

Rejuvenating microfinance in India – embracing digital

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Executive summary

The emergence of digital technologies in the microfinance sector in India over the last decade has been fuelled by the internet revolution and the increase in mobile penetration across rural markets. The availability of cheaper mobile devices has propelled

growth of digitally literate communities and enabled traditional microfinance institution (MFI) borrowers to evolve into more tech savvy, social media-friendly and experience-driven customers.

Smart phone users in India (2019)	500 million ¹
Projected smart phone users in India (2022)	820 million ²
Active internet users across rural India	302 million ³
Number of internet users in India	776 million ⁴
Rural internet users (as a per cent of total internet users)	39 per cent ⁵



India's rural consumption story has become a highly sought-after strategic priority for both developmental institutions and multinational companies alike. A leading multinational goods company's initiative to empower over five million women focussing on rural areas and last-mile connectivity or a technology-enabled distribution platform's initiative to empower rural retailers to remove dependency on wholesale channels and provide financial assistance using digital channels are some examples in this direction.

The traditional branch-led, field officer-driven models are proving to be expensive in a pricing cap regime. MFIs have now begun to adapt to new technology trends for faster loan origination, efficient customer service and flexible loan requirements using alternate channels.

The journey of the microfinance sector took a transformative shift with the introduction of the Indian government's Pradhan Mantri Jan-Dhan Yojana (PMJDY) scheme in 2014. According to a government report, over 417 million⁶ new bank accounts were opened under PMJDY scheme, as on 27 January 2021, thus increasing India's banking penetration to over 80 per cent.⁷ The drive towards realising a digital economy was further propelled by the governments' Digital India program. The shift from the traditional banking system to a digital model was aided by Aadhaar, which provided a supporting ecosystem for enabling technology players to launch electronic 'know your customer' (eKYC) and authentication services.

PMJDY accounts	41.75 crores ⁸
PMJDY accounts as a per cent of bankable population	35 per cent ⁹
Aadhaar subscribers	123.27 crores ¹⁰
Aadhaar subscribers (as a per cent of population)	89.95 per cent ¹¹



While the MFI sector has managed to grow its gross loan portfolio (GLP) from INR 0.34 Lakh Cr in 2014¹² to INR 2.31 Lakh Cr as on Sep-2020,¹³ at a CAGR of 30 per cent, it has also witnessed a surge in the number of micro-lending start-ups and financial technology (fintech) entrants. The entry of these new-age players has enabled the microfinance sector to fast-track its transition to a more efficient digital model that has the capability to serve a larger population at lower costs. NBFC-MFIs that command the second largest share of India's microfinance portfolio have been at the forefront of this transition.

This report covers the evolution of financial technology in the Indian microfinance sector and its potential impact on the future of MFIs. While fintech companies have traditionally played the role of disruptors in this sector, some fintech companies have since turned into enablers for traditional MFI players. This space is evolving, and the report takes a closer look at the moving components of the microfinance sector and attempts to present a view of what the evolution of fintech would mean for the sector's growth and customer's benefit.

Some of the highlights of this paper include the following:

How Technology is currently leveraged:

- The emergence of new fintech companies disrupting the microfinance lending value chain and improving financial access to microfinance customers.
- Identification technologies are allowing for better KYC procedures; alternate credit scoring is enabling deeper customer insights; and cashless loan disbursement is improving with mobile-banking technologies.
- Technology is helping with early warnings for MFI loan portfolio and designing customised financial products based on customer data
- Currently, 1 out of 4 surveyed MFIs utilize Robotic process automation (RPA) for their customer onboarding processes and 9 out of 10 MFIs surveyed disburse loans through cashless channels.

Hindrances to the implementation of technology

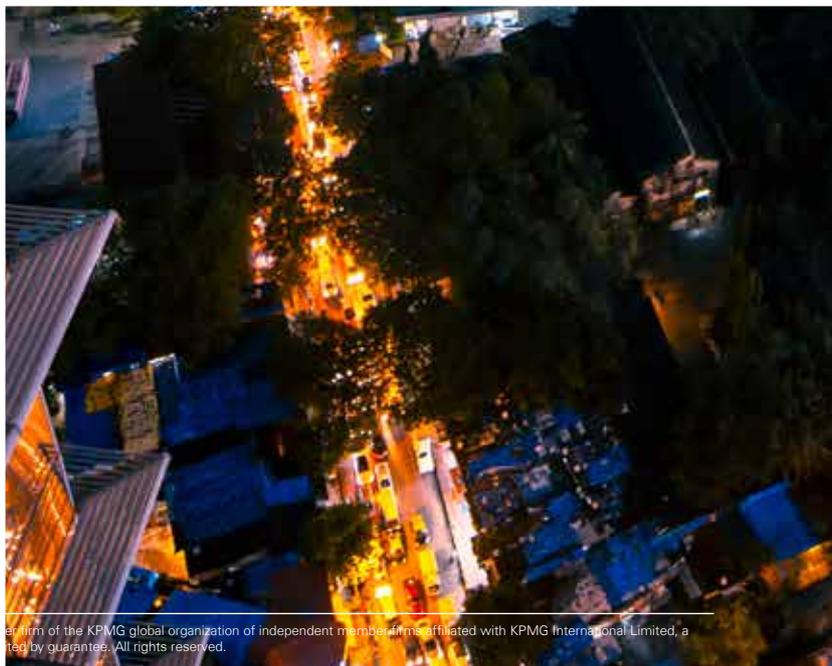
- The challenges faced by MFIs are unique as they often deal with stakeholders with limited formal education and financial literacy. The sector can tackle this by adopting a focused change-management plan through structured communication plans, interactive workshops, recognition schemes, incentives and rewards driven with the assistance of self-regulatory organisations and fintech companies
- The microfinance sector has always been characterised by its high-touch delivery model. With technology making inroads into the sector, there are mixed responses on how the customer service equations are changing. A key consideration is to offer customers the necessary value proposition to attend group meetings and maintaining group dynamics, post adoption of cashless collections.
- As the human touch decreases, it is important to ensure that the loan is utilised responsibly, which will also have a trickle-down effect on the repayment rate.
- Infrastructure and affordability are also key challenges to digitisation, especially in rural India, where companies struggle with last-mile connectivity.

Future Roadmap

- The KPMG in India survey results indicate that the microfinance sector is evolving with fintech partnerships and will see increased investments in digital capabilities in the years to come. Nearly 75 per cent of the surveyed MFIs have alliances with fintech companies, while the remaining MFIs are planning to explore fintech alliances as a part of their IT roadmap.
- A customer-centric approach with an optimal balance between technology and human touch will be critical for MFIs.
- Across the transaction cycle, MFIs have opportunities to leverage innovations from fintech companies. Machine Learning and alternate data capabilities are expected to disrupt the microfinance sector by serving as major differentiators in sourcing and improving asset quality.
- The future landscape of microfinance will be driven by digital. The connected enterprise architecture will be key for enabling efficient and scalable Microfinance operations.
- Integration with Account Aggregator (AA) platforms to facilitate effective risk management solutions, will provide MFIs with the opportunity to streamline costs and build more reliable credit profiles
- Increased emphasis must also be placed on training and equipping the MFI workforce with the skills necessary to become digitally proficient
- Industry regulators need to take the necessary steps to standardize digital operations within the MFI universe so that operational processes are homogenous across the various institutional entities.
- Increased awareness and adoption of digital platforms along with wider acceptance network for digital payments shall help reduce dependence on cash-based transactions, which in turn shall pave the path for MFI customers to adopt digital repayment channels.

1

Evolution of technology in microfinance - the global and the India story



1.1. Global story

The microfinance sector has expanded rapidly over the past three decades since its pioneer Mohammed Yunus, associated with Grameen Bank, set the foundation for modern-day concepts of microfinancing. The concerted efforts taken by global bodies like the World Bank, United Nations and several governments across the world to alleviate poverty and provide affordable credit to the financially excluded has led to growth of the microfinance sector.

- The World Bank Group is committed to increasing the access to finance for the world’s poor. Through International Finance Corporation (IFC), its sister organisation, the group has invested over USD320 million in debt and equity in fintech companies around the globe¹⁴
- The UN Capital Development Fund (UNCDF) offers last mile finance models through innovative financing solutions for financial inclusion
- Various governments and their central banks have set the required

framework to support the digital revolution presented by fintech innovations. For instance,

- Tunisia has passed a Start-up Act to boost growth `innovative entrepreneurship in the technology sector
- development of regulatory sandboxes, in countries such as Nigeria, Kenya and Mauritius
- in Europe, the revised Payment Services Directive (PSD2) has made open banking Application Program Interfaces (APIs) a norm for facilitating access to account information through APIs.

Increasing internet and mobile coverage across the world since the 2000s has also enabled the development of financial technologies that have spurred the microfinance sector. Since 2014, the mobile coverage gap has reduced to 10 per cent of the global population,¹⁵ and with mobile technology and data science, MFIs are able to address one of its primary pain points that is high operating costs.

Over the past five years, amount lent by microfinance institutions (MFIs) globally has increased at an average annual growth rate of 11.5 per cent. In 2018, the microfinance sector grew by 8.5 per cent to benefit 139.9 million borrowers with total loan disbursement reaching USD124 billion.¹⁶ Growth has been complimented by the surge of technology adoption.

Figure 01: Financial technology over the past three decades¹⁷

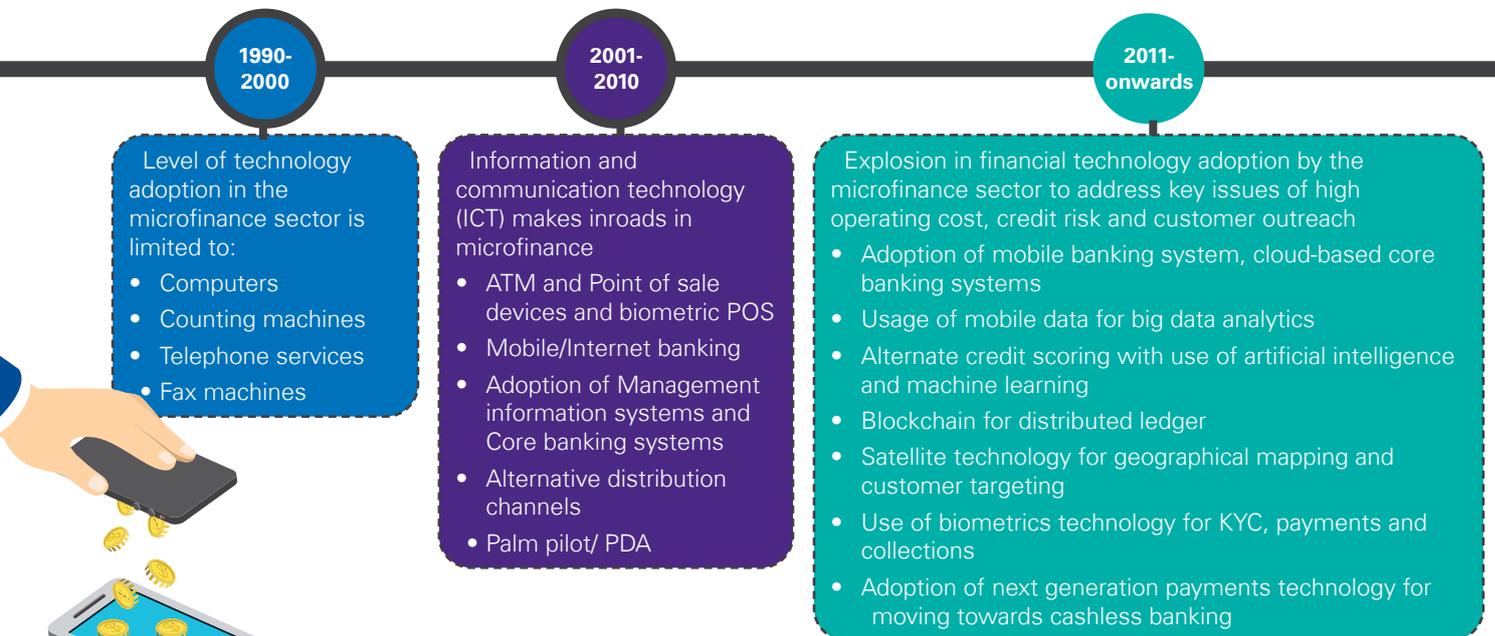
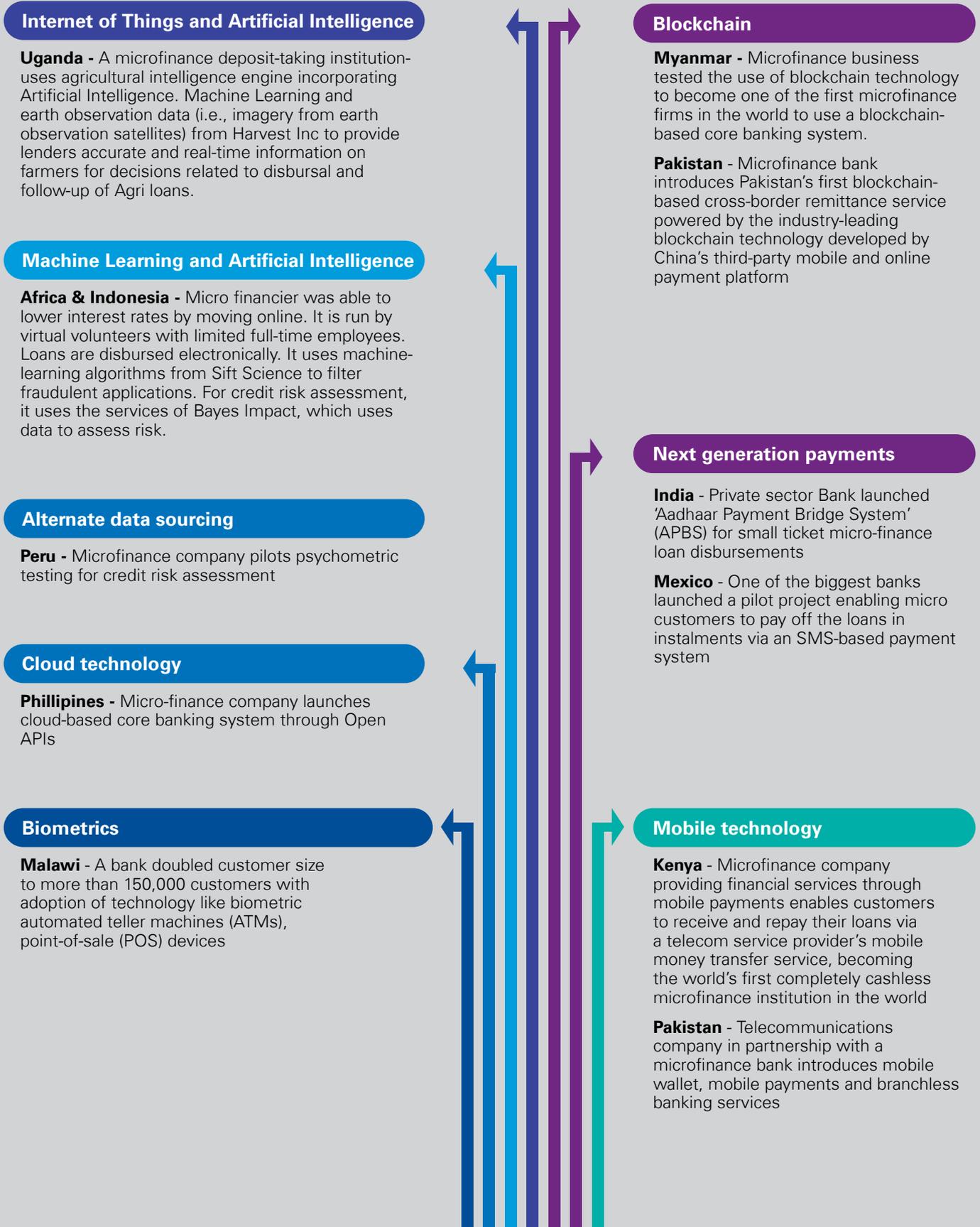


Figure 02: Global fintech trends over the past decade¹⁸

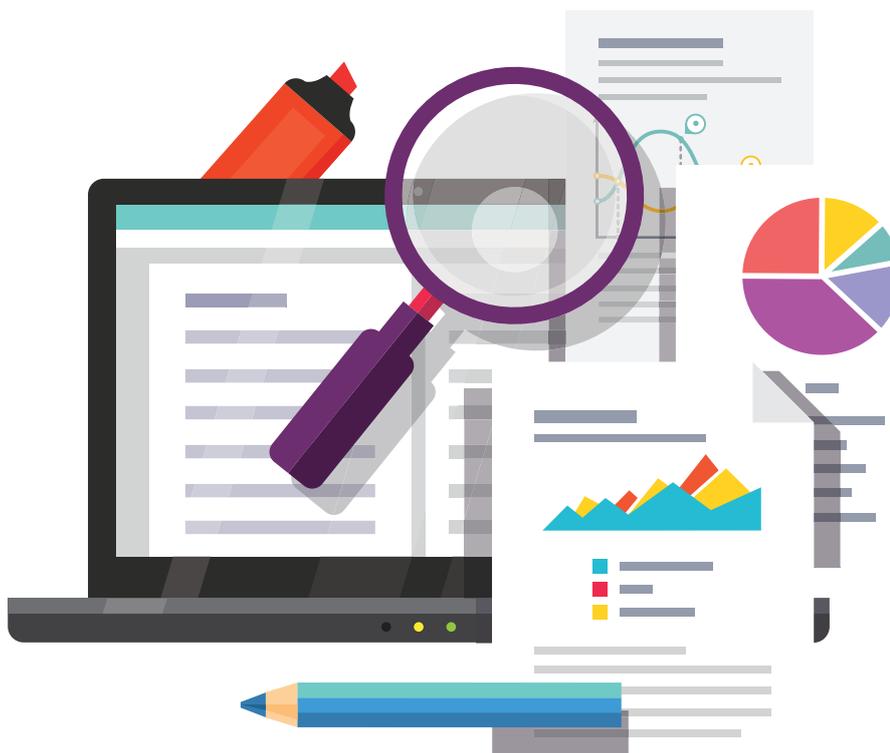
The concept of composable banking architecture is making inroads globally. Composable banking allows configuration, integration, cloud deployment and continuous improvement by adopting new technologies. While there are many fintech companies in the market that have built modules that, when pieced together, provide end-to-end lending solution for an MFI, the disadvantage for an MFI is that it becomes dependent on a single vendor. The concept of composable banking is based on the understanding that no single fintech can innovate on every front and with the dynamic business requirements of an MFI lender, a composable banking platform is required

to offer new, better services and customer experiences. For instance, a financial venture of a global telecom in the Philippines partnered with a leading SaaS banking platform to transform its existing operations and launch new products in order to cater to a global customer base. The financial venture's legacy platform was unscalable and was holding their business back and through the integration with SaaS banking entity's composable platform, they were able to move away from their legacy tech stacks and simultaneously optimise on speed and agility.

The innovations in the field of data science have enabled the development of alternate risk-

assessment methods that have allowed the microfinance sector to further expand to the financially excluded.

- A US-based mobile technology company has developed a mobile app that collects users' digital data and other behavioural data to construct a credit profile with the customer's consent. The customer information and data captured are then shared with the local credit bureaus for building more accurate and reliable credit profiles
- China's leading online bank uses non-traditional sources of data and payment transactions to determine a customer's ability to repay.



1.2. India story

Technology adoption has been an integral part of the Indian microfinance conversation since the 2000s. NGOs like Pradan initiating pilot project Computer Munshi (CM) to improve the book-keeping quality of microfinance collectives or e-Gama, a pilot program of setting up village information centres in late 2000s, prove that technology adoption has been on the agenda of the microfinance sector. Management Information Systems (MIS), Loan Management Systems (LMS) and Customer relationship management (CRM) software are the key forms of software adopted by MFIs in the 2000s.²³

This importance of technology adoption was also reflected through the following.

The banking correspondent evolution

The Rangarajan committee report in 2008 suggested the need for leveraging technology-based solutions for financial inclusion. It formed the basis for formation of a Financial Inclusion Technology Fund (FITF) for investing in information and communication technology. However, the big push for MFIs to invest in technology came when the RBI allowed NBFCs to become Banking Correspondents (BCs) for commercial banks in 2016. The BCs serve as banking intermediaries for providing financial and banking services. This has enabled private

banks to fulfil their priority sector lending targets and MFIs to grow their customer base and earn fee without additional fresh capital. MFIs who had technology to serve the banks were able to take advantage of this regulatory intervention and make head way in the market thereby creating competition and ensuring that more MFIs were investing in technology.

Telecom revolution

Another major push came with the telecom revolution that resulted in mobile penetration to the depths of the country. The world was already noting the impact on financial inclusion using mobile technology in Africa. This was a good case study for the MFIs in India to study and emulate.

Financial inclusion push with IndiaStack

The other catalyst of technology advancement in MFIs was the Govt of India promoting growth of financial technology through IndiaStack and the Jan Dhan-Aadhaar-Mobile (JAM) trinity.

IndiaStack comprises the presence-less, paperless, cashless and consent layers allowing lenders to unbundle their services and layer them in collaboration with financial technology companies to create products and value for different customer needs.

In 2016, a leading Indian NBFC-MFI was amongst the first MFIs to run a pilot in collaboration with one of India's large payment service provider and solutions company to route repayments through mobile money and start using mobile money to access mobile financial services.

Number of active internet users in India grew from 302 million in March 2015 to 743 Million in March 2020.^{24,25} IndiaStack has leveraged the growing internet adoption to transform the Indian Financial Services industry to the digital era.



Between 2016-17 and 2017-18, Aadhaar linked e-KYC increased from 48 million to 138 million and more than 83 per cent of the operative PMJDY accounts are Aadhaar seeded.²⁶ Aadhaar linkage has reduced the cost of customer acquisition considerably.

According to studies, the cost of loan disbursements by NBFC-MFIs to their borrowers has reduced by 1/4th due to the IndiaStack cashless layer.²⁷

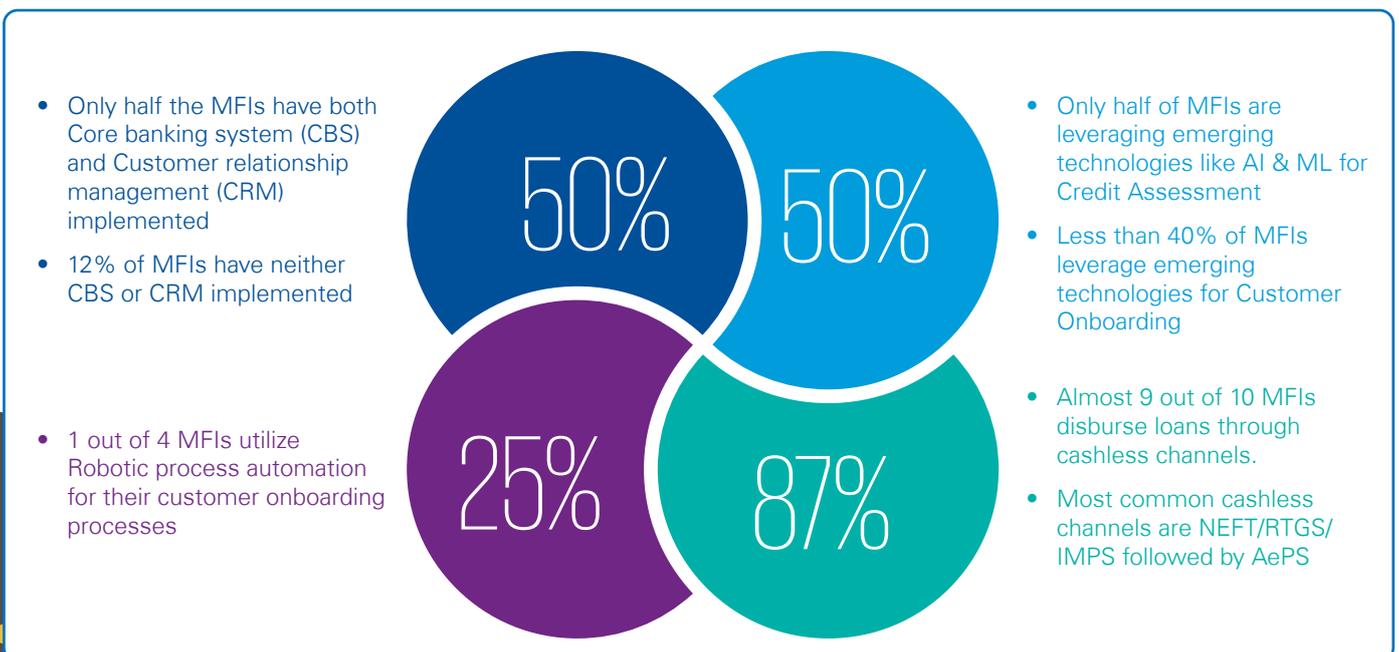
- **Aadhaar** - APIs for customer identification provide a presence-less solution for the borrower to prove their identity and the microfinance lender to authenticate the customer’s identity in real time
- **E-KYC** – digitises the KYC process through a paperless solution allowing the MFI to authenticate the identity of the customer in real time and electronically reduce the turnaround time to loan approval and disbursement
- **E-signatures** – offer convenience to the customer by allowing the applicant to legally sign a form/ document anytime, anywhere electronically resulting in improved efficiency
- **Unified Payment Interface (UPI)** – Aadhaar-Enabled Payment System (AEPS) and

Aadhaar Payment Bridge System (APBS) provide the cashless layer for direct disbursement and repayment of loans to the customer’s account reducing leaks and fraudulent activities

- **Digi Locker** – is a dedicated cloud storage linked to the customer’s Aadhaar number allowing for digital issuance and verification of documents.

KPMG in India, in association with MFIN conducted a survey to understand the current level of digitization and the future view of it. The MFIs responded to an 18-question survey that provided an in-depth insight into their digital maturity and priorities. Below are some key findings from the survey regarding the current status of digitisation amongst MFIs in India.

Figure 03: Survey findings: Current status of digitisation in MFIs



Case study

Few of the notable Indian case studies of financial technology enabling Microfinance lending are provided below.

Case study

Digitised bank regulated by the Reserve Bank of India

In 2015, a leading digitized bank became the first in India to fully digitise its microfinance lending till the disbursement phase. It introduced mobile-based solutions to its field executives for the following.

- Customer lead capture
- Paperless KYC and online KYC ID de-duplication
- Biometric capture and Aadhaar authentication
- Online credit bureau integration
- Geo tagging of customers
- Online cloud-based integration with CRM and CBS for account creation and collections
- Offline mode during mobile network outages/ failures.

The comprehensive digitisation resulted in reduced turnaround time (TAT) and enabled the bank to reorganise its workflow. The bank also pioneered an approach to assess the creditworthiness of the borrowers by combining psychometric evaluation and credit bureau scores, wherever available, with attributes, like licenses, assets and premises. This enabled the bank to identify and create an 'Accelerator' segment, consisting of borrowers who have graduated from the small group loans and who require products and services that are not available as part of the Small Help Group model. The bank was amongst the first MFIs in India to develop the graduation model and successfully design products suitable for the 'accelerator' group in parallel with its group microfinance lending.

Case study

A Next-gen start-up MFI

This MFI was amongst the first MFIs in India to adopt the Aadhaar payment bridge for loan disbursements in collaboration with a private bank and an umbrella organisation for all retail payments in India, thus becoming amongst the first 100 per cent cashless disbursement MFIs in India. With the Aadhaar Payment Bridge System (APBS), the disbursement is done directly into the seeded account of the customer's Aadhaar number collected during the application process and sent to the disbursing bank for direct credit using APBS. The USSD-based infrastructure is being used for repayment wherein the customer must dial a string of numbers on mobile and then enter the amount and the Unified Payments Interface (UPI) PIN for a successful repayment.

Case study**Medium-sized MFI in India**

This MFI is moving towards branchless banking and cashless disbursements as well as collections. It was the first MFI in India to partner with Africa's most successful mobile money service to disburse loans via low-cost mobile phones. The lender is adopting a comprehensive technology solution for the purpose of moving to a paperless operation, automating the field staff process, reducing operating expenditure and aiming for overall operational efficiency. The MFI uses the mobility application for client onboarding and loan collection and has been integrated with a credit bureau for real-time validations during client onboarding. Its systems are QR reader enabled to read the Aadhaar Card and auto fill the basic details of the client for the underwriting purposes. Due to digitisation, the MFI is witnessing significant improvement in the turnaround time (TAT) of loan disbursements and increase in productivity of the loan officers.

Case study**Small-sized MFI in India**

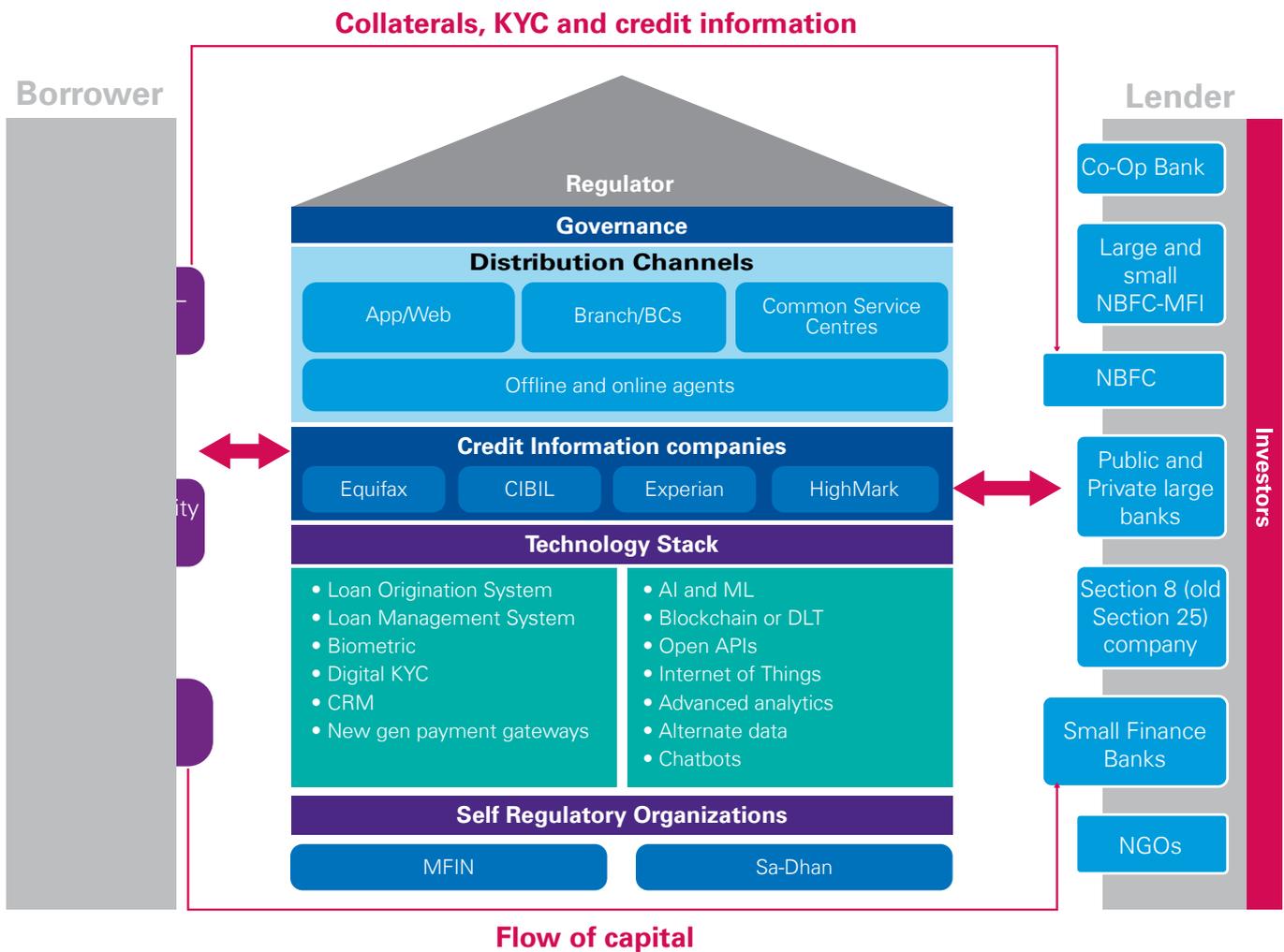
This small-sized MFI was set up as a digital MFI with the vision to leverage technology as much as possible. The MFI is focused on leveraging customer data to improve their experience and minimizing risk exposure. The MFI leverages artificial intelligence and machine learning principles to evaluate each customer profile individually and ascertain the optimal exposure that can be taken up with them. This also enables the company to proactively identify opportunities to advance additional credit (upsell) to their existing customers unlike traditional models that wait till the completion of loan cycles. This, in turn, has led the MFI to do away with following a fixed ticket size even for new customers and, instead, aim to service clients based on their needs and actual credit worthiness.



1.2.1 The microfinance ecosystem in India

Every player in the microfinance sector plays a distinct role in the development and growth of financial inclusion within the country

Figure 04: Microfinance ecosystem²⁸



Fintech companies have become significant within the MFI ecosystem with different technology stacks enabling the microfinance sector to carry out more than their basic operations through collaboration and development. Fintech companies offering core systems (loan origination and management systems) enable MFIs

to manage routine operations while advanced ones empower them to leverage data from multiple sources and handle complex analytics to facilitate efficient sales and collection. These entities have also enabled the elimination of redundancy or the need for human intervention across the lending value.

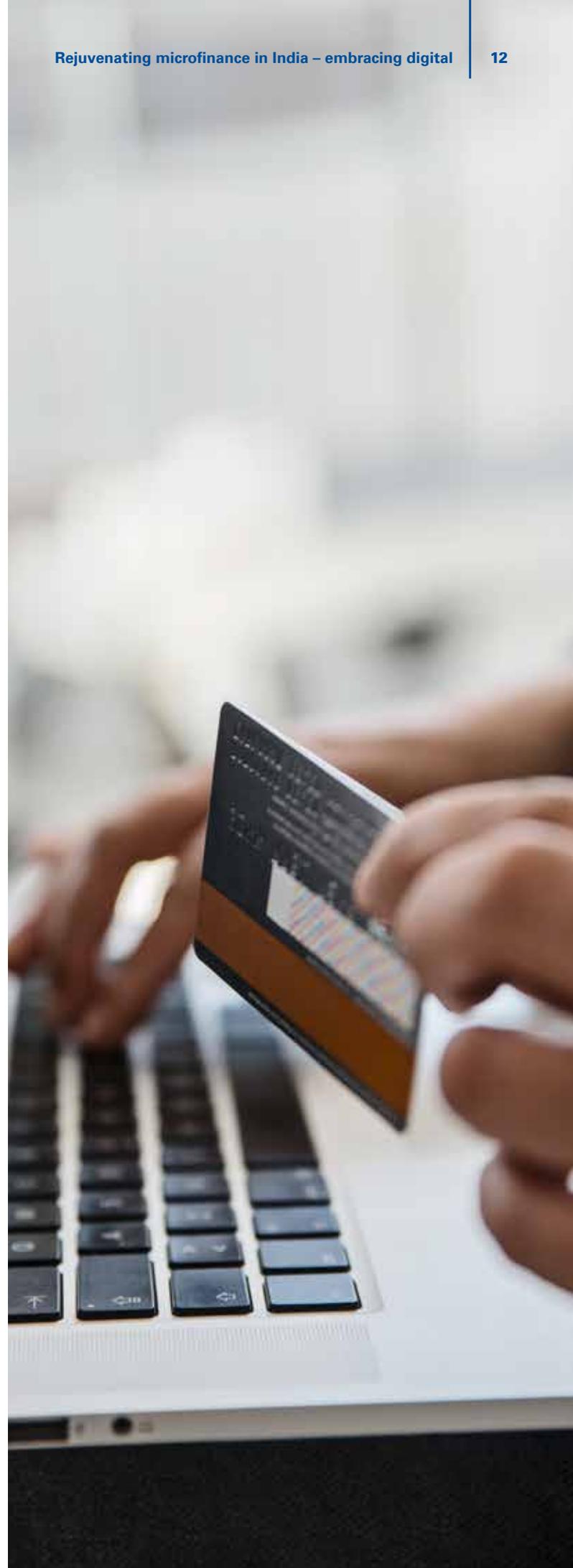
1.2.2 Key considerations for MFIs today

The growth in bank account holders has enabled MFIs to improve their share of digital disbursements but the collection process still remains largely cash based. While customers receive the loan disbursed directly into their bank accounts, these are usually withdrawn from the bank accounts and spent in cash since their ecosystem continues to be cash driven. It was reported in January-2021 that currency notes in circulation amounted to INR 27.1 Lakh Crores, up by 22% compared to the previous year.²⁹ If the adoption of financial technology and digital payment channels can be driven by the banks serving rural customers, it will encourage customers to maintain cash in bank accounts and spend/transact (including making repayments) digitally – thus transforming the ecosystem into a more digitised model.

The microfinance sector has been built on a high-touch model revolving around group/centre meetings. With the increased focus on digital transactions instead of cash collection, MFIs need to be cognizant about the risks posed to the group dynamics. MFIs would need to redefine the value propositions for its group meetings, to ensure the customers continue to attend group meetings despite making payments online and the group dynamics are retained.

One of the most critical aspects of MFI operations is human resource management. The high touch model followed by MFIs warrants for a large employee force on field. The sector experiences nearly 25 – 30%³⁰ annual attrition at the field level. MFIs act as the first step to formal credit for most customers and these institutions are also the first step to formal employment for many of its employees. Significant attrition levels lead to continuous efforts to hire, train and develop staff members. Employee expenses contribute to a large share of operating expenses for an MFI. Post recruitment, it is also critical to monitor the performance of these employees across multiple aspects such as customer management, adherence to operating guidelines and compliance with regulatory requirements.

While limited smartphone adoption in the MFI customer base is highlighted as a key challenge for fintech companies, it is also important to note the limited awareness and experience of digital banking facilities and services amongst the MFI employee base. Without hands-on experience and knowledge, it would be very difficult for these employees to promote digital channels with conviction to their customers.



1.2.3 Understanding the digitised journey of the Indian MFI ecosystem

Over the years, the behaviour and expectations of the key players in the MFI ecosystem have evolved. It is important to understand the persona of a borrower, an agent and an MFI organisation in India today and their evolving lending journey.³¹

Figure 05: Profiling an MFI borrower, Field agent & the MFI







Sourcing

Onboarding

Risk Assessment



BIMLA DEVI
Age 40, Female,
Vegetable
vendor

- Bimla is approached by Tushar for a loan, but she is worried about how she will get approved for a loan since she does not have any collaterals to pledge
- Tushar invites Bimla to a group meeting where she can see and interact with other borrowers and enquire about the agents, lender, location, loan terms, etc
- Bimla finds out that she only needs to provide her basic ID documents
- Bimla becomes part of the group (JLG) with other women from her own neighborhood

Bimla in her face-to-face interaction with Tushar has concerns about when she will get the loan and the distance to travel to the branch to repay the money. She is informed that she will get the loan within 7 -14 working days and options to make cashless repayments. She provides to Tushar:

- loan requirement details
- Aadhar card, ration card document
- Biometrics & consent for e-KYC
- account details, if any

Shortly, Tushar tells her of her successful KYC or if any other documents are required. Bimla is very happy to get such quick information

Bimla answers some simple questions which Tushar reads to her from his tablet

She can also view the questions in her vernacular language on Tushar's tablet hence she is not very nervous or worried about why Tushar is asking the questions.

She receives decision on her loan application approval either real time or via SMS/ IVR on her mobile phone, within 7 working days

Bimla is happy and surprised to get the loan in such short time without her having to visit the branch or taking time away from the vegetable market.

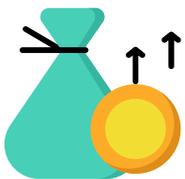


TUSHAR KUMAR
Ager 32, Agent,
MFI India

- It partnered with FinTech specialising in Microfinance solution for digitizing its end to end processes.
- It has deployed Tablets with DFAs to its field agents for better utilization of time and customer acquisition

• With digitization, MFI India has managed to make KYC paperless and reduce the TAT to few hours.

- Risk assessment which was a highly human judgement-based decision was mired with biases and paperwork
- MFI India, by implementing alternate data scoring technology, can perform risk assessment on customers on broader parameters that were not even considered before.



MFI India

Tushar who used to struggle with planning his daily activities now has a tablet which shows his day's schedule and views

- his schedule based on the GPS location of his customers and potential targets
- his daily targets and performance graph, earned and projected commissions
- loan progress on his existing customers and repayment schedule

- Tushar who had to primarily depend on his training and instincts to evaluate a borrower now uses his tablet which is enabled with biometric and anti fraud management for customer evaluation
- Tushar fills the application form, scans and uploads the KYC documents, records Bimla's biometrics
- Tushar check for duplicity, fraud, etc in real time

- Tushar who had to send all the paper work to the head office for risk assessment can now just read out questions to Bimla from his tablet and complete the customer evaluation form for risk assessment purposes.
- Tushar submits the application



Loan disbursement

Bimla gets SMS/IVR call on her mobile phone regarding the approval of her loan and disbursement of loan in her bank account

She goes to meet Tushar at the nearest Kiosk or branch for e-signing the loan documents, collecting debit card and cash withdrawal

She attends mandatory training where she is told about her loan details and payment schedule, different ways to repay, USSD and online payments, obligations of JLG

Bimla moves to the nearest ATM to withdraw the loan amount deposited in her bank account



Loan management

Bimla gets regular SMS and IVR calls from MFI India regarding the status of her loan, next repayment date and amount details.

She is provided with the customer care to call for any queries

Tushar and JLG to plan the repayments and conduct regular group meetings

Bimla can also call the customer care to raise any concerns or clarifications regarding her loan



Collection

Since Bimla deals in cash only, she prefers making cash repayment. She pays cash to Tushar during the center meeting. She receives payment acknowledgment

She sees other members make online payment, hence for next repayment, Bimla chooses to visit the nearby Kiosk, branch with her JLG group to get assistance to make payment via mobile

By the 4th installment, Bimla is confident and makes an online payment herself and saves the SMS acknowledgement of payment received

- MFI India can minimize theft, fraud and poor TAT in the loan disbursement process with the introduction of cashless disbursements
- MFI India has implemented early warning systems and GPS tagging which is enabling it to track its field agents and ensure that the center meeting are being conducted
- 24Hr customer center has enabled MFI India to provide good customer care and ensure that borrowers are happy and satisfied.
- MFI India has implemented payment gateways and tied up with partners to enable digital collection channels
- MFI India encourages its employees and customers to adopt digital repayment methods

- Tushar receives information on successful approval of the loans and commission earned information on his tablet
- Tushar SMS/ calls Bimla and other women in JLG for scheduling mandatory training meetings

- Tushar regularly interacts with Bimla as part of center meetings and inquires about the usage of loan and any issues with repayments
- Tushar gets early warning alerts on his tablet on any potential default loans

- Tushar collects repayments from the various groups. Majority of these repayments are in cash, which he deposits at the nearest branch
- Tushar encourages his customers to adopt digital repayment channels and educates them on how to go about it

2.

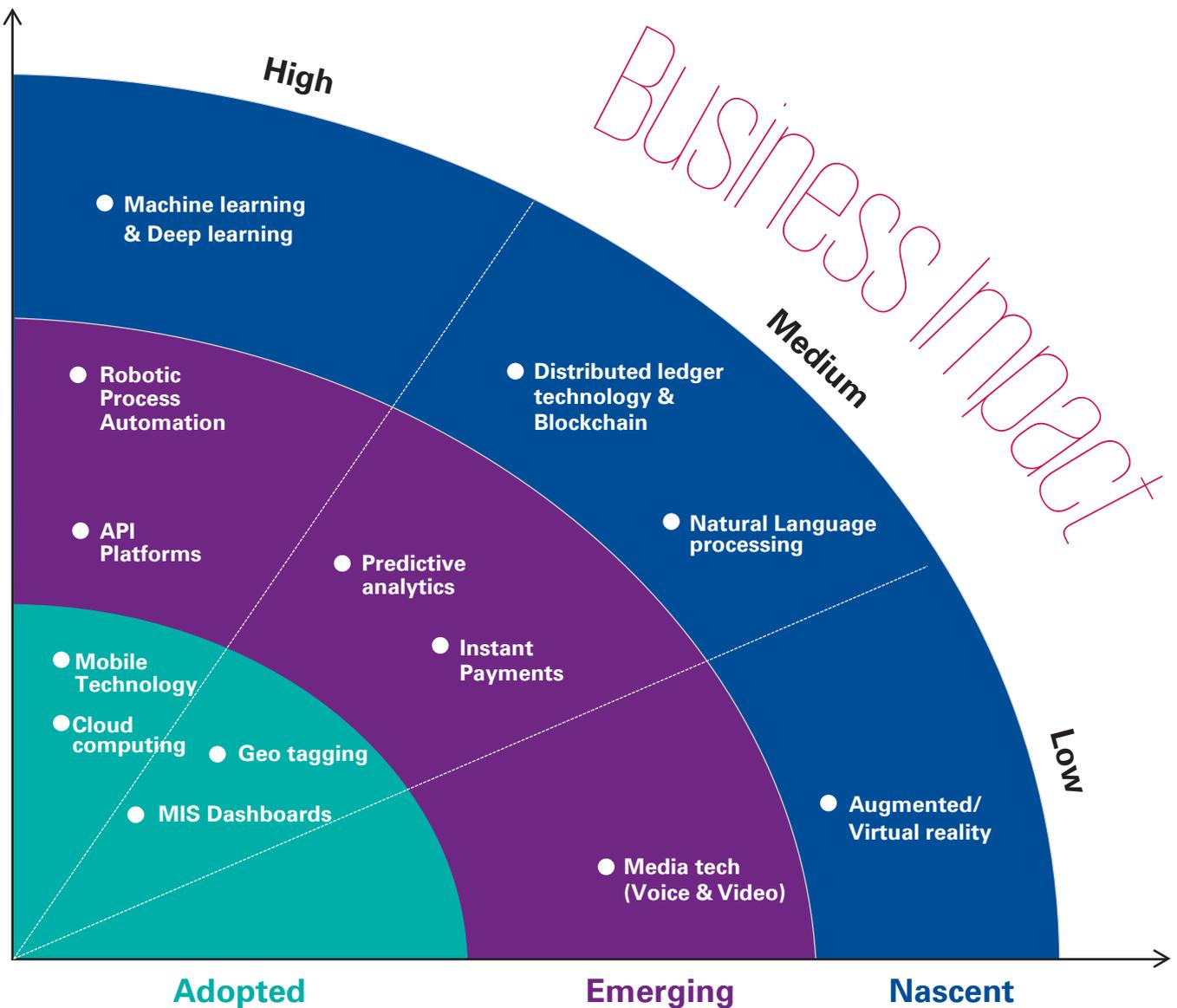
Fintech in the microfinance lending value chain



Microfinance players are using and exploring new technologies and solutions for improved client outreach, decision-making and operations. Technology is revolutionising the way financial services are delivered and the same disruptions are affecting the technology

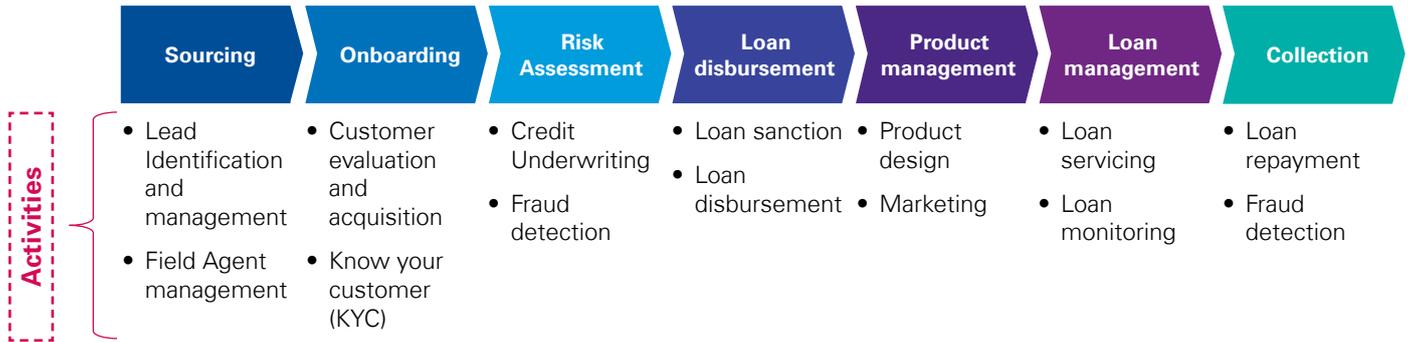
landscape of the microfinance sector. This section explores various technology interventions that are being leveraged to optimise and increase the efficiency of the lending value chain.

Figure 07: Impact of disruptive technology on microfinance³²



Key elements of an MFI’s value chain are sourcing, customer on-boarding, risk assessment, loan processing, product management, loan management and collections.

Figure 08: Technology value chain³³



The MFI value chain can be seen across three modules handling key operational elements:

1. Front Office

a. Lead generation - Business expansion, right market identification, lead conversion and management and productive utilisation of the field agents are important functional requirements of an MFI.

Several fintech companies are offering solutions that use machine learning technologies for improved lead identification. A prominent fintech with a track record of disrupting the microfinance lending landscape, claims that the use of their product suite can lead to significant increase in conversion rates and reduction of the cost of customer acquisition.

Other Fintech companies^{34,35,36,27} have also been employing various technologies like geo mapping, AI, behavioural science and

data analytics to create modular solutions for

- lead identification, tracking and management,
- field agent management for setting targets and Tablets monitoring performance
- real- time impact monitoring and evaluation
- perform user behaviour analysis for providing insights to improve user efficiency and correct unproductive trends

Many MFIs also use Geo mapping of route map for their field/loan officers

b. Product awareness - Fintech companies have been playing an active role in enhancing the product awareness of the microfinance customers in India by partnering with the incumbent MFI institutions.

A leading Indian Small Finance Bank uses a web mapping service to map the customer’s business place and thereby optimise the route of field staff. It is also used to analyse the geographical concentration of customers for the purpose of business expansion and product design.

One such example where fintech companies have been able to create value is the case of a next gen fintech that partnered with a large Indian NBFC to create chatbot templates to offer microloans to women in the lender's target geographic areas.³⁸ The chatbot assists customers looking for a loan and provides information on their eligibility. Companies have also been launching app-based solutions that utilise technologies such as augmented reality to assist illiterate or low literacy people to understand written material.

c. Customer Onboarding – A large Indian Small Finance Bank has implemented a technology solution³⁹ in partnership with a fintech company through which they have enabled Aadhaar-linked KYC, video ID verification, verification of e-documents via Digi Locker and uses AI/ML technologies for preventing fraud, customer authentication and automating the customer onboarding process.

A leading non-banking finance company (NBFC) has tied up with an Indian fintech company, whose fingerprint scanners are certified for use in the Aadhaar ecosystem.

Fintech companies have been partnering with banks and credit information companies to develop easily integrable identity and document verification solutions that can do the following:

- Provide facial verification
- Palm and fingerprint verification
- Multiple ID matching
- Ability to perform identity verification against over more than 100 types of various national IDs

2. Middle Office

a. Underwriting - Some MFIs, in partnership with financial technology companies, are using a judgmental scoring model wherein insights spanning the last one year are converted into weights and automated to give real-time decisions.

Fintech companies offer IndiaStack-enabled risk management solution, offering real-time integration with credit bureaus to perform analysis of the reports and have risk-scoring capabilities for faster decisions. They have also used ML for analysing unstructured data points spanning across behavioural and social attributes and financial data.

A large Indian MFI uses psychometric testing by recording borrower responses to 40 flashcards. However, due to shortcomings of psychometric testing, some MFIs like a leading bank has adopted the hybrid credit risk assessment model of using a traditional credit score, if available from the credit bureau, psychometric scores and the review of assets, customer background, finances, etc.

An online working capital lending platform for MSMEs also uses a hybrid model of traditional and alternative data sourced through e-commerce firms, point-of-sale transactions, banking transaction history, tax returns, psychometric evaluation and credit bureau data.

b. Loan Disbursement: Cashless disbursements via through NEFT/RTGS/IMPS; Aadhaar Enabled Payment System (AePS)

Several MFIs, including some next-gen start-ups, undertake 100 per cent cashless disbursements. The end-to-end microfinance technology solutions provide host-to-host banking for real-time loan disbursements and the Aadhaar-based e-signature feature.

AePS is a facility that enables the customers to use UIDAI to access their Aadhaar-enabled bank account and perform basic banking transactions like withdraw the disbursed loan from micro ATMs and ATMs equipped with a biometric authentication facility.

An Indian NBFC-MFI is moving towards branchless banking, cashless disbursements and collections. The MFI in India partnered with the fintech subsidiary of a global Telecom company to disburse loans via low-cost mobile phones. The lender has adopted a comprehensive technology

solution for the purpose of moving to a paperless operation, automating field staff process, reducing operating expenditure and overall improvement in operational efficiency. The MFI uses mobility application for client onboarding and loan collection and has been integrated for real time Credit Bureau during client onboarding. Its systems are QR reader enabled for reading the Aadhaar Card and auto fill the basic details of the client for the underwriting purposes. Due to digitization, the MFI is witnessing significant improvement in the turnaround time (TAT) of loan disbursements and increase in productivity of the loan officers

c. Marketing and Product design - Partnering with fintech companies specialising in Machine Learning algorithms offer potential for an early intervention in the customer life cycle and to guide customers towards their financial goals. The algorithms can be remodelled in real-time with new data to help the financial institution in predicting a customer's next purchase and future cash flows thereby enabling the financial institution to market and place the right product at the right time to its customers

3. Back Office

a. Loan Servicing and Monitoring - The microfinance customers have limited literacy and technology comfort; hence, currently, most of the chatbot and voicebot technology is being utilised for the field agents to clarify queries.

Several fintech companies offer text-based cognitive conversational chatbot platforms in various Indian languages to assist field agents with routine process-related queries.^{40,41}

Fintech companies have also been disrupting the traditional processes through the development of multilingual call centre automation solutions that can provide the MFI customers with round-the-clock customer support and help resolve the common customer queries and grievances.

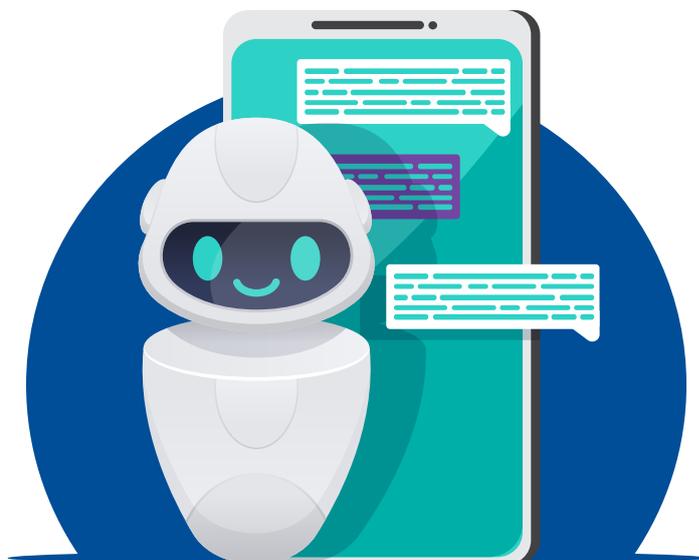
Partnering with chatbot platforms can help microfinance institutions to enhance the financial literacy of its microfinance customers. Users can engage with the chatbot platform to view 'gamified' stories and easy interactive modules to gain financial understanding. As the system learns more about the user's goals, it can tailor its recommendations and pushes relevant notifications to the user's mobile phone as well.

b. Loan repayments/ Collections

Since the adoption of smart technology like smartphones, laptops and tablets is relatively low but increasing, there are a mix of options for cashless payments.:

- **Unified Payment Interface (UPI)** - is gaining traction at a very rapid pace amongst the microfinance players. A technology company that works with merchants and financial institutions in the 'buy now and pay later' space, is using UPI extensively for repayment of credit availed by its consumers.
- **Aadhar Pay** - is allowing a user to make a payment at a merchant with Aadhaar. The borrower can visit the kiosk/ business correspondent (BC) location or branch which is equipped with the BHIM Aadhaar app and biometric devices to make a repayment through Aadhar Pay.
- **National Automated Clearing House (NACH)** - allows the repayment amount to be directly debited from the account as per the mandate provided by the customer at the time of loan application. The associated bounce charges are impacting adoption of this facility

There are mobility solutions available that can be accessed both online and offline for the field staffs to post daily transactions (repayment collections) at the field.





2.1 Challenges in technology implementation and adoption in the Indian context

While the benefits of integration with technology for MFIs are undeniable, there exist some concerns and challenges that need to be addressed.

1. Digital adoption

The challenges faced by MFIs are unique as they often deal with employees and business correspondent partners with limited formal education and financial literacy. This limited understanding of the banking infrastructure and digital services available leads to limited adoption in the ecosystem. When the ecosystem continues to be cash based, even the customers who receive loans disbursed directly into their bank accounts end up withdrawing these amounts to spend in cash. Since customers do not see any merit in holding their money in digital format, the loan repayments are also made in cash.

The costs of driving adoption of digital by an MFI are two-fold:

1. Direct, transaction related costs such as eKYC, mandate related (setting/default) charges etc.
2. Indirect and intangible costs for educating employees, educating customers and promotional activities around digital channels



A study done by the Grameen Foundation⁴² revealed that the customers adopt technology in varying degrees. Some customers with initial handholding and training on using mobile money and making loan repayments through mobile money were confident of doing so independently in the future. There were others who adopted the assisted technology use, i.e. they would visit the closest agent shop for them to make the transaction on their mobile.

2. The human touch

The microfinance sector has always been characterised by its high-touch delivery model. With technology making inroads into the sector, there are mixed responses on how the customer service equations are changing. The 'on-ground' field agents are critical touch points to understand the financial options for the target segment MFIs serve. Thus, any technology implementation must be about maintaining customer connect while optimising the resources of the company.

There is also the repayment conundrum. Big data, ML generated algorithms based on different sources of data do not take certain softer assessment aspects into consideration that human field agents are capable of. As a result, currently, we see that much of the algorithm-based

lending runs a risk of higher default rates. While the Self-Help Group (SHG) or Joint Lending Group (JLG) structures ensure that there are group guarantees providing the peer pressure to repay the loan and the centre meetings reinforce the repayment habit, MFIs have to take a multipronged approach for finding an answer to this conundrum.

As the human touch decreases, it is important to ensure that the loan is utilised responsibly, which will also have a trickle-down effect on the repayment rate. Maintaining high customer interaction by way of imparting entrepreneurship training aimed at developing financial skills and market orientation provides the push for the borrowers to put loan money to a good use and responsibly build their businesses.

MFIs with their high-touch model are uniquely positioned to empower their customers technically by providing education and encouraging them to upgrade to smartphones, laptops and tablets. Bringing in a certain level of comfort with technology for their borrowers helps them in becoming more receptive and adaptive to digital interactions going forward.



3. Digital Talent gap

Although digital adoption rates and internet connectivity across India have been increasing steadily, there is a scarcity in the availability of talent who can adapt to the latest digital interventions in the Microfinance value chain. This is primarily because the geographic focus of NBFC-MFIs are rural and semi-urban regions; staff requirements are directly met through recruitment from the locally available pool where significant digital skill gaps exist.

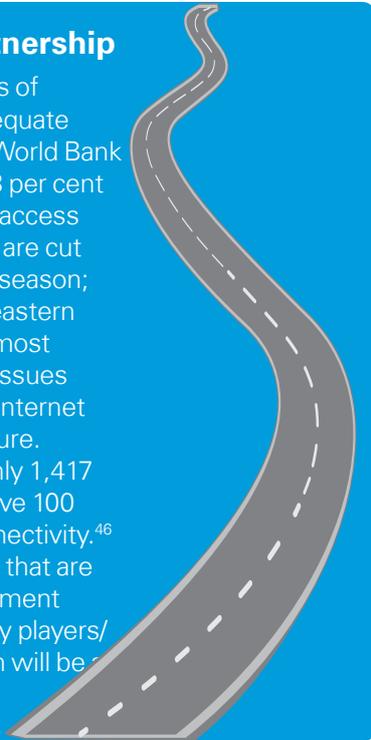
According to a report, only 18.3% of the rural population in the age group of 14-29 were able to operate a computer as compared to 48.9% in urban regions.⁴⁴



4. Technology Partnership

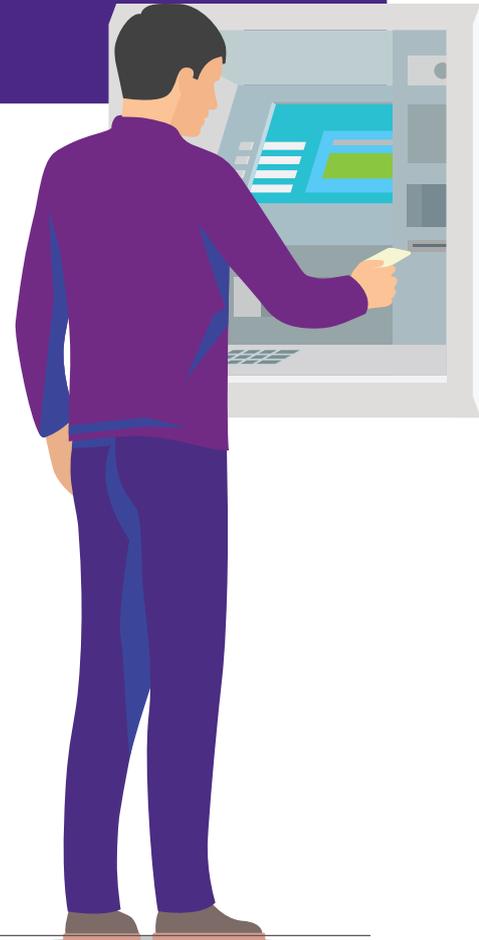
There are still many parts of the country that lack adequate infrastructure. As per a World Bank report, approximately 33 per cent of villages⁴⁴ do not have access to all-weather roads and are cut off during the monsoon season; the northern and north-eastern regions of India are the most poorly linked⁴⁵ and face issues pertaining to electricity, internet and payment infrastructure.

According to a report, only 1,417 of the 18,452 villages have 100 per cent household connectivity.⁴⁶ Substantial investments that are dependent on the agreement amongst various industry players/factors in the ecosystem will be a challenge.



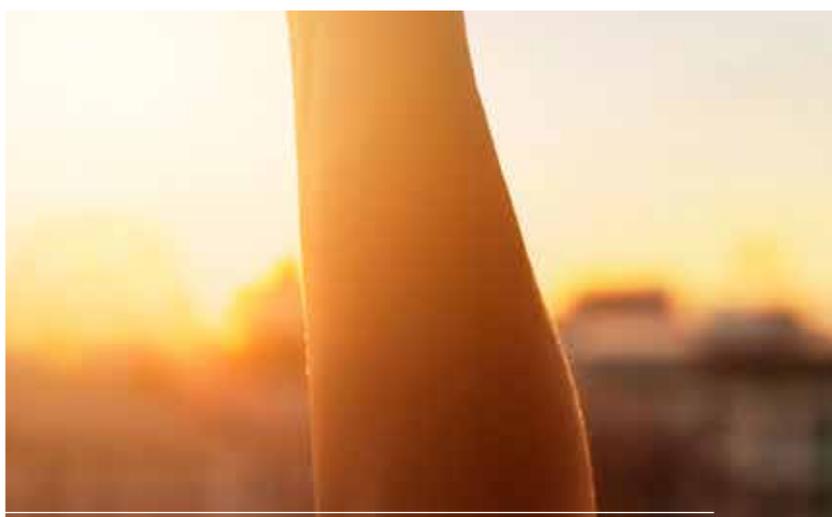
5. Regulations

Data Security There have been many concerns over the lack of specific IT guidelines, including business continuity, data protection and security and cybersecurity, for MFIs that may result in security breaches thereby resulting in a customer's lack of confidence in sharing personal data with lenders. The Personal Data Protection Bill, 2019 tabled in Lok Sabha in December 2019, once passed will resolve some of the concerns stated above; MFIs will be required to comply and upgrade their IT infrastructure accordingly. Fintech companies, too, will be required to make their solutions compliant with the bill in order to be relevant and competitive in the market. Challenges for provisioning a consent-based framework for the protection of personal information like "right to be forgotten", ensuring a secure and encrypted database for storing personal data and the format of the consent will require significant design and implementation work.



3.

Future roadmap



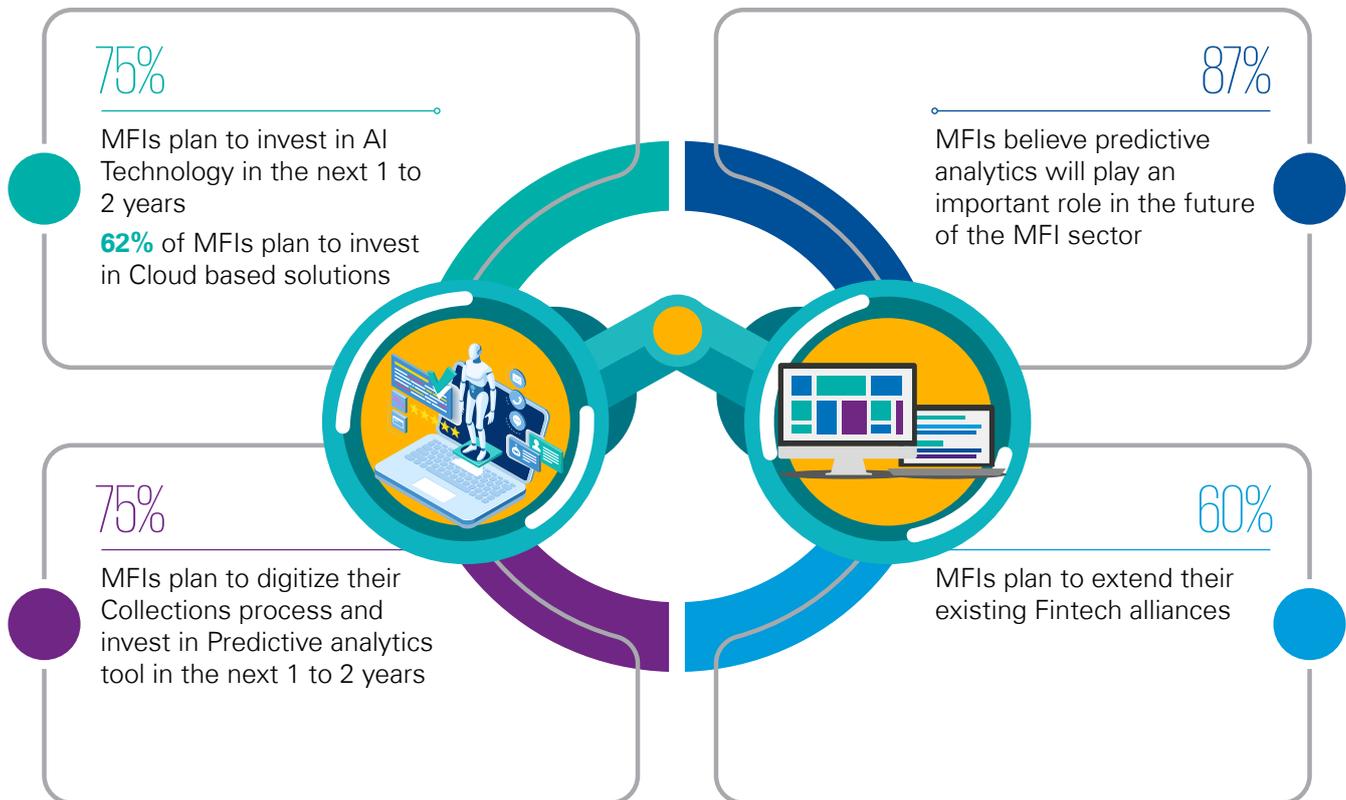
3.1 Microfinance institutions becoming future ready

As literacy and penetration of mobile phones amongst the poor and rural regions increase, the customer's exposure and therefore, their expectations from microfinance institutes shall also evolve. The microfinance customer will expect personalised solutions delivered through automated analytics, ML and AI that are linked to their life or business events. Continued digitisation could be mistaken with diminishing human involvement. However, customer

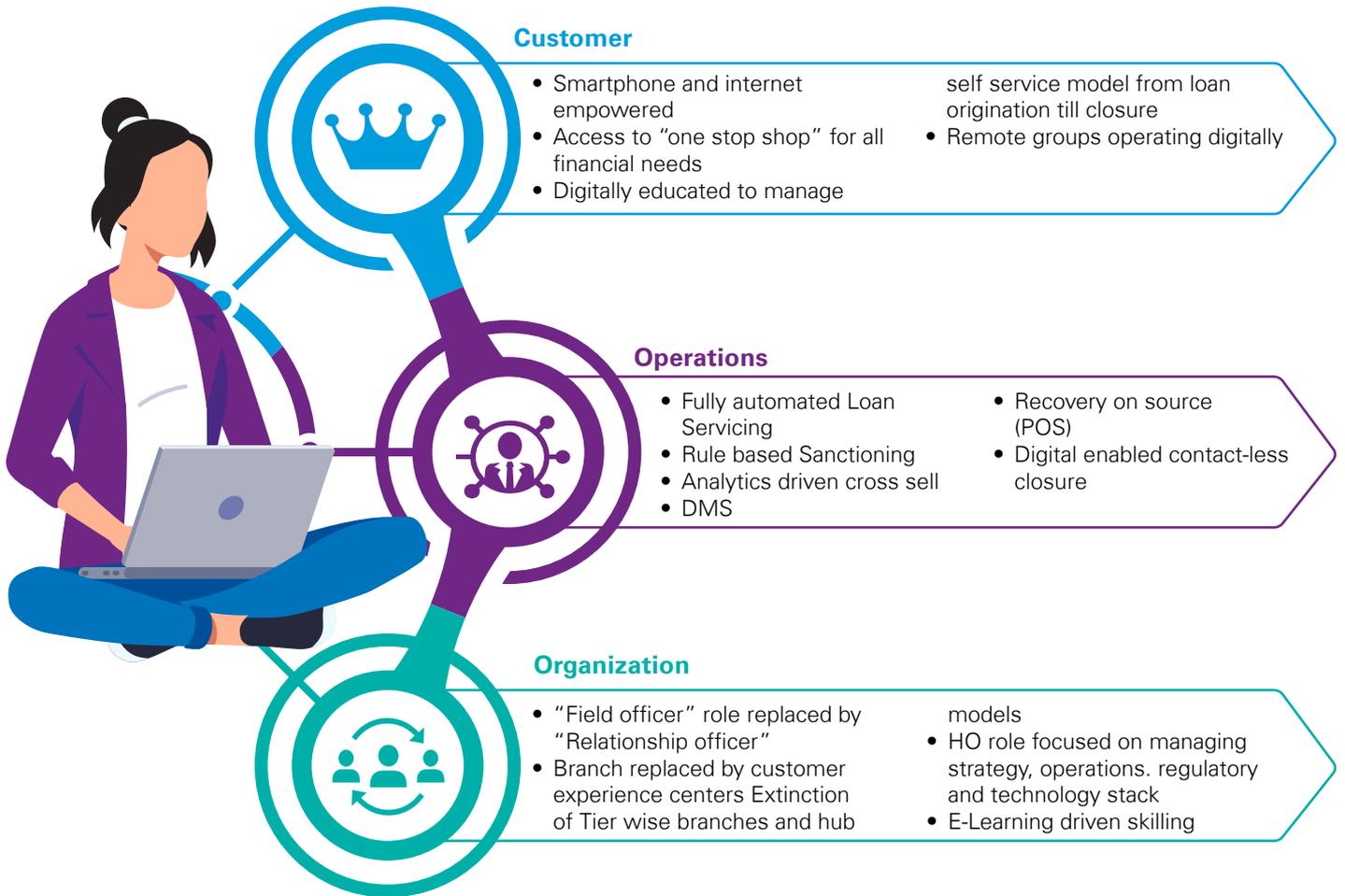
service will remain important and the successful players will be those that can deliver competitively priced and high-quality solutions through intuitive and user-friendly platforms. Moreover, as innovations reduce the cost to serve, more new entrants are expected to raise the competition in the microfinance sector.

Some key findings in relation to the future digital plans of MFIs in India based on KPMG in India's survey in association with MFIN are highlighted below.

Figure 09: Survey findings: Digital priorities for MFIs post COVID-19



Keeping in mind the increasing pressure on MFIs to overcome the current economic situation, serve the evolving needs of both customers and organisational stakeholders, combined with a proliferation of technology options, captured here is the future landscape of MFIs.

Figure 10: Future MFI landscape⁴⁷

Rather than focus on individual objectives, MFIs should have a wider vision of where they want to be in three, five or ten years — from the way they work with their customers to the efficiency of their operations, including their people and culture. Fintech companies must address these opportunities and work towards solving specific customer needs.

Increased adoption of digital solutions across the value chain shall help MFI companies improve the overall productivity and efficiency in operations. Manpower expenditure is a major spend category for MFI companies. Leveraging digital solutions shall enable MFI companies to increase their workforce

productivity across customer sourcing, credit assessment, customer servicing and collection. This increased productivity can help the companies "do more with less".

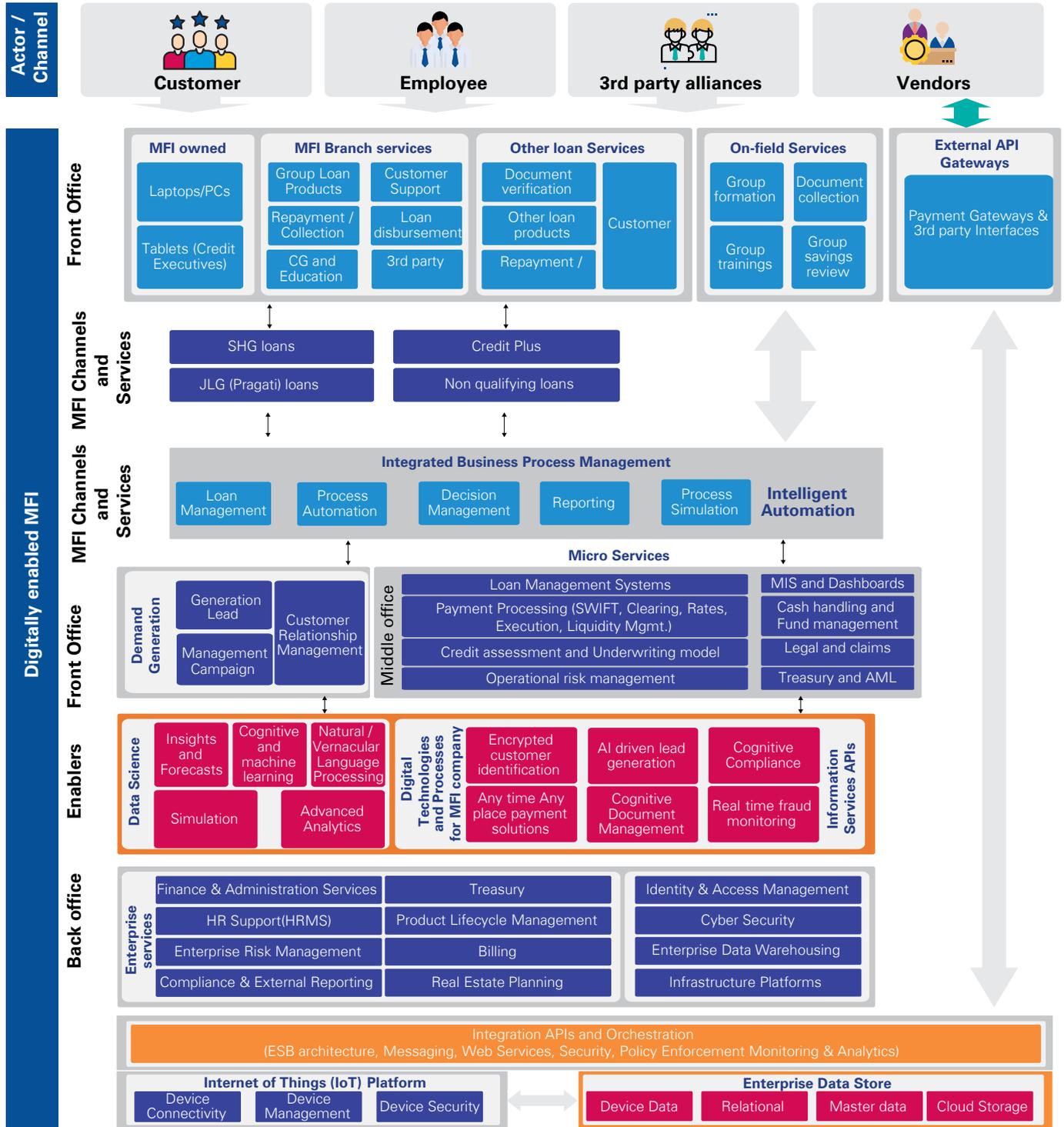
Financial institutions cannot take on every fintech opportunity at the same time. Prioritization is critical for MFIs that want to get the most value out of their investments and activities. It would include evaluating multiple factors, such as the MFI's future roadmap in terms of product mix, target customer segment, organizational capabilities and target book size, and align with specific initiatives that might not be big today but will be a significant focus area in the future.



3.2 An overview of digitally enabled microfinance institutions

A digitally enabled MFI ensures smooth digital interaction between all relevant modules of its organisation, with minimal dependence on physical

movement of documents and human-led interactions. An illustration of a digitally enabled MFI organisation is shown in the below figure.



3.3. Leveraging financial technology infrastructure and innovations

There are several trends and innovations in the financial services sector for MFIs to evaluate and implement for improving operational efficiency and customer experience.

Onboard to Central Know Your Customer Registry (CKYCR)

CKYCR, managed by the Central Registry of Securitisation Asset Reconstruction and Security Interest (CERSAI), is an initiative by the Government of India (GoI) to have a structure in place allowing customers to complete their KYC only once and keep them stored in a central registry. The KYC information can then be accessed by various financial services entities with the customer's consent.

For the first time registrations, the customer provides proof of identification and address to the financial institution doing the KYC. Once the institution successfully uploads the KYC information on the CKYCR portal, the customer receives a 14-digit KYC Identifier Number (KIN). The customer may then use this KIN for any future loan or financial service with any financial institute.

The CKYCR provides certain advantages to MFIs:

- convenience of providing KYC documents only once;
- ensure authenticity of the customer identity by the CKYC portal;
- ease of developing digital customer on-boarding model with reliable customer verification
- cost optimisation since the physical interface with the borrower could be done away with

Moving to CKYCR requires investment for upgrading to the required technology for integration. The regulators as well as GoI are encouraging financial institutions to move to the CKYCR. Adoption of CKYC by public, private and cooperative banks shall also enable institutions like MFIs that are focussed on financial inclusion to take advantage of this infrastructure without incurring additional expenses, at least for customers having bank accounts.

Integration with account aggregators model

Integration and access to account aggregator platforms shall enable the microfinance sector to assess customers across multiple data points, including non-financial, on a single platform. It is critical for the AA ecosystem

to expand and more players across different industries adopt this architecture, so that the data that is currently held in silos will become available on a single platform. The critical advantage of integrating with such a platform is that it is sector agnostic and provides access to not just financial but various other data points including health, skills and education records. Such access shall also drive development of technologies with a holistic approach towards assessing customer risks.

Open Banking

The concept of Open banking gained traction in India with the introduction of Government of India's Unified Payment Interface (UPI). The essential elements of Open Banking - a bank asset (digital identity), an enabler (Open API technology) and a driver (regulation and customer relevance) can enable MFIs to reduce their cost of operations and cost of funds.

Participate in innovation

The advent of multiple technologies is likely to improve operational processes and the overall customer journey. Many technology firms are adopting RPA across KYC, disbursements, repayments and regulatory reporting. Chatbots are also becoming mainstream by enabling customers to self-service and manage their accounts 24x7. There are several essential innovations in the area of credit information and registry that could be taken up by MFIs and technology companies. As MFIs are increasingly using AI for decision-making, understanding the algorithm followed can help MFIs mitigate the inherent biases associated with existing AI technologies.

Due to the diversity and largeness of our country, many financial products suitable in one part of the country may not be suitable in other parts. MFIs can utilize big data, predictive analytics and AI to understand local value chains, different agricultural conditions and demographic and sociological variations to create customised financial products. These technologies bring about a great opportunity for MFIs to enhance customer experience, strengthen the robustness of underwriting, market assessment for geographic expansion and manage risks

pro-actively. For example, by leveraging AI, an MFI can consume and leverage several relevant data points such as geological, demographic and other social disruptions to evaluate the potential and risk of a market before expanding its operations into the area.

Geo tagging and GPS mapping for center meetings

Microfinance lending is fundamentally based on a high-touch operating model. Smartphone usage in India is rising and the current growth is largely driven by the smart phone penetration in rural areas. As penetration increases, MFIs must consider the use of technologies like geo tagging, GPS mapping of borrowers and field staff. This can help the MFI in ways such as optimising the sales and collection plan for employees, monitoring employee productivity and accurately track attendance at group meetings.

Co-originating loans

The Co-origination space remains largely untapped by MFIs due to lack of required technology infrastructure to successfully integrate with banks as both types of financial institutions have different underwriting parameters, systems and processes. Partnership with fintech companies to design products, processes and technology infrastructure that fits the ethos of both Banks and MFIs can further enable last-mile financial inclusion.

Adoption of Bharat Bill Pay system (BBPS)

BBPS is an integrated bill payment system that offers accessible and interoperable bill payment service to customers through a network of agents enabling payment in cash, or electronically, while allowing the utility to receive payment at once. Currently, BBPS is a utility payment platform. It can, however, be extended to financial institutions that can utilise the platform to receive repayments from its customers. Additionally, MFIs can drive adoption of BBPS by their micro enterprise customers to manage their cash flow. This would help reduce cash-based transactions by these customers and hence help the MFIs improve their cashless collections.





4.

Working together to build a digital first Microfinance landscape



Key stakeholders in the microfinance ecosystem play unique and critical roles in transforming the microfinance landscape into a digital friendly one.

4.1. Regulators

RBI needs to get all different entities providing microfinance under a single umbrella in order to address the variety of issues plaguing the sector.

- Mandates on digital operations** – While several NBFC-MFIs have been transforming themselves digitally, there however has not been any specific guideline released by RBI pertaining directly to the digital mode of operations. In order to standardise digital operations across the MFI industry, the RBI must release specific instructions that cover the breadth of IndiaStack and address key operational processes of the lending cycle including the disbursement, collection and closure. Improved adoption of cashless and digital modes of operation by MFIs and their customers shall reduce the cash handling risk in the larger ecosystem (including banks as well) and reduce operational risks such as that of employee frauds as well. Providing guidelines for new areas of digital finance like digital credit, data security, client data protection and cloud-based applications could be key areas of consideration for the regulator.
- Uniform rules for credit reporting** – Currently, only banks, NBFC-MFIs and NBFCs are required to report payment defaults to credit bureaus. Hence, there is no data on borrowers defaulting repayments to NGOs and Co-operatives. From a reporting timeline perspective, Banks and SFBs currently report to credit bureaus on a monthly basis while NBFC-MFIs have voluntarily agreed to report on a weekly basis. The RBI must take steps to ensure credit reporting is made mandatory for all entities on a standard platform and with a frequency that is standard for all lending institutions in the India Financial Services ecosystem. The standard KYC procedure of integration and usage of CKYCR and the use of Aadhar as a unique identifier to accurately de-dupe customers while reporting data to the credit bureaus can be made mandatory for financial institutions including NBFC-MFIs.
- Uniform KYC norms** – Aadhar based E-KYC facilities are currently made available to only banks. This facility must be extended to all financial service institutions regulated by the RBI including NBFC-MFIs to promote digital adoption and transformation.
- Easing E-NACH norms** – Although the E-NACH product is available to NBFC-MFIs, it is to a great extent unutilised in the MFI industry as part of the collections process since the banks charge the customers a penalty in the case of a payment bounce. This charge can be construed as non-repayment penalty which an NBFC-MFI is not allowed to do. The regulators must ease the E-NACH norms to enable NBFC-MFIs to utilise the E-NACH facilities more effectively and increase the cashless collection efficiency.
- Development of robust and easy to use digital platforms by all banks, co-operative and RRBs** – Developing a platform and migrating customers to a digital operating model is seen as an investment by financial institutions servicing rural customers. Regulators should instruct and if possible, incentivise banks to ensure that all their customers, including rural customers, are empowered with the required instruments such as UPI IDs, internet banking or mobile banking to drive the adoption and transition to digital channels.
- Tagging of loans** – Loans that are settled through the First Loss Credit Guarantee provided by BCs to banks must be appropriately tagged. Currently, without this measure a borrower whose loan is settled through First Loss Credit Guarantee has their slate cleaned without any red flags on their borrowing history, thus making them eligible for new loans; in these situations, the credit risk borne by the lending institution increases exponentially due to data unavailability.

4.2. Microfinance institutions

- **Alliances with payment fintech companies** - Digital payment firms generate enormous payment data, which, if adequately analysed after obtaining customer consent, can yield valuable insights needed for MFIs to make credit assessments. Digital payment firms already have a large customer base and if a partnership is forged with MFIs, it can yield powerful results. There are major technopreneurs making inroads into the microfinance sector and, if MFIs do not take timely action, they will either continue to remain small or become dependent on the payment platforms.

There is a huge unorganised mid segment market requiring financial assistance ranging upwards of INR 50,000 that can be addressed by the proposed alliance between MFIs and fintech companies.

- **Product design using data** – Data is the new oil and MFIs should utilise data analytics to understand customer and market needs in order to design products and measure their success. Tailored products for entrepreneurial, consumption and social occasions need to be explored to their full potential.
- **Use of account aggregator (AA) platforms** – Create a roadmap for integration with AA platforms for holistic risk-assessment. Digital account aggregators are expected to be gamechangers in microfinance lending that will allow borrowers to share not just credit

histories but other non-financial information digitally with lenders. This will enable consent-based sharing for a rounded view of a customer's finances. The opportunity for an MFI to integrate with such platforms shall help in optimizing transaction costs, build robust credit models and reduce frauds, thereby deepening financial inclusion without compromising on the quality of the portfolio.

- **Digital upliftment** – MFIs may explore tie-ups with the government for digital-literacy programmes like PM Gramin Digital Saksharta Abhiyan to drive digital upliftment of its customers. Additionally, lenders must start incentivising, training and educating customers towards digitising their businesses. Trainings in adoption of QR code, usage of UPI and digital payment platforms will further enable borrowers to digitise transactions, thereby helping microfinance lenders to move away from cash-based repayments, lowering credit risks and operational costs.
- **Invest in Human Capital** – MFIs should understand the importance of investing in human capital, training and upskilling of its employees, especially as more and more functions get digitised. It is critical that the employees are also consumers of many of the digital financial services, so they can then advocate the transition from cash to digital to their customers.

4.3 Technology service providers

- **Product design for rural customers** – Fintech companies need to focus on designing apps that are multi-vernacular and aid customer interaction through voice and conversations, thereby making them customer friendly, intuitive and easy to use. This is critical for not only the adoption of such solutions by customers but also by MFI employees.
- **Personalised experience** – Technology players can work with MFIs to analyse data in order to identify potential markets, design strategies for customer targeting and design the right type of products for increasing penetration.
- **Cost effective and value-added services** – Cost effective pricing models from technology players

such as SaaS, PaaS, IaaS and outsourced models help reduce capex and add value to their MFI customers. POCs and pilots with MFIs help deliver value in areas such as data analytics and correction exercise, customer segmentation and IT consulting services that further add value to MFIs.

- **Multi-sector friendly products** – Financial technology players should develop products that fit the ethos of both Banks and MFIs, to help MFIs better leverage the more developed and robust banking infrastructure and avoid redundant processes at the MFI.

4.4 Self-regulatory organisations (SROs)

- Employee education – While MFIs can continue training their employees on the operational processes, SROs can drive MFI employee training programmes on the digital infrastructure and services available. This will help employees in making the transition smoother, allowing them to adjust and mould themselves into the changing business model.
- Improved predictive risk analytics technology – Partnering with fintech companies for the use of geo-mapping technology along with traditional and

non-traditional data sources can help predict stress regions/ sectors and political upheavals. This would help MFIs to get a better view of their exposure, take remedial action and reduce concentration risk.

Such initiatives from the SROs shall offer collective benefit for all its member MFIs and it would be a wise investment to make for the member MFIs to contribute towards sponsoring these initiatives.

4.5 Government and policy-making bodies

The government should look at passing key regulatory amendments which shall regulate the variety of institutions that can perform microfinance lending under the act and strengthen the supervision over microfinance institutions.

- **Setting up of fintech innovation fund for MFI** – The government could set up a fund for innovative digital and financial solutions that will improve access to finance and/or enhance the operational efficiency of MFIs.
- **Incentivising cashless disbursements and repayments** – In order to boost digital transactions in rural areas, the government can provide financial support to panchayats, agricultural societies and other rural institutions to help educate, encourage and onboard consumers on digital platforms.
- **Expansion of acceptance network** – The government could incentivise the expansion of the acceptance network such as QR codes, automated teller machines (ATMs), point-of-sale (PoS) terminals in kirana stores and banks' business correspondents (BCs), which will ease the adoption of digital money in rural India.
- **Push for adoption of account aggregator platforms across industries** – Post the announcement of account aggregators, the government needs to push for their adoption across financial as well as non-financial industries. For instance, TRAI for telecom data, NITI Aayog for healthcare data and the Ministry of Human Resource Development for education data.

- **Continue development of shared infrastructure for innovation** – IndiaStack has provided an impetus for further development of public infrastructure to support private sector-led innovation. Such initiatives need to be encouraged to help develop a capable and robust shared digital infrastructure.
- **Network connectivity** – Improving internet infrastructure in the geographically challenging parts of India, providing broadband connectivity across villages as a part of Digital India and ensuring reliable electricity supply and quality service are some recommendations that the government can take on high priority.



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