Role of financial services in the making of Viksit Bharat – Vision 2047

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Foreword by ASSOCHAM

The financial services sector will be instrumental for shaping the economic landscape of India as it strives to achieve the overall goal of a Viksit Bharat by the year 2047. India is targeting to achieve universal financial inclusion by year 2047 through digital enablement and ensuring access for all population segments. The path ahead requires synergy between the Open Network for Digital Commerce (ONDC) and the Account Aggregator Framework. This holds the promise of revolutionising financial services for MSME manufacturers in India. By providing enhanced data availability, improving credit accessibility, accelerating loan processing and promoting financial inclusion, these initiatives can drive substantial growth in the manufacturing sector and contribute to the vision of Viksit Bharat by 2047.

Further, the objective of Viksit Bharat is to empower India and help create a society that is prosperous, inclusive and sustainable wherein all of its citizens have the opportunity to thrive and meaningfully contribute to the nation's progress.

Towards that objective, India's financial ecosystem is characterised by a new era of accessibility, innovation and customer engagement. The widespread penetration of UPI, Aadhaar-enabled payment system (AePS) and a full range of digital solutions have established a robust interoperative financial network. Presently, UPI alone processes billions of transactions every month – not only domestically, but also as a channel for cross-border payments. Financial products are now designed to be more adaptive and intuitive, effectively making it easier for customers to interact with financial service providers.

While the financial services sector in India is making commendable efforts to enhance credit inclusion for the lower strata of society, the future demands a proactive and integrated approach to cybersecurity and risk management. It is for this purpose that a comprehensive strategy needs to be created, which would outline clear and measurable objectives aligned with Sustainable Development Goals and regulatory reforms to simplify compliance, ensure transparency and protect stakeholder interests.

Keeping this in mind, ASSOCHAM is organising its 19th Annual Summit & Awards on Banking & Financial Sector Lending Companies with the theme: Role of financial sector in making Viksit Bharat @2047. For this, ASSOCHAM and PwC have collaborated to develop this report which will help regulators, market participants, Government departments and research scholars for the further development of financial services in the summit. I would like to thank PwC for being the knowledge partner and providing its valuable contributions for this report. I want to convey my best wishes for the success of the summit.

Deepak Sood
Secretary General
ASSOCHAM

Foreword by PwC

The developments in the Indian financial ecosystem over the last decade have laid a very strong foundation for the financial services industry to support the goals of Viksit Bharat by 2047. In the near future, five key themes will drive the growth of this sector, namely digital financial inclusion, enhancing digital public infrastructure, consumer protection and cybersecurity, sustainable finance, and global integration and cooperation.

While ecosystem players have already begun to work on these areas, we have taken a slightly long-term view in this paper and tried to project how some of these goals will evolve as we continue making progress.

As financial inclusion gains traction, the focus will shift towards achieving overall financial well-being and security for consumers across the spectrum.

Bringing in newer customers, especially from the bottom of the pyramid, into the broader financial services ecosystems would require financial service providers to transition from mass products and services to newer and niche products and services, crafted specifically for micro segments. This must be done in tandem with Government schemes, aid and efforts targeted at incentivising innovation and interoperability.

The focus of digital public infrastructure will move from digital identity and payments towards the digitisation of specific sectoral value chains to develop newer data rails. This will lead to the creation of a seamless and wholly interoperable financial services experience, allowing for hyper personalisation, easy transitioning and improved accessibility for all. This accessibility is expected to be globally present, taking financial services beyond physical borders in a secure manner with less restrictions and challenges.

As financial service providers start catering to the unserved or underserved consumer segments, it is crucial that they take another look at their risk and cybersecurity postures. As new data rails emerge, they must be embedded in a way that goes beyond the objectives of organisations, integrating the interests of both consumers and Government stakeholders. This, building non-intrusive risk management practices, coupled with forthcoming cybersecurity mechanisms, should be a priority for the sector. Additionally, considerations for a unified system of compliances and regulations will be vital. The sector must remain vigilant and be prepared for both current new-age cyber risks and the ones that are yet to emerge in the next two decades as the digital landscape continues to evolve.

Bringing about these changes would require enabling people-centric capabilities and measures, creating a sturdy regulatory environment that supports innovation and protects the consumers, and developing a future-facing physical and digital infrastructure across the nation.

As we move further in our journey towards Viksit Bharat 2047, we will witness a transition towards financial well-being, microsegment-specific innovation facilitated by new data rails and the use of embedded digitised sectoral value chains. Risk and cybersecurity will face increased scrutiny, and the focus is expected to shift towards creating the building blocks of a truly evolved and developed India.

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1. Executive summary

Prime Minister Narendra Modi's vision for Viksit Bharat 2047 seeks to transform India into a developed nation by the 100th anniversary of its independence. This ambitious goal rests on four key pillars: Youth (*yuva*), the poor (*garib*), women (*mahilayen*) and farmers (*annadata*).

India's economic progress underscores its potential to achieve this vision. India confirmed its position as the fastest-growing economy in the world with an 8.2% gross domestic product (GDP) growth rate in FY 2024.[1] According to the Economic Survey 2023–24, a recovery in global trade volumes, monetary policy changes in major nations and a slowing rate of inflation would support real GDP growth of 6.5–7% in FY 2025. However, challenges such as geopolitical tensions and disruptions to global trade still remain. To overcome these hurdles, central and state governments, industry and academia will need to work together. The financial sector is well-positioned to contribute significantly to this change. By 2047, India aims to reach all population segments and achieve universal financial inclusion with the help of digital enablement and customised financial solutions. Access to credit among middle- and lower-income classes will be further improved with the expansion of digital banking, mobile payments, and initiatives such as the Pradhan Mantri Jan Dhan Yojana (PMJDY). As per the Reserve Bank of India (RBI)'s financial inclusion index, which rose to 64.2% in FY24,[2] significant strides have also been made in banking penetration.

1 https://www.indiabudget.gov.in/economicsurvey/doc/echapter.pdf

2 https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=58259

Going ahead, India must move beyond financial inclusion and target financial well-being. Interoperability and portability of financial services driven by advancements in digital infrastructure, phygital platforms and tokenisation would be necessary for this comprehensive transition. These advancements would result in the construction of a India's financial ecosystem is rapidly changing as a result of digitalisation. By 2030, India's economy will shift from being driven mainly by lower-income groups to being led by the middle class owing to the advancements in digital lending, mobile banking and blockchain technology.[3] To promote growth, acquire momentum and create jobs, special emphasis must be paid to support women in manufacturing, labour-intensive industries and micro, small and medium enterprises (MSMEs). India's drive to use the digital public infrastructure (DPI) for genuine inclusion is at the centre of this change. An ecosystem that empowers citizens and promotes equal prosperity is necessary to establish a digitally led economy and position India as a global leader in standardising digital lifestyles.

The importance of financial services in achieving the goal of Viksit Bharat 2047 is emphasised in this paper. Empowered citizens, smooth connectivity, cutting-edge digital infrastructure and a robust regulatory framework that encourages innovation and sustainable progress while guaranteeing a prosperous future for all will be the cornerstones of India's transformation into a modern and developed nation.

This paper covers the following critical points:

1. Access to credit at the middle and bottom of the pyramid

Through digital enablement and tailored financial solutions for every segment, India will finally bring all of its citizens under the purview of financial inclusion by 2047.

2. Financial wellbeing via financial inclusion

For low- and middle-income people to be able to access financial services and utilise the system to its full potential, India must shift from financial inclusion to financial well-being.

3. Inclusiveness and interoperability of financial products

In order to provide universal access and meet a wider range of customer needs, interoperability and portability of financial services driven by fundamental breakthroughs, phygital platforms and tokenisation will establish a smooth network connecting diverse financial services.

4. Driving growth in manufacturing

Despite initiatives to boost manufacturing in India, its stagnant GDP contribution requires focused financial services for women manufacturers, labour-intensive industries and MSME manufacturers.

5. Evolving DPI

India is set to transform its future by harnessing DPI for exponential growth in inclusivity and have truly empowered citizens for a prosperous and equitable society by 2047.

6. Non-intrusive risk management and cybersecurity

The future of India's financial services industry, with its groundbreaking innovations, will require an equally robust, proactive and unified strategy for cybersecurity and risk management.

7. Capability building in financial services

The Viksit Bharat vision will be built upon the development of modern digital infrastructure, seamless connectivity, empowered citizens and robust regulatory frameworks that encourage innovation and sustainable growth.

3 https://www.weforum.org/agenda/2019/01/10-mega-trends-for-india-in-2030-the-future-of-consumption-in-one-of-the-fastest-growing-cosumer-markets/

2. Driving consumption by enabling credit at the middle and bottom of the pyramid

Through digital enablement and tailored financial solutions for every segment, India will finally bring all of its citizens under the purview of financial inclusion by 2047.

Bank credit growth slowed and stagnated at 13.9%[4] in June 2024 compared to previous year. In the past, the formal banking sector was mainly focused on urban, rich people and a large portion of the population the country was thus overlooked. Many didn't have access to proper bank services, making financial inclusion a huge challenge. Low-income groups were seen as a risk because it was assumed that they may not be able to repay bank loans due to lack of any collaterals as a safety net. Therefore, people belonging to the low- and middle-income segments became dependent on informal forms of credit. Efforts were taken to bridge the gaps using microfinance institutions (MFI) and self-help groups (SHG), but their reach was also limited.

The use of more and more digital banking and mobile payment systems intended to change the financial landscape and bring about greater financial inclusion. Although the situation is significantly better today, the struggle of financial inclusion remains intact. While schemes like PMJDY have expanded the coverage of bank accounts, credit availability continues to remain low.

4 https://www.thehindubusinessline.com/money-and-banking/bank-credit-growth-slows-to-139-in-june-on-higher-base-effect-and-focus-on-managing-cd-ratio/article68469165.ece

India has a significant informal workforce in agriculture and allied activities, where majority of the labour are employed in the informal sector. The formalisation of MSMEs is underway, with large-scale jumps in Udyam and GST registrations, as well as QR code penetration. However, formal credit penetration remains low in this segment. With the development of India and per capita income increasing, a sizeable portion of this will move into formal banking for the first time. According to a new report by a leading ratings company, bank credit growth in India is expected to be 14–14.5% in FY 2024-25.[5] However, the potential of this bootstrap approach is limited and constrained by rigid traditional financial systems that hamper credit accessibility for not only MSMEs but also individuals at the middle and bottom of the economic pyramid. These systems are often far from being inclusive or capable of addressing the unique needs and challenges faced by these populations. However, the future offers a transformative opportunity to close that gap by digitalising the industrial value chain which will change credit availability by 2047.

The goal is that by 2047, every individual, irrespective of whichever financial quartile he or she belongs to, should have access to cheap credit. This can be done by creating a strong regulatory landscape that can protect both the lenders and borrowers and enhance their financial literacy besides using technology to extend reach to excluded areas. By 2030, India's economy will shift from being driven mainly by lower-income groups to being led by the middle class. Around 80% of households will belong to the middle class, compared to about 50% today. This middle-class segment will be responsible for 75% of all consumer spending in 2030.[6] Therefore, transforming people at the middle and bottom of the pyramid into active participants in the economy will lead to an increase in the consumption and economic growth.

The role of digitalisation in enabling credit at the middle and bottom of the pyramid

Digitalisation allows us to reach the middle and bottom of the economic pyramid by transforming the value chain, thereby enabling financial institutions to provide simple, effective and cost-efficient services that can reach the underserved. Mobile banking, digital lending and blockchain technology lead to faster and safer transactions, which in turn reduce operational costs and provide improved data analytics for risk assessment. The implementation of financial value chain with digital solutions can enhance loan access, boost consumption and promote equitable growth, thereby contributing significantly to the vision of Viksit Bharat 2047.

1. Digital identity and blockchain for transparent transactions:

Blockchain technology will be very important for keeping transactions transparent in the value chain. Smart contracts will automatically handle and secure deals, which will ultimately reduce the chances of fraud and unpaid debts. For instance, a small manufacturing business can create a smart contract with a distributor so that payment happens automatically once the goods are delivered and checked. This will reduce any kind of delay or argument, making transactions smoother. Blockchain's unchangeable record will keep a clear history of all transactions, which is accessible to everyone. Moreover, less time and paperwork from digital processes will make it easier for small businesses to get the money they need.

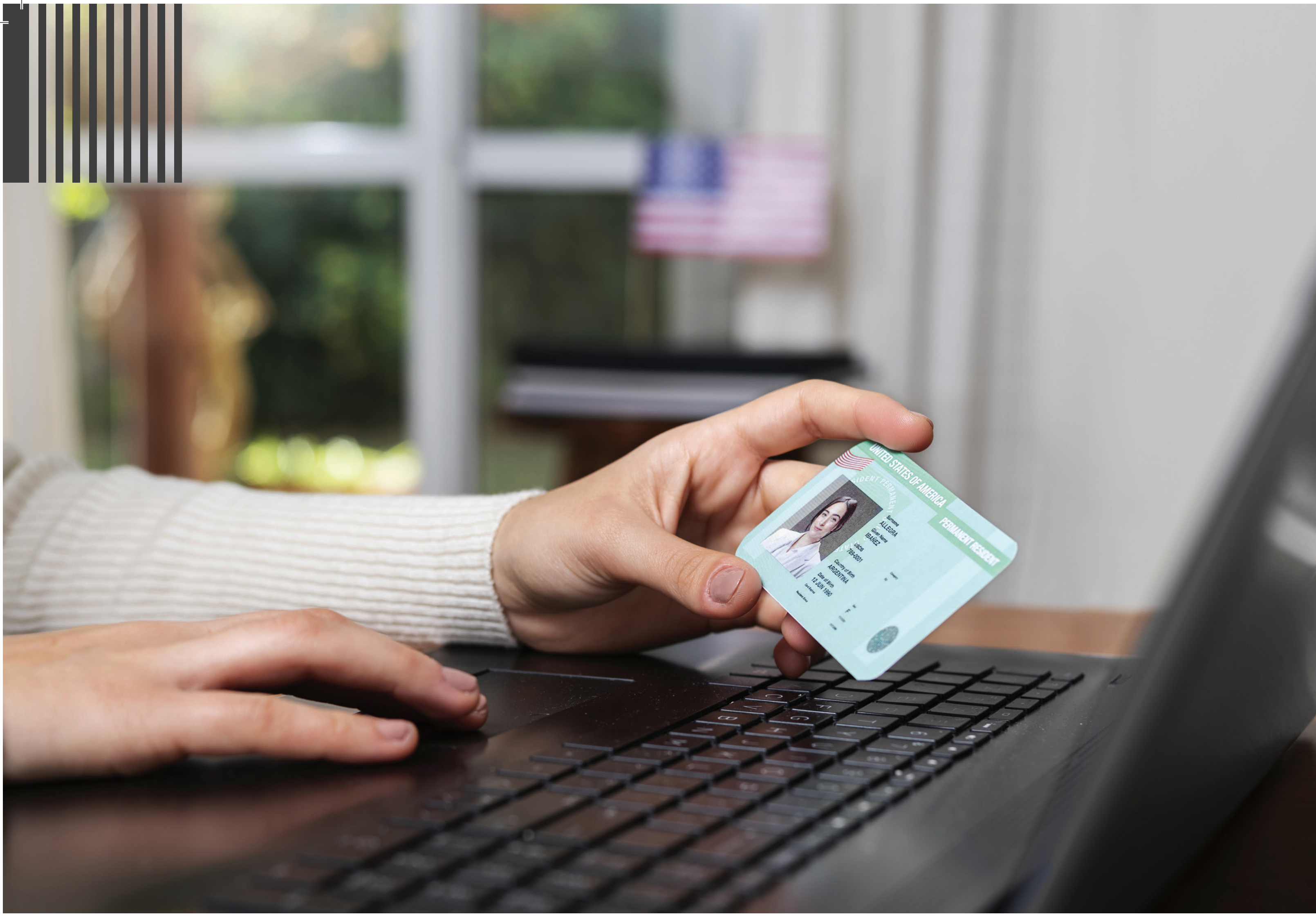
Every transaction will be recorded digitally – this will create a clear and complete financial history for businesses and individuals. This digital ledger will boost confidence and accountability throughout the value chain, reduce fraud and make it simpler to comply with regulations. Also, by integrating digital identity systems, even the smallest players in the economy can join in fully, giving them a verifiable financial history and access to a wider range of financial services.

2. Data-driven credit scoring:

Collecting a large amount of data can provide significant insights into the economic activities of small businesses and individuals. We can also use advanced analysis and AI to create better credit scoring models based on this data. Instead of relying on traditional credit scores, which often exclude people without bank accounts, these new models can look at things like real-time transactions, purchase histories and sales patterns. This way, lenders can better understand the creditworthiness of people who don't have any official financial records. By doing this, more people can get loans, and lenders can reduce the chances of defaults.

5 https://economictimes.indiatimes.com/industry/banking/finance/banking/bank-credit-growth-in-india-expected-at-14-14-5-in-fy25-careedge-ratings/articleshow/108882216.cms

6 https://www.weforum.org/agenda/2019/01/10-mega-trends-for-india-in-2030-the-future-of-consumption-in-one-of-the-fastest-growing-consumer-markets/



3. AI-powered financial advisory:

AI-powered virtual financial advisors are changing how small businesses and individuals can get and use credit and financial services. These advisors basically look into the individual's financial data, market conditions and industry trends so that they can suggest the best credit products and financial strategies. For example, a small business owner can get advice on the best times to apply for loans, how to manage his cash flow and where to invest in order to grow his business. This personalised advice can help even the smallest businesses to make smart financial choices, stay financially healthy and avoid risks. Also, these AI advisors are available all the time, giving quick and useful advice whenever it's needed. This makes expert financial guidance available to everyone.

Usage of digital platforms and technologies can make financial services more effective and reach more people. Here's how we can increase credit availability in rural India:

- **Mobile banking and payments:** Many people in rural areas have mobile phones and the same can be used to offer banking services. Platforms like Unified Payments Interface (UPI) have already made banking easier in remote places.
- **Aadhaar-enabled Payment System (AePS):** By linking banking services with Aadhaar, people can make secure transactions. AePS allows users to perform financial activities using their Aadhaar number and fingerprint.
- **Digital wallets and electronic know your customer (e-KYC):** Digital wallets make transactions simple, while e-KYC processes make it easier to onboard new customers quickly.
- **AI/ML for credit scoring:** AI and ML can look at non-traditional data, like mobile usage and social media, to create credit scores that include more rural people.
- **Predictive analytics for risk management:** These technologies can predict loan defaults, thereby helping in better risk management.

By using these digital tools, we can make financial services more accessible and efficient for everyone in rural India.

3. Facilitating holistic financial wellbeing via financial inclusion

Through digital enablement and tailored financial solutions for every segment, India will finally bring all of its citizens under the purview of financial inclusion by 2047.

The Financial Inclusion Index (FI-index), which ranges from 0 to 100 and indicates the extent to which people have access to banking and financial services based on three parameters which are usage (45%), ease of access (35%) and quality of these facilities (20%), was first published by RBI in August 2021. While the value of the FI-index for India has improved from 53.9 for FY21 to 64.2[7] for FY24, there's still a long way to go to ensure inclusive growth encompassing all sections of the Indian society.

Case in point

One of the important drivers of the above index is PMJDY. It is one of the biggest financial inclusion initiatives in India which ensures affordable access of financial products and services through use of technology.

PMJDY has been a game-changer for the economy as it has provided the platform for direct benefits transfer (DBT), which in turn will help in plugging leakages in subsidies and thereby provide savings to the exchequer. For instance, nearly 20 crore[8] women PMJDY accounts were credited INR 500 per month for three months through DBT during the COVID-19-induced nationwide lockdowns.

Enhancing financial well-being for low-income and middle-class populations

In addition to expanding India's financial architecture and bringing financial inclusion to nearly all adults, PMJDY has brought the unbanked into the banking sector. To attain both financial inclusion and financial well-being, it is crucial to raise middle-class and low-income groups – particularly those with Jan Dhan accounts – into comprehensive financial systems.

7 https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=58259
8 https://www.pib.gov.in/PressReleasePage.aspx?PRID=1952793

With a median age of only 28,[9] India is one of the youngest populations in the world by 2024. The median ages of 38 in the US and China, 45 in Western Europe and 49 in Japan are a stark contrast to this. Forecasts indicate that India would benefit from a sizeable 2055. According to the 2018–19 Economic Survey,[10] this demographic dividend would be at its highest in 2041, when 59% of the population would be of working age (those between the ages of 20 and 59).

As India approaches the 100th anniversary of its independence by 2047, it becomes increasingly crucial to address the financial well-being of the current generation. Therefore, focusing on different financial strategies is necessary to ensure long-term stability and growth considering this demographic transformation.

Future vision for financial inclusion and wellbeing in India by 2047

1. **Access to small-scale savings platforms backed by AI and community-based investments:** It is crucial to develop user-friendly, accessible digital investment apps backed by AI-based technology for low-income and middle-class groups that provide small minimum buy-in alternatives such as mutual funds, stocks, or bonds. These platforms should have smooth onboarding processes and features such as round-up so that small and regular amounts can be invested through auto-investment tools. These platforms can be integrated with Jan Dhan accounts of users for direct investment. They can be embedded with predictive financial tools to assist users in proactive management of money. Education, which is one of the significant expenses for families can be addressed through small scale savings, supporting financial planning and funding options. Supporting local crowdfunding platforms can enable people to invest in and benefit from local startups, regional businesses and infrastructure projects.

2. **Wealth creation:** Provide opportunities for small investments that could increase in value over time so that people can gradually improve their financial circumstances without having to make a significant initial payment. Gamification strategies can be used to add interest to financial education by offering incentives and prizes for completing financial literacy modules. Adopting digital and blockchain solutions is also essential. Learning more about blockchain technology can provide safe, cost-effective investing options with enhanced transparency and traceability.

   Important topics such as money management, investing, saving and budgeting should be covered through regular webinars and workshops in regional languages. To promote growth and innovation among, start-up incubators and accelerators designed for entrepreneurs from underserved communities will give them essential access to funding, mentorship, and market opportunities.

3. **Incentivising flexible retirement saving plans:** Households with lower income do not have a fixed source of income. Hence, fixed investment might be a challenge. However, if the option to make incremental contributions is given, then people will be able to align their retirement savings as per changes in their income. Additionally, the portable retirement accounts will enable people to save and invest during job changes. If the Government and corporations make equal contribution as that of the employee, more people will start contributing to such retirement schemes.

4. **Integration with digital governance:** Integration of digital governance platforms with financial services can improve accessibility for all and improve user experience. By connecting these services with e-governance platforms, the process of obtaining benefits and services can be made more effective and user-friendly. Furthermore, putting in place strong digital identity verification systems would guarantee safe and easy financial transactions, making personal financial management even easier.

5. **Behavioural economics and nudging:** To promote positive saving and investment behaviours, leverage behavioural economics and enhance the design of financial products. Financial products can be designed with behavioural insights to incorporate incentives and nudges that help people make better financial decisions. By assisting consumers in adopting more efficient investing and saving strategies, this method can eventually enhance their financial results.

Role of the banking industry

Banks in India play an essential role in fostering overall financial well-being. Banks can target underserved and unbanked individuals from areas outside of Tier 1 and Tier 2 cities, as well as rural and remote areas, by utilising the business correspondent (BC) strategy. It is easier for this Tier 1 and Tier 2 population to integrate into the formal financial system when they are given access to basic banking services like credit facilities, savings accounts and remittance services. Below are some suggestions for banks to promote financial inclusion by extending coverage to groups that are typically left out – such as women, farmers and the rural population:

9 https://datareportal.com/reports/digital-2024-india#:~:text=India's%20population%20by%20age,is%20aged%2065%20and%20above

10 https://www.businesstoday.in/india-at-100/story/inclusive-india-2047-empowering-the-demographic-dividend-395359-2023-08-24

- To provide basic banking services like account opening, deposits, withdrawals and microloans, banks can train and empower local youth as banking agents. To enable secure transactions, they can be given mobile POS devices and biometric authentication devices. Further, incentives and commissions to BCs can help to ensure their sustainability and commitment.
- Create savings accounts, microloans and hybrid products that cater to women, with characteristics like flexible repayment plans, low minimum balances and health coverage. Collaborate with women's SHGs to offer group savings and lending programmes. Provide financial literacy initiatives aimed at equipping women with the skills necessary to properly manage their finances.

Banks can foster a culture of financial independence and security by offering tailored financial products for the specific needs of different demographic groups, such as women, small farmers and micro-entrepreneurs. This, in turn, can lead to increased economic growth and stability at the grassroots level – also contributing to a more inclusive financial ecosystem.

Role of insurance companies

India has emerged as a highly promising market and a global leader in setting up the regulatory environment for micro insurance. Micro insurance promises to support sustainable livelihoods of the poor. Government schemes and liberalisation of the insurance industry have opened up new avenues for micro insurance to reach the vast majority of the poor, including those working in the unorganised sector. However, India's micro insurance industry is still not verywell established. This issue can be resolved by promoting financial inclusion through a range of creative and strategic steps by insurance companies. Moreover, these companies should offer comprehensive and reasonably priced products that address the specific risks faced by low-income households, working with district and rural cooperative banks, local organisations and digital platforms to distribute these products more effectively, and educate communities about the importance of insurance in lowering financial risk. To help customers make educated decisions, insurance companies can also promote financial literacy by organising awareness campaigns that clarify the features and benefits of insurance. In addition to protecting against unforeseen financial losses, this approach promotes a culture of long-term planning and risk management, both of which are critical elements of comprehensive financial well-being.

The product design, ease of underwriting, distribution, awareness creation, easy premium payment system, simple claims processing, and understanding and use of new-age technology would be key for the success of the micro insurance market.

Role of wealth managers

Wealth managers can contribute to financial inclusion by offering advisory services that are accessible to a broader audience, including those in lower-income brackets.

- Wealth managers can provide personalised financial advice on savings, investments and retirement planning by creating scalable technology such as AI-driven advisory platforms that are available to people from all income brackets. These platforms can use algorithms to customise recommendations based on individual financial situations and goals.
- Additionally, wealth managers can also lead community-based financial education workshops and seminars, that emphasise the value of diversified investments and prudent financial management.
- Wealth managers can help individuals in creating and protecting wealth by simplifying complex financial concepts and offering practical advice. This inclusive strategy ensures that wealth management services are a resource available to everyone, and not just the wealthy, thereby encouraging greater economic involvement and prosperity.

Future direction for the FI-index should encompass criteria such as ease of credit accessibility for all income groups, ease of investing through AI-driven investment platforms and automated investment tools, quality and availability of financial education and guidance, ease of insurance through comprehensive coverage availability, premium affordability and ease of claim processing, technological integrations, and government and private sector partnerships.

We can significantly enhance financial inclusion and well-being and bring more of India's population into the formal financial system by incorporating innovative solutions and encouraging collaboration among government agencies, regulatory bodies, financial institutions, technology providers and local communities. In order to meet the changing requirements of the middle-class and marginalised groups and guarantee that financial services are available, fair and advantageous to everyone, it will be essential to implement these techniques effectively and continuously assess their effectiveness.

4. Enhancing inclusiveness and interoperability of financial products to increase adoption

To provide universal access and meet a wider range of customer needs, interoperability and portability of financial services driven by fundamental breakthroughs, phygital platforms and tokenisation will establish a smooth network connecting diverse financial services.

A little over a decade ago, India's financial landscape was highly fragmented in terms of access and was barely interoperable and inclusive. Digital transaction-based services, such as National Electronic Funds Transfer (NEFT) and Real-Time Gross Settlement (RTGS), catered to a narrow user base which had access to formal banking. Limited digital infrastructure and dependence on cash transactions, especially in the rural areas, continued to act as barriers for many. Financial systems operated in isolation where banks did not interact with FinTechs, and payment platforms functioned on their own. The result was that a large portion India's population remained exempt from the banking system and could not avail the benefits formal banking had to offer.

However, initiatives like PMJDY, Aadhaar and the unprecedented success of UPI have brought forth considerable change. These schemes, combined with the existing NEFT-RTGS ecosystems, formed the foundation for building an open and interoperable financial system. Seamlessness in real-time transfers through UPI, along with rising digital infrastructure, gave financial inclusion a boost in the country. NEFT and RTGS systems, earlier available only during banking hours, became operational 24x7, adding tremendous accessibility to digital transactions.

Today, the financial ecosystem in India is breaking new ground when it comes to access, innovation and customer engagement. A robust interoperative financial network has been successfully established with the implementation of UPI, AePS, and a full suite of digital solutions pervasively throughout the country. For example, today, the monthly number of domestic transactions and cross-border payments processed by UPI exceeds billions. Deepening accessibility for those still out of the smartphone ecosystem are the launch of UPI 123PAY (which caters to feature phones) as well as innovations such as Light KYC (for alternative credit scoring). Financial products are now designed to be more adaptive and intuitive, effectively making it easier for customers to interact with financial service providers.

Building interoperable, phygital data-driven networks and ecosystems:

The future of financial services would be built around open, standardised networks which allow customers to effortlessly navigate and transition across financial products, including bank accounts, wallets or portfolios – all via universal protocols. These would terminate fragmentation and deliver an agile financial ecosystem which is more responsive to the evolving needs of the consumer, catalysing the need for greater competition and innovation.

A suggested and effective step forward would include utilising India's game-changing UPI beyond mere payment transactions. By putting a full range of financial products, including insurance, investments and loans on it, India could create a single platform that uses unified processing language and supports all major currencies. This would enable current users to conduct all their economic activities with ease via this single integrated project with simplified financial journeys. Central Bank Digital Currencies (CBDCs) are expected to play a pivotal role in this transformation, by allowing real-time transactions that are secure and traceable. Combined with UPI, CBDCs will create an interoperable network of connections to make immediate cross-border, domestic or international settlements. This move would result in less cost, no intermediaries and universal access, even in remote areas, fitting perfectly with the goal of Viksit Bharat.

Moreover, India's Open Network for Digital Commerce (ONDC) serves as a powerful example of how hybrid phygital financial networks can be developed to combine the efficiency of digital platforms with the accessibility of physical outreach. Extending the ONDC model into finance yields an integrated system where banking via mobiles merges seamlessly with off-the-grid, agent-led services in low-access regions. With particular application in rural India, this method would allow small businesses to go about their day without the need to switch between digital and in-person commerce, thus moving further towards true financial inclusion.

At the same time, APIs and open banking standards will help establish interoperable data-driven ecosystems for consumers to get a comprehensive view of their finances. It would enable more precise choices, personal insights and ultimately lead to better personal finance, helping build a future-proof financial structure that makes the country globally competitive and financially empowered.

Internet of things (IoT) and embedded finance in everyday life: In the current decade, financial services will go beyond digital platforms and become embedded within physical objects via IoT. This technology will be integrated into wearable devices, which will help monitor spending habits, provide savings recommendations and have the potential to conduct one's own payments, thus facilitate an interconnected real-time financial experience that flows seamlessly into the users' daily life. This transformation would signal a paradigm shift, from banking as an activity to banking as an embedded service. Rural customers too would benefit from IoT-enabled farming equipment that would intelligently monitor crop cycles and loans and make appropriate payouts as per changes in market conditions.

Decentralised financial trust networks: New types of decentralised financial trust networks will arise in areas where formal financial institutions are limited. These networks would use peer-to-peer (P2P) validation systems, where communities will validate not only each other's transactions but also each other's creditworthiness. Blockchain and decentralised ledgers-based technology will allow communities to develop hyperlocal financial systems based on trust, proximity, and cooperation through communal loan granting and validation of an insurance claim or a credit score. In doing so, communities will have the upper hand in managing their financial system and empower those who are usually outside the purview of the formal financial system. This policy would integrate grassroots financial inclusion with trust and cooperation and replace the usual banking mechanisms.

Last-mile access via phygital autonomous financial hubs with unmanned financial kiosks: Building further on the concept of phygital, the future of finance may be an ecosystem of independent financial kiosks, self-activating units with AI, blockchain, and bio-authentication meant to operate in even the most inaccessible regions without human intervention. The hubs would offer the entire gamut of banking services, from instant loan approvals to savings account openings and credit distributed – all of this integrated into the wider financial system through real-time connections of data. These kiosks would indeed be able to connect underserved communities with much-needed financial services, minus the need for dependence on conventional bank branches and the necessity of human staff by providing these kiosks with rapid, safe and direct access in areas that really need it. This would redefine access to banking services for the marginalised, set the limits of efficiency in line with the limits of inclusion, in a way that has never been possible for any traditional model.

Dynamic financial portability via global tokenised banking systems for instant cross-border financial inclusion: The rapid increase in tokenisation would herald a future in which financial interoperability may change to a universal tokenised banking system. In such a system, a variety of assets – from capital to commodities – are represented as digital tokens and transferred across borders quickly and instantly. This would enable every individual, regardless of their geographical location, to hold, transfer or invest in global assets, therefore democratising access to the global financial markets. For example, consider Indian farmers in remote rural India investing in renewable energy projects in Europe or, small businesses in remote villages accessing cross-border loans denominated in tokenised currencies. Tokenised frameworks will ensure levels of financial inclusion that have not been possible so far, and eliminate long-standing barriers that prevented full integration into the global financial framework.

Such fluidity in real-time asset transfers would break the silos existing between different financial ecosystems, creating a fully integrated framework for both consumers and businesses. Moreover, it would remove the geographic and traditional banking barriers to financial inclusion and participation of Indian citizens, propelling the country towards Viksit Bharat.

Enablers for this growth

Incentivising innovation at the bottom of the pyramid: The next wave of financial inclusion needs to create ultra-accessible, affordable products for the poor. Governments and financial institutions must incentivise low-cost financial product innovation by offering tax exemptions, subsidies, and aid in terms of Government grants and challenge funds to FinTechs and banks that create products and services targeting the bottom of the pyramid. Empowering the underserved would involve products such as no minimum balance savings schemes, mobile-based microloans, and low-cost or pay-per-use insurance, targeting daily wage earners. The objective will be to promote grassroots-level economic participation for a more inclusive economy.

Strengthening regulatory frameworks: Creating more targeted regulatory sandboxes for testing innovative technologies like tokenisation would be crucial for fair and sustainable innovation. Such sandboxes would allow FinTech and financial institutions to pilot products on a controlled basis under lighter regulatory constraints to full-scale implementation.

Updating existing rules on finance concerning digital tokens and blockchain technology would greatly promote and simplify the development of these assets. Revising relevant legislation concerning securities, payments and data protection will embrace the unique features of tokenised assets and provide a safe environment that promotes innovation and protects the consumer.

Establishing robust standards and protocols: Establishing standards and protocols of open banking and ONDC platforms will enable harmonised integration and compatibility. Such standards will ensure data security, data privacy and technical interoperability to enhance interaction among different financial systems and fortify transaction security. India must also establish and follow universal interoperability standards to integrate more networks and CBDCs. Developing protocols and APIs would ensure secure and efficient data exchange across different blockchain systems for the financial ecosystem, thus strengthening global financial connectivity and enabling CBDCs to interact with the currently existing platforms like UPI and international financial networks.

Enhancing consumer awareness and protection: Consumer awareness will be critical to the acceptance and adoption of interconnected financial systems. To this end, effective programmes are required that can communicate the value proposition and distinctive features of new financial technologies such as future UPI services, phygital platforms, CBDCs and open banking systems to consumers effectively. This will include user-friendly resources, useful and interactive tutorials, and outreach efforts to make these technologies accessible to a wider population. More channels of feedback and transparent support mechanisms for resolving complaints will ensure that consumer concerns and queries are attended to appropriately within a reasonable time frame. Focusing on this initiative will have far-reaching benefits, fostering trust and promoting active participation while simultaneously empowering consumers.

Encouraging diverse stakeholders: Collaboration between various stakeholders will ensure interoperability among FinTech companies, traditional banks, regulators and technology providers. Creation of relevant platforms and forums for the purposes of discussion and joint initiatives will enable stakeholders to share their knowledge and engage in the aligning of standards and co-development of solutions to address needs in the market. Incentive programmes such as grants or tax benefits may encourage stakeholders to collaborate proactively in developing and implementing new financial technologies. This will allow India to take advantage of the combined knowledge and resources of diverse participants to push towards innovation and seamless interoperability.

In conclusion, increased consumer awareness, strengthened regulatory frameworks, participation of diverse stakeholders in the processes and formulation of sound standards for this environment will set India up to create a financial ecosystem that is inclusive, more efficient and interconnected. Additionally, breakthroughs like the integration of CBDC with UPI and the creation of community-driven systems of peer-to-peer validation shall continue breaking barriers and empowering communities. With such innovations, implementation will bring about financial inclusion. India will become a leading global example in the financial world, and all citizens will have access to and participate in this dynamic, future-ready economy.

5. Role of financial services in driving growth in manufacturing: Priority areas for the Government

Despite initiatives to boost manufacturing in India, its stagnant GDP contribution will necessitate targeted financial services that support women manufacturers, labour-intensive industries as well as MSME manufacturers.

India aspires to transform from Atmanirbhar Bharat to Viksit Bharat by 2047. In line with this, PwC has introduced VIKSIT: A six-pillared framework (**V** focusing on value addition and volume growth in exports by identifying priority products and industries, **I** standing for infrastructure investments; **K** for knowledge sharing and capacity building, **S** for sustainable supply chain, **I** for inclusive industrialisation focused on MSMEs, and **T** denoting technology enablement) that will help India reach the goal of Viksit Bharat by 2047.[11]

This goal is largely built upon increasing the manufacturing sector's contribution to the country's economic prosperity. Throughout fiscal years 2006 to 2012, India's manufacturing sector GDP grew at an average annual rate of 9.5%. However, even with numerous initiatives in the financial services space, complex regulatory environment caused this growth rate to fall to 7.4% in the following six years.[12]

The Government of India's target of USD 1 trillion in merchandise exports by FY30 sets the bar high for this sector and having a robust financial services ecosystem supporting it will be conducive to its growth. In alignment with these six pillars, there are several steps and initiatives on the financial services front, which can help in bolstering the growth of the manufacturing industry in India. Sector-specific credit lines to boost high potential manufacturing sectors, financial incentives for R&D investments, issuance of infrastructure bonds for manufacturing infrastructure development such as building of manufacturing hubs, industrial parks, etc., grants or low-interest loans for adoption of new technology can fuel the manufacturing sector's growth.

11 https://www.pwc.in/press-releases/2024/pwc-india-launches-viksit-framework-to-propel-india-towards-usd-1-trillion-in-merchandise-exports.html

12 https://www.investindia.gov.in/team-india-blogs/fdi-make-india-transforming-manufacturing-landscape

Key initiatives

Make in India: Launched in September 2014 to transform India into a global manufacturing hub

The Government, in collaboration with financial institutions, established sector-specific funds to provide targeted financial support.

Production Linked Incentive (PLI) schemes[13] of INR 1.97 lakh crore were announced for 14 key sectors with the aim to improve exports and manufacturing capabilities.

National Manufacturing Policy aims to increase the share of manufacturing in GDP to 25% by 2025.[14]

Start-up India: Launched with an objective to promote entrepreneurship and innovation

Funds for startups (FFS): Credit facilitation through **Stand-Up India** aims to provide loans between INR 10 lakhs and INR 1 crore to at least one SC/ST borrower and one woman borrower per bank branch to set up a greenfield enterprise. It aims to provide funding support to startups through venture capital funds. This has enabled many manufacturing startups to access early- and growth-stage capital.

Focus on MSME manufacturers

Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) was established to provide collateral-free credit to MSMEs.

MUDRA Loans: The Micro Units Development and Refinance Agency (MUDRA) provides loans up to INR 10 lakhs to non-corporate, non-farm small/micro enterprises.

Interest Subvention Scheme for MSMEs offers a 2% interest subvention on fresh or incremental loans.

Countries such as China and South Korea have seen rapid industrial growth, largely driven by robust financial support mechanisms such as state-owned financial institutions, export financing, government grants and subsidies.

Way forward

A leading non-government trade association and advocacy group has also outlined four key priorities[15] for Viksit Bharat:

1. Make in India for the world
2. Women-led development
3. Farm prosperity
4. Sustainability

The first two focus areas, 'Make in India for the world' and 'Women-led development', aim at growing the manufacturing industry via effective interventions and policies.

In addition to the above, the trade association and advocacy group has also set up a dedicated 'manufacturing committee' to ensure that the concerns of the manufacturing sector, which are related to different Government policies, are adequately addressed. The committee also recommends policies to the Government after considering representations of various segments of the sector.

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13 https://pib.gov.in/PressReleasePage.aspx?PRID=1945155

14 https://www.ibef.org/industry/manufacturing-sector-india

15 https://cfo.economictimes.indiatimes.com/news/economy/16x-growth-needed-in-manufacturing-to-achieve-viksit-bharat-by-2047-anish-shah-group-ceo-mm/113095304

Extending Make in India for the world

By creating a favourable business environment, Make in India has attracted significant foreign direct investment (FDI) into the manufacturing sector. This influx of capital can lead to the establishment of new industries, job creation and technology transfer, thereby boosting economic growth. Additionally, the development of industrial parks and special economic zones (SEZs) that cater specifically to labour-intensive industries can also provide the necessary infrastructure and facilities to support large-scale manufacturing operations.

Financial institutions can play a key role in structuring and financing of such projects, along with facilitating public-private partnership (PPP) projects to develop infrastructure, provide training and create employment opportunities in labour-intensive industries.

By way of targeted microfinance initiatives, digital financial services, skill development programs, infrastructure investments and sustainable financing, financial institutions can help create large-scale employment opportunities, boost economic growth and contribute to the vision of Viksit Bharat by 2047. These efforts, supported by innovative pilot projects and government schemes, can ensure that the manufacturing sector remains a cornerstone of India's economic development.

Promoting women-led development

NABARD's idea of promoting women's SHGs has enabled women, particularly in rural India, to collectively pool a large corpus out of their savings and encouraged the idea of entrepreneurship among them. To further promote the same, the Government of India has been taking proactive measures, such as the Stand-Up India scheme, to help women entrepreneurs become self-reliant.

Case in point: Kudumbashree project

Kudumbashree was established in Kerala with the support of GoI and NABARD to eradicate poverty and empower women. The scheme supports both the individual and group enterprises started by women. Kudumbashree provides financial assistance in the form of interest subsidy, startup fund, revolving fund, technology fund, technology upgradation fund, innovation fund, crisis management fund, second dose assistance etc. It also established Insurance Scheme Promoting Industrious Resilient Enterprises (INSPIRE) shortly after several pandemic- and flood-related incidents that had a serious impact on the lives of Kudumbashree entrepreneurs. This scheme aims to give insurance coverage for enterprises in the manufacturing and trading sectors. Kudumbashree also helps its members to avail loans from banks.[16]

One of the biggest challenges faced by women entrepreneurs in the manufacturing sector face is the accessibility and affordability of financial services. More initiatives like the SHG-bank linkage programmes, pioneered by large-scale organisations like NABARD, can facilitate easier access to credit for women entrepreneurs. Bringing in more priority sector lending norms will also incentivise banks to lend to SHGs and women entrepreneurs. This would reduce the dependency on traditional moneylenders and non-institutional sources, leading to fairer and more affordable financial services for women entrepreneurs.

16 https://www.kudumbashree.org/pages/653#

A step in the right direction for MSME manufacturers

Another focus area of paramount importance is the **manufacturers in the MSME sector**. In the upcoming years, the Government hopes to raise MSMEs' share of exports to 75% and their GDP to above 50%.[17] According to the report prepared by the RBI expert committee on MSMEs,[18] the sector has an estimated credit gap of INR 20–25 trillion. MSME manufacturers require this credit gap to be effectively addressed in order to pay wages, upskill their workers and to develop infrastructure and capabilities to compete internationally.

1. Majority of MSME manufacturers do not have access to sufficient credit and liquidity required for daily working capital needs. Financial institutions often consider lending to this sector unprofitable due to the small loan sizes and the lack of sufficient data on these MSMEs. As a result, credit approvals based on traditional decision-making models are frequently rejected. However, with the advent of platforms like **ONDC**, the data for these SMEs is likely to be digitised. This can be leveraged by financial institutions, thus paving the way for better credit accessibility for MSME manufacturers.

2. The **Account Aggregator (AA) framework**[19] is an initiative by the RBI that enables the aggregation of financial data from various sources – such as bank accounts, insurance policies, mutual funds and tax records – into a single platform. Access to this data can help financial institutions in a data-driven assessment of creditworthiness, faster loan processing and promote financial inclusion. With access to detailed financial data, lenders can develop customised financial products that cater to the specific needs of manufacturers, such as tailored loan terms, interest rates and repayment schedules.

The synergy between ONDC and the AA framework holds the promise of revolutionising financial services for MSME manufacturers in India. By providing enhanced data availability, improving credit accessibility, accelerating loan processing and promoting financial inclusion, these initiatives can drive substantial growth in the manufacturing sector and contribute to the vision of Viksit Bharat by 2047.

17 https://www.pwc.in/industries/financial-services/fintech/fintech-insights/unlocking-credit-for-msmes-innovations-in-supply-chain-finance.html

18 https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=924#CH2

19 https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1753713

6. Evolving DPI to facilitate growth, broaden well-being and credit at the bottom of the pyramid

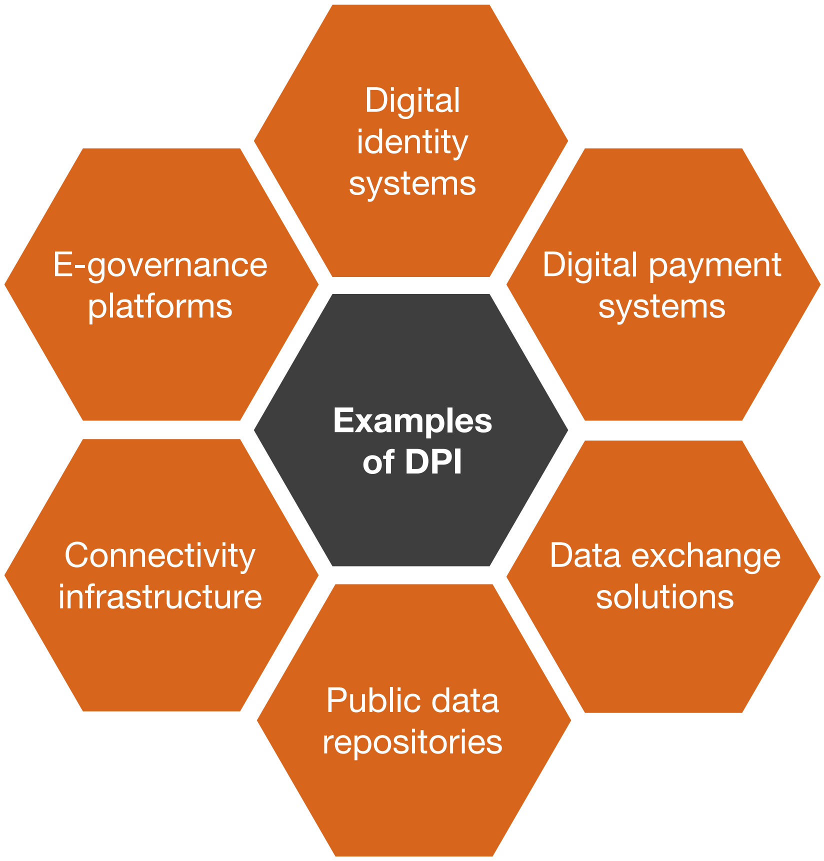
India is set to transform its future by harnessing DPI to drive inclusive growth and empower its citizens, aiming for a prosperous and equitable society by 2047.

India has emerged as a significant player on the global stage in terms of DPI, driven by pioneering initiatives such as Aadhaar and UPI. DPI in India has created open, interoperable systems that reduce the cost and complexity of delivering services, unlocking unprecedented growth opportunities. India's proactive role in setting global digital standards and its influence in international forums underscore its leadership in DPI.

In the coming years, as India seeks to achieve its vision of a Viksit Bharat and inclusive development by 2047, DPI is expected to play a key role to make significant advancements in the digital framework. DPI underpins the ability of governments and institutions to serve their citizens effectively by having a centralised infrastructure which is standardised and allows varied kinds of players to participate. It also promotes innovation and entrepreneurship while improving transparency and accountability in public operations. It provides a foundational technological framework that drives societal advancement and equitable access to digital resources while fostering a more connected and informed community.

DPI encapsulates the entire system and platforms essential for digital interactions and services. Examples of DPI that can be included in the Indian context:

Together, these elements form a cohesive digital ecosystem that nurtures effective governance, supports economic development and enhances the quality of life.



DPI initiatives in India

India has become a pioneer of several DPI initiatives across the globe. The modular and open-source nature of India's digital solutions has allowed for their adaptation to various local contexts, making them valuable templates for other nations. By continuing to share its experiences and collaborate internationally, India is not only shaping its own digital future but also providing a roadmap for other countries to enhance their DPI.

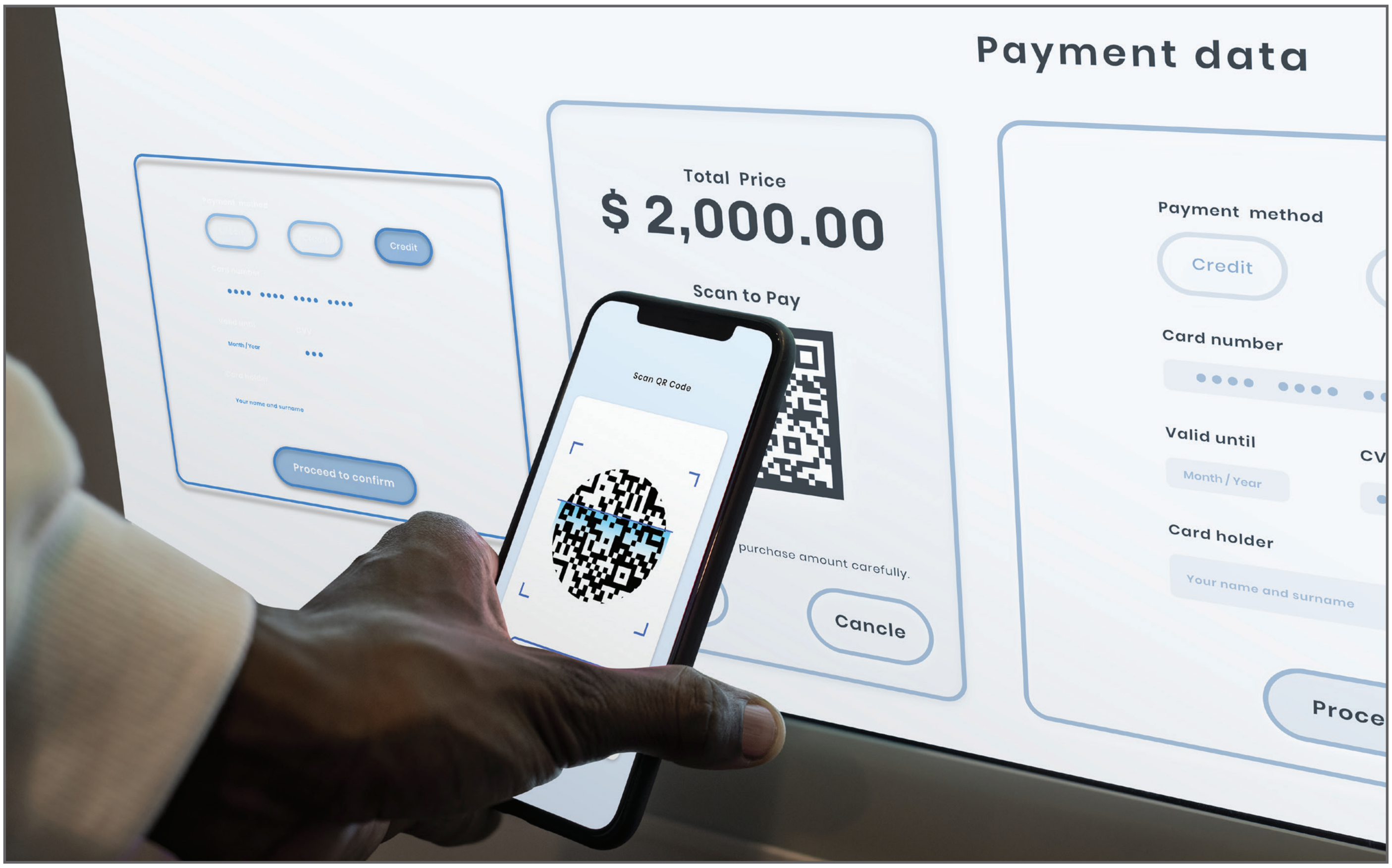
Some of the key DPI initiatives in India been listed down below:

- **Digital India initiative and India Stack:** India Stack – a set of open APIs along with other initiatives such as Modular Open-Source Identity Platform (MOSIP) – has cemented the nation's position as a leader in digital transformation. These advancements have garnered international recognition, with global organisations like the World Bank citing India's efforts in digital financial inclusion as exemplary.[20]
- **Aadhaar:** Aadhaar is a unique digital identity project which provides authentication using biometrics, along with the Central Identities Data Repository, authentication servers and Aadhaar network. Issuance of 1.38 billion Aadhaar cards[21] (as of July 2024) and the strong digital identity verification process have facilitated and streamlined eKYC services and helped in the seeding of individuals with hundreds of welfare schemes and services. In FY 2023–24, direct benefit transfers of INR 6.91 trillion across 315 schemes[22] were provided in India, exemplifying the effectiveness of technology in streamlining financial support to beneficiaries. This has substantially reduced payment and financial frauds, showcasing DPI's pivotal role in India's progress.

20 https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1955519#:~:text=World%20Bank's%20G20%20document%20praises%20India's%20financial%20inclusion%20via%20digital%20public%20infrastructure&text=The%20Prime%20Minister%2C%20Shri%20Narendra,at%20least%2047%20long%20years.&text=%22India's%20leap%20in%20financial%20inclusion,to%20rapid%20progress%20and%20innovation.&text=%2D8568140.html%22-,India's%20leap%20in%20financial%20inclusion%2C%20powered%20by%20Digital%20Public%20Infrastructure,have%20taken%20at%20least%2047%E2%80%A6

21 https://uidai.gov.in/en/about-uidai/unique-identification-authority-of-india.html#:~:text=As%20on%2029th%20September%202023,to%20the%20residents%20of%20India

22 https://dbtbharat.gov.in/



- **UPI:** UPI is a retail payment system in India. It has revolutionised digital payments by facilitating instantaneous and frictionless transactions. It is built as an interoperable protocol allowing any entity to build an app providing payments as a service to all customers of participating banks. It supports various payment methods, such as QR code–based payments, UPI Lite, UPI 123Pay and UPI credit, and has several use cases resulting in its increased adoption. The success of UPI can be evidenced by the 14.4 billion UPI transactions, totalling INR 20.64 trillion in July 2024.[23] UPI is supported in more than six countries and has made waves internationally through collaborations with leading solutions providers in France and the UAE.
- **AePS:** AePS enables customers to use their digital identity (Aadhaar) to access their bank accounts to perform basic banking transactions. The transactions are enabled by using biometric authentication linked to the individual's Aadhaar number, thereby eliminating the need for physical documents, and reducing the risk of identity theft or fraud. A number of activities can be performed using AePS, such as balance enquiry, cash withdrawal and remittances through a business correspondent.
- **OCEN:** OCEN has enabled seamless credit access by linking borrowers with multiple lenders through a unified platform, thereby addressing the credit gap at the bottom of the pyramid.
- **Data Empowerment and Protection Architecture (DEPA):** DEPA enables seamless and secure access to consumer data to third-party institutions post authorisation by the consumer. This framework allows users to share their data on their own terms through a third-party entity, who are known as consent managers. In addition, an account aggregator framework is built on DEPA, allowing for secure exchange of financial data between financial institutions such as banks, insurance companies and mutual funds via the consent manager.

23 https://www.npci.org.in/what-we-do/upi/product-statistics

Benefits of DPI in India

DPI benefits all the stakeholders in an economy, namely the government, citizens, financial institutions and private players in various segments such as payments, healthcare, logistics and lending. Some of the key benefits of DPI are as follows:

- financial inclusion and security
- economic growth
- better governance and transparency
- improved services
- skill development
- sustainability.

Challenges

Some of the key challenges that the expansion of DPI faces have been discussed below:

- **Privacy and security concerns:** Data privacy and security amid growing volumes of sensitive information and the fear of privacy breaches can deter individuals from embracing digital technologies, especially when it comes to sensitive personal information.
- **Digital divide:** India faces a significant digital divide between urban and rural populations. The urban population typically has better access to digital infrastructure and services. However, there is lack of adequate infrastructure in rural regions.
- **Language and content barriers:** The lack of localised and relevant content can hinder access to vital information and services.
- **Affordability:** Even if digital infrastructure is available, the cost of accessing the same (e.g. internet access and digital devices) can result in non-accessibility for low-income communities.
- **Effective coordination among various stakeholders:** Lack of coordination among stakeholders such as the government, private sector players and non-profit organisations may hinder the holistic development of DPI.

Way ahead for a Viksit Bharat

Driven by a range of emerging technologies that promise to enhance efficiency, connectivity and service delivery across all sectors, DPI is poised for a transformative shift. As the digital landscape evolves, new technologies will redefine how public services are administered and experienced, fostering a more integrated and resilient infrastructure.

As DPI paves way for a new Viksit Bharat @2047, some key aspects need to be focused on. There is a need to utilise the full potential of **internet connectivity** by making it faster and reliable. The development of 6G and future wireless technologies will further enhance network capabilities and should be used to support advanced applications that can transform public services, education and healthcare.

Use of emerging technologies such as blockchain, distributed ledger technology, machine learning, generative artificial intelligence (GenAI) is essential to enhance transparency and security in government transactions and identity verification. Technologies such as IoT can be used to enable smart city initiatives, improving urban management through real-time data collection and analysis. Quantum computing may be leveraged to further transform data processing capabilities, particularly in cryptography and complex problem solving. While leveraging these technologies, innovations in energy-efficient data centres and renewable energy sources can contribute to a more sustainable digital ecosystem, aligning with broader environmental goals.

The **new trinity of Jan Dhan-Aadhaar-Mobile (JAM)–UPI–Unified Lending Interface (ULI)** is expected to improve financial inclusion, provide the ease of making payments within seconds, and revolutionise the lending space by streamlining the credit appraisal process using ULI.

> **ULI** is a consent-based platform that is proposed to facilitate the seamless flow of a customer's digitised financial and non-financial data from multiple data service providers to lenders with the objective of enabling seamless credit underwriting and frictionless customer journeys. It is expected to bring down the time taken for credit appraisal, especially for smaller and rural borrowers without any credit history.

Overall, by 2047, it is expected that the existing DPI will continue to evolve to deliver a superior user experience and leverage use of new age technologies along with newer initiatives that would promote economic growth by transforming various sectors, making them more efficient, accessible and responsive for achieving the goals of a developed India.

7. Strengthening non-intrusive risk management and cybersecurity posture to facilitate growth

India's financial services industry is making significant strides in providing holistic financial products for the economically disadvantaged groups, but the future will require a proactive and unified strategy for cybersecurity and risk management.

Introduction

As India marches towards its vision of Viksit Bharat @2047, with the aim of becoming a fully developed nation by its 100th year of independence, financial inclusion sits at the heart of this transformative agenda. The cornerstone of this vision is ensuring that every Indian, regardless of their socio-economic status, has access to essential financial services, particularly credit. With the introduction of DPI in the past six years, the country has achieved a remarkable 80% financial inclusion rate, up from just 53% in 2014 – owing to initiatives such as the UPI, UIDAI (Aadhaar), ONDC and PMJDY.[24]

But despite these strides, the lower strata of society continue to face significant barriers to credit access. As we look towards the future and consider the path to Viksit Bharat, we must evaluate the applicability of the latest technology and cutting-edge solutions to the common man, the underprivileged and the underrepresented sections of society. With the advent of accelerated digitisation and interconnectedness of world economies, there has been a stark rise in cybercrimes. Globally, annual cybercrime expenses were recorded at USD 3 trillion in 2015 and are estimated to grow to USD 10.5 trillion in the next decade.[25] To support the expansion of credit and inclusivity, the financial services industry has incorporated paradigm shifts in aligning AI evolution to strengthen its cybersecurity posture, enhance data privacy policies, cloud security practices, identity and access management, and quantum computing trends. It is imperative for the financial services sector to reshape its risk management practices towards developing accurate and advanced cyber risk quantifications to sustain the idea of a Viksit Bharat @2047.

25 https://dea.gov.in/sites/default/files/G20%20Policy%20Recommendations%20for%20Advancing%20Financial%20Inlcusion%20and%20Productivity%20Gains%20through%20DPI.pdf

26 https://www.weforum.org/agenda/2023/01/global-rules-crack-down-cybercrime/

How will financial inclusion benefit the lower strata of society? Will rising digitisation impact them the most because they have limited education and technical know-how to support them when faced with a cyber fraud? If yes, are there ways and means to make not only citizens but also the industry and drivers of the economy more resilient and trustworthy?

Challenges faced by both consumers and the financial services industry over the next two decades

Over the next two decades, consumers and financial institutions will need to manage a complex range of unique risks that comes with unprecedented expansion of technology. The increased dependence on advanced technologies such as AI, machine learning and blockchain introduces new vulnerabilities that could disrupt traditional practices.

One of the primary challenges is the concern around **digital infrastructure and literacy**. Internet connectivity still lags significantly at 52.4% with 751.5 million internet users in India at the beginning of 2024, even though phone penetration in India has reached 78%, logging more than 1.2 billion mobile users.[26] Since connectivity lacks consistency, particularly in rural areas, such a digital divide hinders efforts to provide inclusive financial services. The financial services industry as well as FinTechs must innovate and invest continually to improve digital infrastructure and its reach while making sure that lower income individuals can effectively access and use financial products by offering inclusive digital literacy programmes.

Secondly, another significant concern from an organisational standpoint is **quantum computing**. Advanced computational power can ensure higher levels of accuracy in delivering advanced credit scoring models, leading to increased credit availability to those who are currently underrepresented or underserved by traditional credit scoring methods. However, the current encryption methods such as elliptical curve cryptography (ECC) and Rivest-Shamir-Adleman (RSA) will become vulnerable to quantum attacks in the coming years. Significant time, effort and financial resources are required for transitioning to quantum-safe encryptions protocols. The increased costs might also be a hindrance, especially for smaller financial institutions. Additionally, to accommodate the changes brought by quantum computing, regulatory frameworks will need to evolve which would also lead to increased operational and compliance costs.

Another key risk for financial services enterprises is the **inherent bias in AI-driven credit-scoring systems**. Even though AI is in its infancy and is rapidly developing, there are still a lot of grey areas that need to be addressed and bridged while implementing advanced AI platforms. AI now has the ability to streamline credit assessments and extend credit to previously underserved segments. But if not handled appropriately, AI can also perpetuate existing inequalities. For instance, AI models often have to rely on traditional historical data, which may not represent the financial behaviours of lower income groups precisely. This may result in biased credit decisions where eligible and worthy applicants are either offered unfavourable terms or are denied credit. As a deterrent to organisations that extend credit, consumers too are increasingly taking advantage of these technological advancements. For example, a consumer with bad loans and a poor credit history might misuse facial recognition systems by providing the identity of a look-alike relative, thereby securing approval for new loans through misidentification.

Furthermore, the rise in **deepfakes and advanced AI-driven social engineering** attacks will pose new risks to consumers. Highly convincing fraudulent communications could be created using deepfake technology, making it nearly impossible for individuals, especially those with limited data literacy, to differentiate legitimate interactions from fake interactions. This could lead to an increase in sophisticated scams that target the most susceptible segment of society.

Lastly, the future will see an expansion of the **cyber-physical systems** landscape with the integration of IoT devices in financial services. While this offers several benefits, it also enlarges the attack surface for cyber threats. For example, smart ATMs and connected financial devices could be vulnerable to hacking, leading to service disruptions and financial loss. Financial institutions will need to develop advanced security measures to protect these interconnected systems.

26 https://datareportal.com/reports/digital-2024-india

Adapting to change: Building robust cybersecurity and risk defences in digital finance

To address the issue of **digital infrastructure and literacy**, the Government should focus on strengthening joint efforts with telecom companies to develop and expand internet connectivity in underserved rural areas. Additionally, as a collaborative endeavour between the Government and regulators, localised digital literacy programmes should be offered catering to local languages and cultural contexts and delivered through PPPs with educational institutions. Lastly, to aid credit expansion fuelled by the increasing digital literacy, financial institutions can focus on designing their financial service platforms towards being more user friendly and intuitive, with features optimised for mobile applications that require minimal data usage and can function effectively even with unpredictable internet connections.

In order to address the risks arising from **quantum computing,** financial institutions should proactively invest in research and development to investigate quantum-safe encryption techniques such as lattice-based cryptography and hash-based signatures. A staged plan for transitioning to quantum-safe protocols should be created, beginning with the most critical systems. Industry collaboration will help further design and implementation of quantum-safe encryption standards, and engagement with regulatory bodies for support can help to offset the high costs associated with this transition.

Institutions should use a variety of datasets that accurately represent underserved and low-income groups for training AI models to mitigate the inherent bias in **AI-driven credit scoring systems**. Enhanced security measures, such as stronger multi-factor authentication processes and continuous monitoring technologies should be implemented. Intelligent AI models can be developed where decision-making processes can be easily understood and deployed. Regulators must constantly update existing **ethical guidelines for AI usage** as AI and technology continues to evolve, prioritising fairness, accountability and transparency. To maintain the highest levels of ethical standards, organisations should appoint third-party auditors to review their AI systems for complete and timely compliance.

The Government and regulators should launch public awareness campaigns to shed light on the rise of **deepfakes and advanced AI-driven social engineering attacks** and how to identify them. Real-life examples and simulations can be used to demonstrate the identification techniques. Organisations must identify, build and incorporate robust cybersecurity defences aligned with their advanced AI integrated systems to mitigate the possibilities of deepfake attacks which can arise from sensitive data theft. Attack vectors can be minimised by offering easily accessible customer support that verifies the authenticity of suspicious communications and mandatory verification steps should be applied for all communications involving sensitive financial transactions.

As the **cyber-physical systems** (smart ATMs, connected financial devices) landscape evolves with the integration of IoT devices, organisations need to develop strong security frameworks, ensuring advanced encryptions for all data transmitted between IoT devices and financial systems. Regular penetration testing should be performed to detect and resolve vulnerabilities in IoT systems. Network segmentation is crucial to isolate critical financial systems from less secure IoT devices, and stringent access controls should be implemented to limit the exposure of critical systems to potential cyberthreats.

Way forward

While the financial services sector in India is making commendable efforts to enhance credit inclusion for the lower strata of society, the future demands a proactive and integrated approach to cybersecurity and risk management. As we move forward, the convergence of technology, regulation and education will play a critical role in shaping a secure and prosperous India by 2047.

8. Capability building in financial services – people, infrastructure and policy/regulations

The Viksit Bharat vision places major emphasis on modern digital infrastructure, seamless connectivity, empowered citizens and robust regulatory frameworks that encourage innovation and sustainable growth.

A) People-centric inclusive development

India's decade of financial empowerment

Over the last few decades, formal banking services have not reached people in rural areas, despite many attempts from different stakeholders in education and employment. Additionally, women have often faced culture-based barriers to banking, while farmers in most parts of India have had to rely on informal lenders.

Current efforts to empower all of these include skill enhancement collaboration between financial and academic institutions. Substantial efforts have gone into women empowerment by increasing enrolment in education and science, technology, engineering and mathematics (STEM) and increasing their workforce participation. Government initiatives like Trade Related Entrepreneurship Assistance and Development (TREAD), Mahila Udhyami Yojana, Mahila Coir Yojana and Mahila Samriddhi Yojana have provided supported women empowerment. The issues faced by farmers are also being addressed with government initiatives such as KCC, the Modified Interest Subvention Scheme (MISS) and Kisan Rin Portal. Lastly, microfinance institutions (MFIs) are also enabling the underserved through financial outreach and skill development programmes in collaboration with the government.

Way forward for a Viksit Bharat

The foundations of Viksit Bharat would be built on its empowered human capital. This will help India in creating a prosperous, inclusive and sustainable society for all of its citizens to thrive and make meaningful contributions towards its progress.

To achieve this, India must strategise its people-centric capabilities. Financial literacy programmes should be introduced in school and college curriculum for students to acquire basic knowledge of important topics such as savings, investing, credit and insurance. A new dimension of financial literacy – digital financial literacy should be pursued through scalable platforms like mobile apps and online courses to help students navigate the world of digital banking, payments and cybersecurity. Investments in technology and infrastructure will also be crucial as this will help in expanding reach and make products and services more efficient in underbanked areas. Lastly, community outreach programmes will help in raising awareness about various financial tools and services available to promote a culture of financial inclusion.

Use case 1: Turning ATMs into information kiosks

ATMs have historically been used as cash dispensing machines. But they can be used for more than their basic functions by converting them into information kiosks. These kiosks can provide a range of informative resources and services targeting traditionally unbanked customer segments. Such upgraded ATMs can provide interactive financial tutorials and real-time assistance. A few use cases of information kiosks include:

1. **Interactive tutorials:** ATM users can be assisted through step-by-step guides on different financial topics such as savings, budgeting and investing. This will provide engaging and accessible learning experiences to build a strong financial foundation.
2. **Product information:** ATM cum information kiosks can be used to educate customers on various products like student loans, microloans and agri credit. This will help users in making an informed decision which meets their financial objectives.
3. **Real-time assistance:** Features such as video user guides, FAQs and chatbots can provide real-time support and resolve queries efficiently.
4. **Localised content:** Content can be provided in regional languages to meet specific needs of the local population. This will ensure inclusivity and accessibility for marginalised communities

Use case 2: Phygital engagement with AI-based virtual avatars

Phygital, which combines physical and digital experiences, is transforming how education is delivered globally. Banks can build educational learning experiences that are more interactive and audience specific by embedding GenAI-based virtual avatars. A few such use cases include:

1. **Blended learning:** A hybrid training model of physical/in-person workshops and digital engagement by AI avatars can be introduced. In such a model, after an in-person workshop/session, an individual can continue to learn online with a personalised AI tutor which can track the individual's progress and adjust the content/pace as per their requirements.
2. **Information kiosks:** AI avatars can guide users on processes such as making business plans and projections for a loan, managing working capital, and using online services such as digital payments. Such kiosks can also provide industry- or sector-specific advice to small businesses and users.

B) Prioritising infrastructure

Infrastructure development in India

India has made remarkable progress in building its infrastructure in the last few years. It witnessed the completion of the world's highest railway bridge and construction of the longest highway tunnel. Several ambitious initiatives such as the Smart Cities Mission, Bharatmala Pariyojana and Atal Mission for Rejuvenation and Urban Transformation, aimed at encouraging urban development, redeveloping cities and improving public infrastructure, have been undertaken by the government. Upgrades and expansions of highways, railways, airports and ports will help improve inland connectivity. India is also looking to enhance its digital infrastructure through 5G networks and a form of broadband provision in rural areas. Long-term sustainability is also another significant area. Initiatives like the Eco Niwas Samhita are promoting energy-efficient building construction along with various renewable energy projects. The renewal of urban areas and the building of low-cost housing also form part of the effort to house the growing population in urban areas.

Although a lot of progress has been made, India will need to maintain its focus on the improvement of infrastructure. Infrastructure is, indeed, the foundation upon which economic growth, social equity, and technological advancement rest. By ensuring infrastructure development at all levels, India has the potential to develop a strong, inclusive and progressive economy that meets the aspirations of this diverse population and emerge as a world leader.

Physical infrastructure: For Viksit Bharat @2047, India's physical infrastructure needs significant upgrades. Transport networks, including roads, railways, ports and airports, need to be accentuated through investments so that the country gets seamlessly integrated in all ways. Finance and risk management support to government initiatives such as multimodal logistic parks (MMPLs) for optimal transport, development of railway infrastructure through high-speed railway corridors and conversion of normal rail bogies to Vande Bharat standards, and modernisation and development of new ports would help ensure steady progress and timely completion of such projects. Investments in effective logistics and supply chain infrastructure will increase trade and commerce, contributing to overall growth. PPPs may also come into play in funding and implementing such mega projects by sharing financial burdens and risks involved. Urban infrastructure modernisation would ensure optimised resource use, decreased adverse environmental impact, and improved living standards through smart city and industrial city initiatives. By pursuing these initiatives, the demand for consumption will increase and credit support of financial institutions will be required to be sustainable. Hence, by creating a connected and modern physical infrastructure, India shall attract investment, enhance productivity and help achieve its vision for a developed nation by 2047.

Digital infrastructure: A robust and resilient digital infrastructure is required for achievement of the Viksit Bharat @2047 target. A comprehensive investment and support plan will help bridge the digital divide by enabling high-speed internet across all rural and remote areas, thus creating room for inclusive growth through better penetration of financial services across the nation. Investment in new age technologies, including quantum computing, blockchain and AI, would also facilitate the next wave of digital transformation. Innovative FinTech solutions aiding digital payments, mobile banking and other financial services available to a wider population will serve as an impetus for greater financial inclusion. It is only through strategic investments towards collaboration that India will be able to empower its citizens and drive economic innovation.

Use case: Extending the financial data network for broader national objectives

The digital infrastructure developed by financial institutions captures large volumes of customer data which is used by them for credit assessment and personalisation. This data has significant potential for broader applications and can be instrumental in informing government policy decisions, optimising national resource allocation and driving socioeconomic development. Key use cases include:

1. **Economic indicators and trends:** Financial and transactional data can serve as a real-time economic indicator, providing insights into consumer spending, saving habits and investment trends. This information can help policymakers gauge the health of the local economy, identify emerging economic trends, and make informed decisions on fiscal and monetary policies.
2. **National-level resource allocation:** Financial data can support informed infrastructure development by highlighting regions with specific unmet needs. For example, regions with less insurance penetration or high out-of-pocket health expenditures might need more public health facilities or insurance schemes.
3. **Resource efficiency tracking:** Insights into energy and consumption payment patterns can guide policies aimed at improving efficiency and reducing waste. This can be particularly useful in sectors such as manufacturing, agriculture and urban development.
4. **Disaster relief and aid distribution:** Financial data networks can be helpful in disaster management by identifying affected areas and facilitating quick disbursement of relief funds. Transaction data can help in verifying beneficiaries and ensuring that aid reaches those in need promptly.
5. **Tracking green investment:** Financial data can help in monitoring investments in sustainable projects and green technologies. This can inform policies aimed at promoting environmental sustainability and achieving climate goals.

Social infrastructure: Innovative financial products such as carbon-neutral business accounts, green bonds and sustainability-linked loans can be used to finance renewable and sustainable projects, such as renewable energy, sustainable transportation and green buildings. Despite significant growth of green, social, sustainability and sustainability linked (GSSS) bonds in recent years, the proportion of green bonds remains significantly more than social bonds. This indicates an investment gap in social programmes such as healthcare, education and social welfare systems. Equipping education institutions with advanced learning technologies and curricula prepares the future workforce for the changing demands of a fast-paced economy. Improving healthcare infrastructures, including telemedicine services, will make healthcare accessible to all citizens, especially in underserved regions. Programmes should be formulated to address the challenges faced by vulnerable groups and therefore help achieve social equity and stability. Lastly, PPPs can fund social welfare projects.

C) Policy framework

India's journey to strength regulatory oversight

The Indian government has strengthened its efforts at streamlining the regulatory framework throughout the banking, financial services and insurance (BFSI) sector and digital privacy over the past few decades. However, the regulatory landscape still faces challenges pertaining to manual processing and post facto oversight, which are still reliant on traditional and reactive methods for monitoring and enforcement.

However, Indian regulatory agencies and organisations have recently adopted RegTech solutions to develop real-time regulatory oversight. Advanced technologies with support from AI/ML are revolutionising regulatory landscapes. Innovative solutions on E-sign, digital KYC, identity verification AML compliance, etc., have been designed to mitigate some of the challenges in manual processes. These developments are promising as presently, government intervention through legislation has definitely helped ensure transparency and compliance. For example, the GST network brought in invoice matching and ensured tax compliance, effectively scaling down prevalent tax evading practices and bringing in transparency.

Way forward

The next steps in building regulatory capabilities should focus on a comprehensive strategy to simply regulations and move towards real-time regulatory controls.

Clear vision and measurable objectives, focusing on streamlining compliance and better protection of stakeholder interest are the need of the hour. Tax law simplification is also expected to lighten compliance loads for individual taxpayers and organisations, enhance tax collection and create a predictable tax environment. Data transfer and communication among regulators via an integrated digital platform will facilitate real-time information flow, enhance coordination and eliminate redundancies. Finally, digital ledgers and blockchain will enhance trust and transparency due to heightened data security.

Another critical step would involve shifting from post facto regulatory oversight to real-time regulatory controls. This proactive approach will reduce compliance costs, foster innovation and help in better resource allocation. Investment in digital infrastructure, reforms in legal frameworks, building capacity for real-time regulation, and stakeholder engagement through pilot projects and phased rollouts will be critical for a successful transition.

9. Paving the way for Viksit Bharat: The path ahead

The financial services sector is expected to play an instrumental role in shaping the economic landscape of India in alignment with the vision of Viksit Bharat. But this, in turn, would require an immense amount of well-coordinated effort between the various stakeholders and dimensions involved, ensuring the benefits of this economic growth and financial stability are enjoyed by one and all in the country. The six pillars of PwC's VIKSIT framework[27] can serve as the guiding principles along this transformative journey. The vision of Viksit Bharat is not only about economic growth but also inclusive development, sustainable growth and technological innovations.

In addition to these, bridging the urban-rural divide will be crucial for balanced and inclusive economic progress. Customised financial products and innovative delivery channels will support in bridging the urban-rural divide and ensure that financial products reach remote areas **(I)**.

Investments in rural infrastructure will enhance both digital and physical connectivity, allowing access to local as well as global markets. This will help in integrating the rural economy with the broader national ecosystem **(I)**.

Initiatives such as the UPI, DPI, AePS, ONDC are strengthening India's technological capabilities in the financial services sector. The FinTech ecosystem has the potential to become a transformation hub and provide innovation centres capable of fuelling development of next-gen financial technologies. Innovation labs and incubation centres will support collaboration between regulators, traditional financial institutes and startups to co-create products to meet different needs within India **(T)**.

The manufacturing sector has historically faced challenges related to credit gap and regulatory complexities. Key initiatives such as Make in India, PLI schemes, Start-up India, etc., as well as focused efforts for MSME and women-led development are helping to boost manufacturing in the country. The financial services sector will play an extremely crucial role in providing capital, risk management and support for this transformation. **(V)**

Lastly, building capabilities will be a cornerstone of India advances towards Viksit Bharat. Collaborations with academic institutions and global think tanks will help in driving research and development in cutting-edge financial technologies and models. Additionally, fostering a culture of innovation within organisations will encourage employees to think creatively and tackle complex financial challenges, propelling the sector forward. **(K)**

The vision of Viksit Bharat 2047 can be realised through a synergistic approach where financial services not only acts as a catalyst for inclusive growth but also for sustainability and good governance. The journey ahead is challenging but promising, and with dedicated efforts, Viksit Bharat @2047 is an achievable aspiration.

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27 https://www.pwc.in/viksit.html

About ASSOCHAM

The Associated Chambers of Commerce & Industry of India (ASSOCHAM) 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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Ideate · Innovate · Impact

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