss of human touch in banking.

## 7. Integration challenges

- Dealing with the combination of modern technologies and legacy infrastructure poses a challenge.
- Ensuring seamless collaboration between banks, NBFCs, FinTech companies and other financial entities through APIs and standard protocols is difficult.

## 8. Scalability and reliability

- As more customers adopt digital platforms, ensuring systems can manage high transaction volumes with zero downtime is critical.
- Increased reliance on digital systems can expose organisations to disruptions from outages and cyber incidents.

## 9. Ethical and social concerns

- Algorithms used for credit scoring and decision making may unintentionally perpetuate biases, leading to unfair outcomes.
- The rise of automation and AI could decrease demand for traditional careers, creating fears of job losses.

## 10. Legacy systems and infrastructure

- Many lenders have legacy technology infrastructure and cannot keep up with digital transactions. Regulators are keeping a close watch on FIs that still use an inefficient technology stack, as gaps in infrastructure not only reduce customer satisfaction scores and increase the latency of banking systems, but also pose huge financial risks.
- A series of embargoes and limitations were recently enforced by the regulator to restrict banks from onboarding new customers through their electronic platforms and from issuing new credit cards on account of gaps in their technology framework. Over a two-year period, the RBI found that banks had violated certain regulations, and flagged problems with poor data security, vendor risk management and a lack of mechanisms to prevent data breaches.<sup>38</sup>

## 11. Cultural challenges

- The risk-averse culture of some FIs prioritises the status quo and avoids experimenting with new technologies, business models or unconventional ideas.
- Fear of failure or making mistakes stifles creativity and prevents teams from pursuing innovative solutions. There is a focus on short-term profitability, with a preference for quickly measurable results.
- Rigid hierarchical structures that slow down decision making and create barriers to the free flow of ideas impede innovation in the financial services sector.

38 [https://www.oecd.org/content/dam/oecd/en/publications/reports/2017/05/regulatory-policy-in-india\\_b63e65e4/b335b35d-en.pdf](https://www.oecd.org/content/dam/oecd/en/publications/reports/2017/05/regulatory-policy-in-india_b63e65e4/b335b35d-en.pdf)

## 7. Key imperatives and way forward



To achieve the ambitious technology transformation required to align with the vision of Viksit Bharat, FIs must prioritise specific strategic imperatives. These imperatives span technological, operational, cultural and collaborative dimensions, ensuring institutions can adapt to a rapidly evolving financial ecosystem while fostering inclusion, sustainability and innovation.

### **a. Aligning an FI's technology transformation journey with its strategic vision:**

- Perform a maturity assessment of the technology and digital strategy in the context of the bank's vision for the next 5, 10 and 15 years to identify key areas of focus by reprioritising some of the initiatives and reappropriating certain spends.
- Invest in building key capabilities such as a centre of excellence to foster innovation and create digital value pools.
- Create a detailed implementation roadmap and identify key dependencies and risks.
- Identify the capabilities required and define a clear strategy for building the same – i.e. upskill, hire or outsource.

### **b. Adopt a phased transformation approach**

- Begin with high-impact areas such as digital payments, lending platforms and customer onboarding before expanding to more complex technologies.

- Use pilot programmes to test new technologies, refine processes and scale successful implementations.
- Continuously monitor market trends, customer preferences and technological advancements to stay ahead.

### **c. Build robust digital infrastructure**

- Upgrade existing infrastructure to cloud-based, scalable platforms capable of supporting advanced technologies like AI, blockchain and IoT.
- Ensure seamless integration of legacy systems with new technologies to avoid operational disruptions.
- Collaborate with governments and telecom providers to improve digital infrastructure in rural and semi-urban areas.
- Use modular and API-driven systems that can grow with demand, ensuring high availability and low latency for digital services.

### **d. Foster cybersecurity and data privacy**

- Deploy AI-driven threat detection, multi-layered encryption and quantum-resistant security measures to safeguard customer data and financial assets.
- Develop robust frameworks to ensure compliance with data protection laws (e.g. India's Digital Personal Data Protection Act) and safeguard customer privacy.
- Use predictive analytics to detect and mitigate cyberthreats and system vulnerabilities proactively.

### **e. Embrace emerging technologies**

- Utilise AI for predictive analytics, customer personalisation and fraud detection.
- Implement AI-powered chatbots and virtual assistants for 24x7 customer service.
- Use blockchain for secure and transparent transactions, smart contracts and DeFi solutions.
- Enable real-time monitoring and data collection for sectors like agriculture and infrastructure financing.
- Invest in quantum technologies for faster data processing, enhanced risk modelling and advanced cybersecurity.

### **f. Invest in workforce transformation**

- Provide training in emerging technologies like AI, blockchain and data analytics to prepare the workforce for future roles.
- Encourage collaboration, experimentation and cross-functional teams to drive innovation within the organisation.
- Hire professionals skilled in technology and data science to bridge the expertise gap.

### **g. Strengthen collaboration and partnerships**

- Partner with agile FinTech companies to leverage their innovation capabilities while maintaining the trust and scale of established institutions.
- Work with government bodies to expand financial access and drive nationwide digital literacy campaigns.
- Forge partnerships with international technology providers to adopt global best practices in digital transformation.

### **h. Foster a culture of innovation**

- Focus on continuous improvement and reward innovative ideas.
- Build a feedback loop.
- Conceptualise and develop in-house innovation labs wherein new ideas can be prototyped and tested.

For FIs to achieve the ambitious technology transformation aligned with Viksit Bharat, they must focus on building resilient infrastructure, fostering innovation, and prioritising inclusion and trust. By adopting these imperatives strategically, FIs can lead India towards becoming a globally competitive, self-reliant and inclusive economy by 2047.



# About PwC

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