# Digital Transformation of MFIs in Bangladesh

## Opportunities, challenges and way forward

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# About this report

## Background

In 2017/18 the United Nations Capital Development Fund (UNCDF) undertook the first comprehensive review of micro-merchants in Bangladesh engaged in the retail sector, particularly in Fast Moving Consumer Goods (FMCG) operating mostly in rural areas.

The Landscape Assessment of Retail Micro-Merchants in Bangladesh showed that retail micro-merchants require access to financial services, and credit in particular. Their need for financial services is high, and microfinance institutions are well-placed to meet the growing credit needs of micro-merchants. Micro-merchants predominately borrow from microfinance institutions. With the introduction of digital technologies, microfinance institutions have a new opportunity to further expand financial services to micro-merchants by embracing digital and mobile technologies in their operations.

Keeping the micro-merchant market segment in mind, this report answers the questions of how and why microfinance institutions should make a switch to digital technologies to better meet their customers' needs.

## About the United Nations Capital Development Fund

UNCDF makes public and private finance work for the poor in the world's 47 least developed countries. With its capital mandate and instruments, UNCDF offers "last mile" finance models that unlock public and private resources, especially at the domestic level, to reduce poverty and support local economic development. UNCDF's financing models work through two channels: financial inclusion that expands the opportunities for individuals, households and small businesses to participate in the local economy, providing them with the tools they need to climb out of poverty and manage their financial lives; and by showing how localized investments — through fiscal decentralization, innovative municipal finance and structured project finance — can drive public and private funding that underpins local economic expansion and sustainable development. By strengthening how finance works for poor people at the household, small enterprise and local infrastructure levels, UNCDF contributes to the Sustainable Development Goals (SDGs), particularly Goal 1 on eradicating poverty and Goal 17 on the means of implementation. UNCDF also contributes to other SDGs by identifying those market segments where innovative financing models can have transformational impact in helping to reach the last mile and address exclusion and inequalities of access.

## About MicroSave Consulting (MSC)

MicroSave Consulting (MSC) is a boutique consulting firm that has, for 20 years, pushed the world towards meaningful financial, social, and economic inclusion. With 11 offices around the globe, about 190 staff of different nationalities and varied expertise, we are proud to be working in over 50 developing countries. We partner with participants in financial services ecosystems to achieve sustainable performance improvements and unlock enduring value. Our clients include governments, donors, private sector corporations, and local businesses. We help our clients seize the digital opportunity, address the mass market, and future -proof their operations.

## About UNCDF SHIFT SAARC in Bangladesh

The Shaping Inclusive Finance Transformations (SHIFT) programme framework for the South Asian Association for Regional Cooperation (SAARC) countries is a regional market-facilitation initiative of UNCDF aiming to improve livelihoods and reduce poverty in SAARC countries by 2021. SHIFT SAARC seeks to stimulate investment, business innovations and regulatory reform to expand economic participation and opportunities for women and help small and growing businesses to be active agents in the formal economy.

SHIFT SAARC is currently implemented in Bangladesh where it has two major streams of work: 1) accelerating the uptake and usage of digital financial services (DFS) to respond to the needs for greater digital financial inclusion; and 2) enhancing the growth and competitiveness of retail micro-merchants through the "Merchants Development Driving Rural Markets" project. SHIFT SAARC does this through growing the awareness and demand for DFS through communication, advocacy and industry research. SHIFT SAARC also stimulates expansion of digital technologies for micro-merchant segments by encouraging innovation and linkages between retail and financial services industries.

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# Acronyms and abbreviations

AI          Artificial intelligence
AMC         Annual maintenance charge
AUP         Association for Under-privileged People
BB          Bangladesh Bank
BEES        Bangladesh Extension Education Services
CBS         Core banking solution
CRM         Customer relationship management
DBBL        Dutch-Bangla Bank Limited
DBMS        Database management system
DBS         Daridra Bimochon Shangstha
DFA         Digital field application
DR          Disaster recovery
ECS         Electronic Clearing Service
FGD         Focus group discussion
FAS         Financial accounting system
FSP         Financial services providers
GUK         Gram Unnayan Karma
GUP         Gono Unnayan Prochesta
HRIS        Human resource information system
IVR          Interactive voice response

## Acronyms and abbreviations

| | |
|---|---|
| KYC | Know Your Customer |
| e-KYC | Electronic - Know Your Customer |
| LMS | Loan management system |
| MFS | Mobile financial services |
| MIS | Management information system |
| MFI | Microfinance institution |
| MNO | Mobile network operator |
| MRA | Microcredit Regulatory Authority |
| NACH | National Automated Clearing House |
| NID | National Identity Card |
| NLP | Natural language processing |
| PAR | Portfolio at Risk |
| RIC | Resource Integration Centre |
| RLOS | Remote loan origination system |
| RRF | Rural Reconstruction Foundation |
| SRS | Software requirement specification |
| SaaS | Software as a Service |
| TAT | Turnaround time |

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Photo: BRAC / Pronob Ghosh

# Executive Summary

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# Executive summary

The microfinance sector in Bangladesh has seen unprecedented growth over recent decades. With time, however, microfinance institutions have had to grapple with challenges that have affected their growth. Internal challenges include high dropout rates among clients, increasing operational expenses, cash management and cybersecurity, among others. External challenges include over-indebtedness among clients, MFI's lack of access to Bangladesh's National Identity Card (NID) database, and lack of credit bureau for MFIs, among others. Further, restrictive regulations pose a challenge to the sector's entry into the payment and remittance systems.

Adding to these challenges, the financial services sector is changing rapidly. The entry of FinTech firms in Bangladesh and the government's aim to build an inclusive digital financial ecosystem have made it imperative for the microfinance sector in Bangladesh to move towards digital transformation. In this report, we elaborate on the status of digitization in the microfinance sector in Bangladesh and explore technology options and next steps towards digital transformation.

**Chapter 1** provides background on MFIs in Bangladesh, including regulations, initiatives and digital infrastructure.

**Chapter 2** describes the current status of digitization in microfinance institutions. Key findings are as follows:

- A majority of MFIs have migrated to web-based, real-time loan management system (LMS) and a centralized database. This provides a foundation for automation of MFIs.
- All MFIs surveyed for this study have financial accounting software and it is integrated with the loan management system.
- Most of the large and mid-sized MFIs have automated some human resources functions. Small MFIs are yet to integrate these technologies at the back-end.
- A few of the surveyed MFIs (large and mid-sized) have been piloting digital field applications (DFA).

- MFIs such as BRAC, Shakti Foundation and Sajida Foundation have rolled out pilot tests for cashless loan disbursements.
- Some of the large and mid-sized MFIs have initiated discussions with their technology service providers for DFA solutions, while other MFIs have shown willingness to implement DFA. Small-sized MFIs, however, are not yet looking to utilize DFAs in their operations.
- As for other options in the digital application spectrum, few MFIs have ventured into advanced technology integration. Only a few of the MFIs surveyed have rolled out pilot tests for cashless loan repayments (Sajida Foundation) and savings collection (BRAC) through mobile wallets.
- Most of the MFIs surveyed lacked awareness and willingness to explore emerging technologies such as digital credit and artificial intelligence enabled tools.

**Chapter 3** presents internal and external challenges faced by the microfinance sector in Bangladesh and the need for digital transformation. Any future digital strategy must focus on countering these challenges and preparing for external variables. This report focuses on various options of digital transformation as a way forward.

**Chapter 4** identifies key pillars for digital transformation including digitizing processes, digitizing product and business models, digitizing channels and digitizing customer engagement. Digital transformation must aim to solve the internal and external challenges faced by the microfinance sector. The impact can be measured in tangible reductions and increased profits.

**Chapter 5** features future digital options for microfinance institutions to explore. Depending on their preparedness and willingness, the MFI can choose any or some of the digital options as per their digitalstrategy.

| Basic | | | | | Advanced |
|---|---|---|---|---|---|
| Loan management system central database | Financial accounting & HRIS | Digital field application | Cashless disbursements and repayments | Digital credit | Artificial intelligence enabled tools, CBS |

**Future digital options:**

1. Digital field application
2. Cashless disbursement
3. Cashless repayment
4. Database management
5. Core banking solution
6. Digital credit
7. Artificial intelligence enabled tools: chat-bots, credit risk assessment models, and robo advisors for financial advisory

This section elaborates in specific detail what these technologies entail, challenges that the MFI may encounter in their adoption, cost implications, and global use-cases for the solutions.

Implementation of digital solutions needs to be done through a well-thought-out exercise. MFAs face some common challenges in this context:

1. **Lack of IT capability in-house:** Advanced digital solutions require deep technical know-how. Due to a lack of in-house expertise, firms may have to look for technology partners to envision, design and implement such solutions.

2. **Balancing high touch and low touch:** Microfinance traditionally is a high-touch business, with constant client interactions. Digital interfaces offer low-touch solutions, which minimize the cost and increase efficiency. Often, the trade-off is in losing the human touch and thereby distancing customers. MFIs must be mindful to strike a balance between digital and human interactions.

3. **Regulatory challenges:** Digital payment systems and digital credit are often governed by country-specific regulations. For every digital solution, regulations must be clearly understood and interpreted and planned.

4. **Transition:** Digital transformation will ensure a lot of change in the organization's systems and processes and also in the organizational structure. Even the most able technologies may fail if they are not integrated properly with the organization's core values, structure and human capital. An effective digital transformation strategy thus becomes critical.

**Chapter 6** concludes the report. Here we put forward regulatory challenges that restrict microfinance institutions to streamline digital solutions and align operations for the digital financial ecosystem. The section also covers policy-level recommendations and responsible institutions that need to take charge of the action. Only with an enabling regulatory system can a digital financial inclusion ecosystem operate and thrive.

# Chapter 1

## Background

- Objectives and methodology
- Key DFS regulatory highlights impacting MFIs
- Initiatives taken by the Government and Bangladesh Bank
- Digital infrastructure in Bangladesh

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# Background—Need for the study

Interventions since the late 1970s by the microfinance sector in Bangladesh have had a positive influence on the low-income segment of the population. By FY 2016-17, MFIs operating as non-governmental organizations (NGOs) had an outreach of 39 million clients and 32 million outstanding borrowers. Currently, however, MFIs are facing internal and external challenges. Competition from other financial institutions including commercial banks, mobile financial service providers and financial technologies (FinTechs) has intensified in the low-income segment market, making the situation more difficult for MFIs. This is an opportune time for MFIs to upgrade their systems and processes in order to stay competitive in the market.

## MFIs have been facing challenges to their growth

- When MFIs increase their outreach, they face challenges in ensuring efficiency in microfinance processes, achieving a high level of internal control and providing better customer service. As a result, many MFIs in Bangladesh are not able to offer need-based products to customers. Also, they face challenges in risk management functions and optimizing staff costs. The MRA statistical publication (2015, 2016) also suggests that growth in terms of the number of borrowers of MFIs stagnated from 2012 to 2014.

- Demand from customers for loans has been growing. Loan disbursement in 2014 stood at BDT 647.21 billion (US$ 7.67 billion) while in 2017 it was BDT 1207.53 billion* (US$ 14.31 billion), thus showing a compound annual growth rate (CAGR) of 23.11%. Assuming the same CAGR for future growth, the projected loan disbursement in the next three successive years would be BDT 1486 billion (US$ 17.61 billion), BDT 1830 billion (US$ 21.68 billion) and BDT 2253 billion (US$ 26.70 billion).

- MFIs lack a robust information technology (IT) infrastructure. This limits their ability to offer various products and services to financially excluded segments in the remote parts of the country.

*Source: Bangladesh Microfinance Statistics, CDF, 2016-17

### Outreach trend



Loan Disbursement (Tk. Billion) — Total borrowers (Million)

Source: MRA statistical publication 2015, 2016

## Future competition from other players in the market

- Agent banking and mobile financial services (MFS) enable banks to offer small-ticket-size products and services with a high degree of cost efficiency even in remote locations. Banks can invest in high-end technology for transactions, and the partnership with mobile operators increases the possibility of technology integration in financial services. Thus, banks will compete intensively with MFIs for the same set of customers. Due to their better image in the market, banks can wean away customers from MFIs.

- Providers of mobile financial services such as bKash, Rocket and SureCash are targeting customers through innovative financial products and services. They are also active in making partnerships with other financial institutions, including banks, to provide financial products such as savings and loan product to customers.

## Lack of innovation by MFIs

- Most MFIs in Bangladesh are not innovating sufficiently. They are still conducting business using traditional approaches and methodologies. This can hinder efforts to move from the current level to the next level of horizontal and vertical expansion.

- In Kenya, digital credit lenders have begun to displace microfinance (i.e. good borrowers taken over by digital credit lenders). There is also severe impact on the microfinance portfolio, as a result of credit juggling. Digital credit providers will eventually cream off the high value customers leaving the lower value, less profitable customers in more rural locations with the MFIs.

- The strategic issues for MFIs are to a) safeguard their gains and b) carefully and strategically build their path towards the next stage.

## What do MFIs need to do next?

- MFIs have a huge advantage over other players in that they have customer data, innate customer awareness and local understanding. Over time, however, they have become complacent in moving ahead. In a changing landscape and context, they need to re-invent to remain competitive and to serve their client base better. Improved IT infrastructure will help MFIs to improve their efficiency in terms of microfinance operations and manage vast human resources and other support functions.

- Institutions cannot work in isolation in the financial sector. Collaboration and competition happen at the same time, and are inevitable. In the area of IT, for example, to reap deep dividends in the future, MFIs have to plan now, as it takes time to understand the technology and onboard it in a systematic way. Institutions with advanced technology have internal readiness for technology integration with other partners in the market. This would enable MFIs to serve their customers better.

- Global experience suggests that MFIs have benefitted as a result of digital transformation.

## What does this study aim to achieve?

This study aims to:

- Explore the various possibilities and scopes of digital transformation for MFIs in Bangladesh.

- Highlight the opportunities andchallenges for MFIs undertaking digital transformation including investment requirements, benefits, preparation, and their willingness to adopt digitization to enable them to more effectively meet the financial needs of low-income people, business owners, women and micro-merchants.

- Generate recommendations for MFIs on the digital transformation approach.

# Key research objectives

**1**
Understand the current status of digitization of MFIs in Bangladesh

**2**
Identify the challenges that MFIs face

**3**
Identify possible future digitaltransformation options for MFIs:

- Key benefits and business opportunities for MFIs that adopt the respective digital option
- Key constraints in adopting the digital option
- Approach of the MFIs in adopting the digital option
- Willingness and preparedness of MFIs
- Costing or pricing of digital options

**4**
Identify the key regulatory gaps and policy recommendations for policymakers to drive digital transformation of MFIs

# A mixed-methods approach formed the basis of the research

## Research Tools

| | Quantitative Survey | In-depth Interviews | Focus Group Discussions |
|---|---|---|---|
| Microfinance Institutions | 7* | 9** | |
| Technology Service Providers | | 3 | |
| Customers | | | 30 customers |

Tool used for respective stakeholder
Tool not used for respective stakeholder

### We also bring out global experiences in digital transformation:
- MFIs from India and Kenya
- Independent digital transformation and FinTech consultants

## Sample Profiling

### Classification of Surveyed MFIs



- 31% Top 10 MFIs
- 31% Top 11-25 MFIs
- 38% Others

### Portfolio Distribution



- 72% Top 10 MFIs
- 9% Top 11-25 MFIs
- 19% Others

*7 MFIs – BURO, BEES, Rural Reconstruction Foundation, Sajida Foundation, Samakal Samaj Unnayan Sangstha, Daridra Bimochon Shangstha (DBS), GUK

** 9 MFIs - ASA, BRAC, TMSS, Shakti Foundation for Disadvantaged Women, RIC, MSS, GUP, AUP, Ambala Foundation

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**In-depth interviews included nine MFIs of Bangladesh.**

- Top 10 MFIs —ASA, BRAC, TMSS, Shakti Foundation for Disadvantaged Women
- Top 11 to Top 25 MFIs — RIC, MSS
- Rest of MFIs — GUP,AUP,Ambala Foundation

Research involved a cross-representative selection of MFIs to ensure that MFIs represent the microfinance sector in Bangladesh.

**In-depth interviews included two Indian MFIs and international consultants.**

- One large MFI — Sonata Finance Private Limited
- One mid-size MFI — Margdarshak Financial Services Limited
- Kenyan Microfinance Consultant
- Indian FinTech Consultant

**The quantitative survey included seven MFIs of Bangladesh.**

- Top 10 MFIs — BURO
- Top 11 to Top 25 MFIs — BEES, Rural Reconstruction Foundation, Sajida Foundation
- Rest of MFIs — Samakal Samaj Unnayan Sangstha, Daridra Bimochon Shangstha (DBS), GUK

**Focus group discussions were conducted with clients of two MFIs.**

- BRAC
- Shakti Foundation

*Source: Bangladesh Microfinance Statistics, CDF, 2016-17

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# Key regulatory highlights for MFIs

**Mobile financial services regulations with regard to MFI:**
- According to MFS regulations of 2018, NGO-MFIs are eligible for engagement as distributors, super agents and retail agents and field-level service delivery agents of MFS providers. This allows them to operate in any geographical location in Bangladesh.
- MFS providers can act as agents of NGO-MFIs to disburse microfinance loans and accept repayments..
- MFIs can partner with banks to set up an MFS entity with at least 51% of the share held by the bank.
- The cash withdrawal limit from mobile account is low. According to MFS regulations as of 2018, "for any cash in transaction in a certain a/c, not more than BDT 5,000 can be withdrawn from that a/c within next 24 hours."

**MFIs are not a part of the payment system.**
- MFI clients cannot send or receive money to/from their relatives or other persons having savings accounts in banks and other financial institutions.

**The MRA does not have IT policy or guideline forMFIs.**
- Microcredit Regulatory Authority (MRA) regulations are silent on guidelines related to technology such as type of technology, data protection, cybersecurity, disaster recovery plan, etc. that would be maintained by MFIs.

**MFIs can offer range of loan and savings products.**

- MFIs can provide loan products such as group loans and microenterprise loans for various purposes. However, the size of the microenterprise loan can not be greater than half the size of total loan portfolio at any given time.

- MFIs can offer savings products such as compulsory deposit, voluntary deposit and term deposit. The total deposit balance of MFI can not exceed 80% of the principal loan outstanding at any given time.

**Agent banking:**
- MFIs can become Master Agent of the bank and offer agent banking services to customers.
- As Master Agents, MFIs can open bank accounts and will be responsible for all works done by their authorised representative(s).
- Agent outlets of MFIs will ensure appropriate banking services to their customers.

# Initiatives of the Government of Bangladesh and Bangladesh Bank have helped enhance the digital infrastructure of the country

| Digital FinancialServices (DFS) Lab | SmartNational Identity | Mobile financial services | Agent banking | Payment system |
|---|---|---|---|---|
| • DFS is a joint initiative of Bangladesh Bank and the a2i programme of the Prime Minister's Office, Bangladesh.<br><br>• It aims to play a catalyticrole in the development of low-cost, interoperable digital payment systems, particularly in underserved rural areas.<br><br>• It fosters innovation a range of pro-poor financial products and services. | • The Government of Bangla-desh, along with the Election Commission, has been working towards scaling up the outreach of Smart National ID cards (NID) in Bangladesh. Bangladesh Bank plans to utilize the NID to identify individual and update all types of account opening requirements.<br><br>• Financial institutions can benefit from using the NID, as this will support them to verify individual identity while performing financial transactions.<br><br>• The Election Commission target is to distribute 90 million NID cards by December 2018. | • According to Bangla-desh Bank (Annual Report 2016– 17), new financial instruments based on information and communication technology (mobile banking) have changed the landscape of financial services.<br><br>• MFS has generated opportunities for the poorto access these services in both rural and urban areas. | • Bangladesh Bank drafted prudential guidelines on agent banking in 2017 to increase access to the unbanked and under-served population.<br><br>• 17 banks have received approval for agent banking services. The number of bank agent outlets as of March 2018, 2017 was 5,791 catering to a client base of 2.02 million. The total balance of these accounts was $322 million in March 2018. | • Bangladesh Bank has established payment systems with a long-term strategy. The bank's Payment Systems Depart-ment (PSD) has been working for the develop-ment of country's payment systems since 2006.<br><br>• Bangladesh Bank has introduced electronic funds transfer, real-time gross settlement, mobile financial services, e-commerce, m-commerce, national payment switch, and a legal and regulatory framework. |

# Bangladesh digital infrastructure at a glance

## Mobile phone penetration

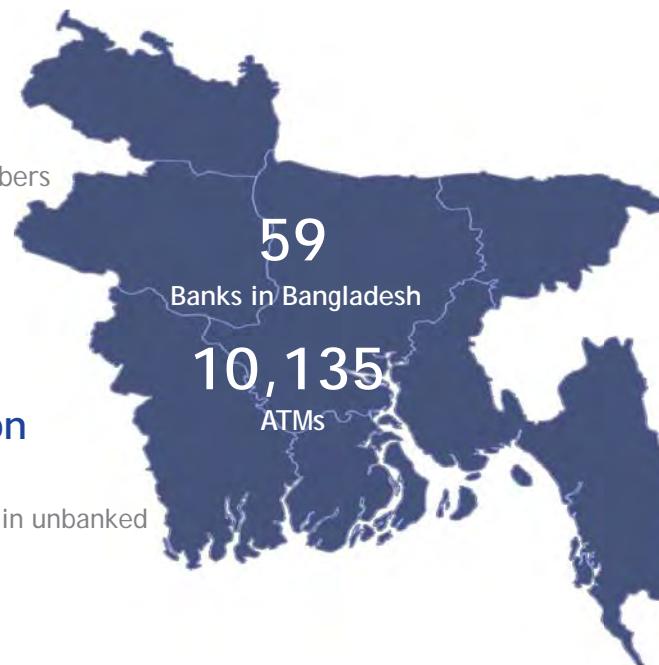**87%** Total SIM connections

**51%** Unique mobilesubscribers

**21%** Unique mobile internetsubscribers

## Status of financial inclusion

**50%** Adults (aged over 15 years) remain unbanked

**30%** Gender gap in account ownership

**59**
Banks in Bangladesh

**10,135**
ATMs

## Status of MFS

**18** banks permitted to offer MFS

**66.74 million** registered clients

**862,103** agents operational

**31.45 million** live accounts

**6,865,612** average daily MFS transactions
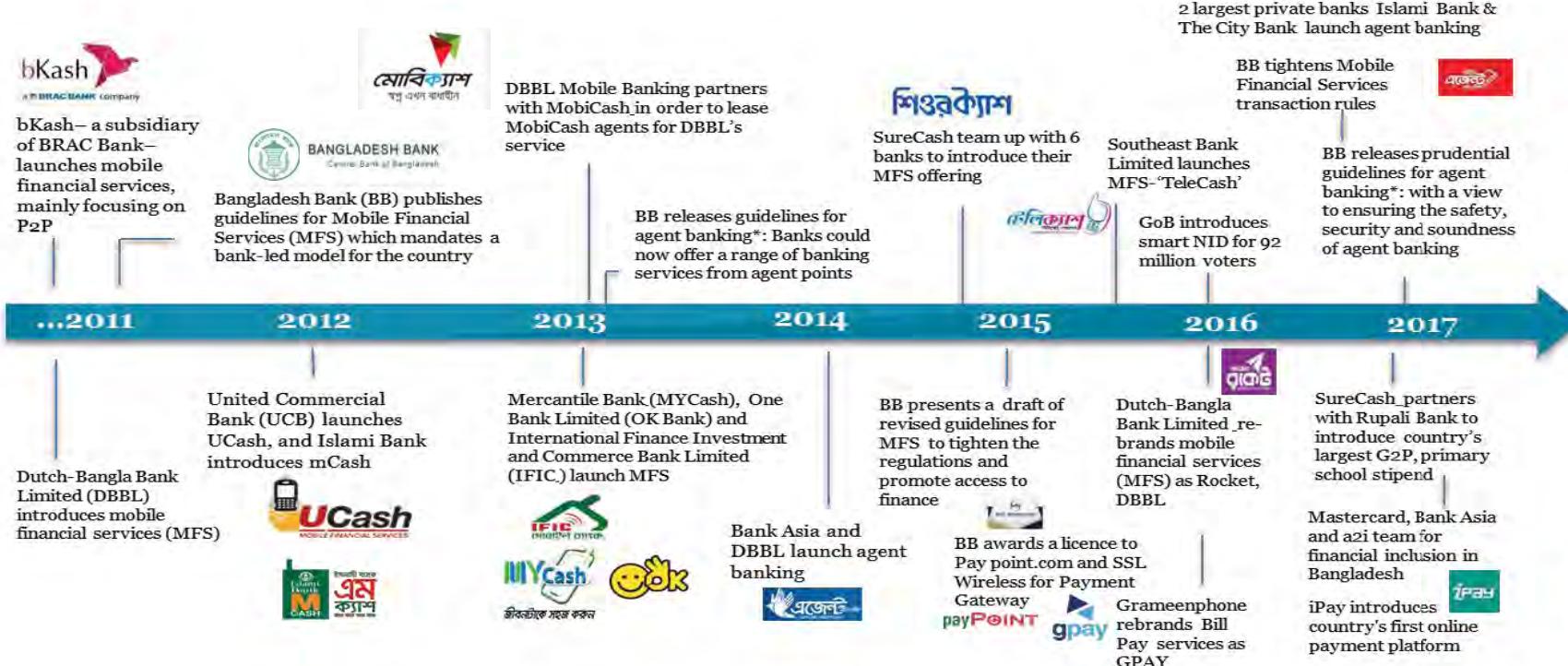
## Status of agentbanking

**17** banks with agent banking services

**5,791** agents operational

**2.02 million** active accounts

Sources: Findex 2017, Bangladesh Bank, Intermedia, GSMA

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# Digital financial services ecosystem is emerging in Bangladesh



**bKash** — a subsidiary of BRAC Bank— launches mobile financial services, mainly focusing on P2P

**Bangladesh Bank (BB)** publishes guidelines for Mobile Financial Services (MFS) which mandates a bank-led model for the country

**DBBL Mobile Banking** partners with MobiCash in order to lease MobiCash agents for DBBL's service

**BB releases guidelines** for agent banking*: Banks could now offer a range of banking services from agent points

**SureCash team up** with 6 banks to introduce their MFS offering

**Southeast Bank Limited** launches MFS-'TeleCash'

**GoB introduces** smart NID for 92 million voters

**2 largest private banks** Islami Bank & The City Bank launch agent banking

**BB tightens Mobile** Financial Services transaction rules

**BB releases prudential** guidelines for agent banking*: with a view to ensuring the safety, security and soundness of agent banking

...2011 — 2012 — 2013 — 2014 — 2015 — 2016 — 2017

**Dutch-Bangla Bank Limited (DBBL)** introduces mobile financial services (MFS)

**United Commercial Bank (UCB)** launches UCash, and Islami Bank introduces mCash

**Mercantile Bank (MYCash)**, One Bank Limited (OK Bank) and International Finance Investment and Commerce Bank Limited (IFIC.) launch MFS

**Bank Asia and DBBL** launch agent banking

**BB presents a draft** of revised guidelines for MFS to tighten the regulations and promote access to finance

**BB awards a licence** to Pay point.com and SSL Wireless for Payment Gateway

**Grameenphone** rebrands Bill Pay services as GPAY

**Dutch-Bangla Bank Limited** re-brands mobile financial services (MFS) as Rocket, DBBL

**SureCash partners** with Rupali Bank to introduce country's largest G2P, primary school stipend

**Mastercard, Bank Asia** and a2i team for financial inclusion in Bangladesh

**iPay introduces** country's first online payment platform

Note: Bangladesh Bank has issued regulations titled "Bangladesh Mobile Financial Services (MFS) Regulations, 2018". The new regulations will replace the previously issued "Guidelines on Mobile Financial Services for the Banks".

Chapter 2

# Current state of digitization and willingness to transform in MFIs in Bangladesh

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# The majority of the surveyed MFIs have migrated to a web-based real-time loan management system (LMS) and centralized database

## 75%
of the surveyed MFIs are using a real-time, web-based loan management system with a centralized database

- Almost all the surveyed MFIs, except a few large ones (ASA, BRAC, Sajida Foundation), are using a web-based and real-time loan management system with a centralized database. BRAC and ASA aim to achieve 100% migration of their branches to a centralized database by June 2019.

- Loan management system solutions used by most MFIs have an MIS dashboard. The MIS is able to automatically pull data from other applications, such as the financial information system and human resource information system. However, the MIS does not generate a graphical dashboard* in approximately 50% of the surveyed MFIs.

## 81%
of the surveyed MFIs are using a loan management system provided by a third-party service provider

- The LMS solutions used by most MFIs are those developed by third-party service providers such as Datasoft, Grameen Communications and Benchmark. However, some of the large MFIs such as ASA and Shakti Foundation have developed in-house LMS due to the following reasons:
  - MFI is able to obtain desired changes in the software in a cost-effective manner.
  - MFI plans to sell its software to other mid-size and small MFIs.
- Most of the large and mid-size MFIs showed reluctance to keep their data on the cloud on servers external to the organization. Yet they do not have adequate systems in place for data backup, data security and disaster recovery. MFIs whose management teams have exposure and awareness about the benefits of cloud backup solutions have initiated discussions with the solution providers in this regard.

Note: *A graphical dashboard helps management to understand and analyse the issues through data visualizationand therefore helps them make faster decisions.

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# Only a few of the surveyed MFIs have started implementing digital field application (DFA) for loan origination and collection

## 18%
of the surveyed MFIs have been implementing DFA



- At present, most MFIs have not deployed a DFA solution.

- Only 3 of the 16 surveyed MFIs (BRAC, Rural Reconstruction Foundation and Sajida Foundation) have rolled out pilot tests to use DFA for loan origination in some of their branches.

- BRAC has implemented the DFA module for loan repayment across most of its branches. Sajida Foundation also plans to merge its financial advisory app with the loan origination app to provide their field officers with a single tool to manage both credit and saving products.

- Nearly all surveyed MFIs showed a willingness to implement DFA for client registration, loan application processing and collections — with the exception of a few smaller institutions. Some MFIs have already initiated discussions with technology service providers for DFA solutions.

- Senior management of most of the small-sized MFIs lack awareness and understanding of DFA and have no future plans or strategy to move.

- MFIs who have rolled out pilot tests have opted for both offline and online functionality in their DFA.

> "The cost of implementing DFA is high. The cost of hardware such as a mobile phone or tablet will be too high for us. Purchasing it for all the frontline field staff members will be a huge cost for MFIs." *--Senior management of a large MFI*

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# A few MFIs have rolled out pilot tests for cashless loan disbursements and repayments, and savings collection

Only **19%**
surveyed MFIs are doing a pilot test on cashless loan disbursement

Only **19%**
surveyed MFIs are doing a pilot test on cashless loan repayment

**Cashless loan disbursement:**
MFIs such as Sajida Foundation and Shakti Foundation have rolled out pilot tests for cashless loan disbursements in two ways:
- **Mobile wallet:** Disbursement of the loan amount in mobile wallets of customers such as bKash or Rocket.
- **Bank account:** Partnership with a commercial bank such as Bank Asia to register MFI branches as agent banking outlets. Loans are disbursed directly into the bank account of clients.

Cashless disbursement* in mobile wallets suffered a setback after Bangladesh Bank issued guidelines on daily and monthly transaction limits. For a customer making several visits to a mobile banking agent or ATM to cash-out her loan from mobile wallet, this contributed to a poor customer experience.

**Cashless loan repayment:**
Only a few surveyed MFIs such as BRAC, BURO and Sajida Foundation have rolled out pilot tests for cashless loan repayments through mobile wallets in some of their branches

**Savings:**
BRAC and Sajida Foundation have rolled out pilot tests for savings collection through mobile wallets in some of their branches.

* Note:Shakti Foundation introduced cashless disbursement in the mobile wallet.

# Other technology initiatives undertaken by MFIs

**100%**
surveyed MFIs have financial accounting software

**81%**
surveyed MFIs have HRIS software

**38%**
surveyed MFIs have other applications, such as inventory management and asset management

- All the surveyed MFIs have financial accounting software and it is integrated with the loan management system.

- Most of the large and mid-sized MFIs have HRIS software that contains payroll, leave management, recruitment and performance management. For the most part, small-sized MFIs have not automated their HR system and do not have HRIS.

- Some of the large and mid-sized MFIs use asset management and/or inventory management to manage their vast operations. Small MFIs do not have such applications.

- MFIs such as Bangladesh Extension Education Services (BEES), Rural Shakti Foundation send Reconstruction Foundation, Sajida Foundation and transaction-related SMS to clients (pilot stage).

**Some of the large and mid-level MFIs are developing or planning to integrate all applications such as FAS, HRIS and inventory management with LMS through a single sign-on facility.**

Note:*Shakti Foundation introduced cashless disbursement in the mobile wallet

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# MFIs are on a digital journey, and are yet to explore emerging technologies, such as artificial intelligence-enabled tools and blockchain
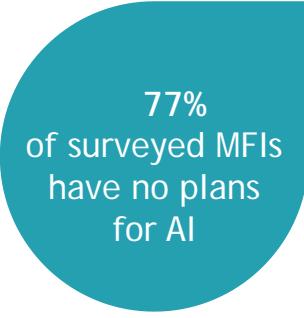
**30%** of surveyed MFIs showed interest in exploring digital credit in future

- Most MFIs lack awareness of the concept of digital credit. They doubt the relevance of digital credit due to low literacy levels of clients.

- Some MFIs understand the potential of digital credit as a unique loan product to target unreached customers for micro-credit and micro-enterprises. MFIs such as BRAC have explored alternate lending to target new customer segments. These models are currently being piloted in collaboration with FinTech or mobile financial service providers.

### Alternate lending model: an example from BRAC

BRAC is conducting a pilot test on an alternate lending model. It is in a nascent stage at present. The MFI is targeting customer segments that have requirements for micro credit. However, they cannot be served efficiently through traditional models. BRAC has joined with a start-up that provides business development support to entrepreneurs to sell their products on Facebook. BRAC provides digital credit to these entrepreneurs through the technology platform supported by the start-up company. The loans are sanctioned automatically using the algorithm developed by the start-up and disbursed digitally in the bKash wallets of these entrepreneurs. BRAC receives repayment through the start-up from the sale proceeds of these borrowers. BRAC's management feels that digital credit is a powerful tool to come up with new product lines to serve customer segments excluded from the traditional microfinance model.

" If we ask customers to apply for loans through mobile apps or SMS, customers will tell us why are we harassing them." —Senior Manager, TMSS

**77%**
**of surveyed MFIs have no plans for AI**

- Most MFIs do not have plans in the near future to explore emerging technologies such as artificial intelligence enabled tools like credit-scoring, chat bots, robo-advisors and Blockchain.

- Only a few large-scale MFIs (BRAC and Sajida Foundation) have been exploring usage of data analytics and big data to develop credit-scoring and financial advisory models.

- Most of the surveyed MFIs either consider blockchain not relevant to the microfinance sector or believe that it is too early to explore it, as they are unable to find a use-case in Bangladesh. Most MFIs are not aware of the concept, functionality and use of blockchain.

- Discussion with technology service providers revealed that they do not have experience of working on blockchain technology as it is a recent innovation. Moreover, the absence of a regulatory framework for use of blockchain technology by financial institutions contributes to the "wait and watch" stance of the MFIs.

- MFIs need to keep up with innovations such as blockchain and artificial intelligence, or else they will have to catch up.

"As of date, there is no use-case for blockchain for bank and MFIs. Therefore, do not see any takers for blockchain technology in Bangladesh in the near future." — CEO, Data Edge

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Chapter 3

# Current Challenges Faced by MFIs

This chapter highlights the common challenges faced by MFIsin Bangladesh. Chapter 4 explores how various digital options can help MFIs overcome their internal and external challenges and remain relevant infuture.

# MFIs face several operational challenges that lead to inefficiencies and high costs.

## Centre meeting has become collection meeting

- Usually, centre meetings* take an hour or two to complete. These meetings have changed over time, and are now merely collection meetings as members repay their loan installment and immediately walk away. There is little if any discussion among members on relevant issues. Attendance is also low during the centre meetings. It can be inferred that members do not see much value in attending centre meeting apart from making loan repayment and applying for the next loan.

- * Borrowers are organized into small groups, with several groups per centre

## Cash management poses a challenge

- Cash management is a human-intensive activity in microfinance programmes. Operations ranging from disbursements to repayment collections are conducted in physical cash. This results in low productivity, leakages, fraud and other operational risks. There is also a huge risk to the lives of staff members who manage cash in bulk quantities, which makes them targets of armed robbery.

## Documentation level is high

- The majority of MFIs continue to capture client information through paper-based forms which are then fed into an MIS solution either at MFI branches or at a centralized data-entry hub.
- Clients have to submit a number of documents to apply for a loan, e.g. identity proof, address proof, photographs of self, spouse and guarantors. Business loans require proof of business, ownership of house or business premises, etc.
- High documentation requirements result in high turn-around-time for loan disbursement and also lead to high cost of stationery, storage and transportation that increase operational costs.

## Gaps in the existing technology

- Significant enhancement in the existing technology is needed for data encryption, version control, change management process, backup process and availability of disaster recovery site.

"One of the challenges with the in-house IT teams of the MFIs is that they start developing a software or application without a holistic understanding of benefits and challenges of the new system. " — General Manager, BRACMicrofinance

# Technology constraints further limit their growth

## Cybersecurity is low

- Most of the MFIs that maintain their own data centre do not have a disaster recovery centre. They usually maintain data backup at the data centre,which is located on the same premises. In case of disaster or any unforeseen situations, these MFIs run the risk of losing their entire database.

## High operational cost for MFI

- Historically, microfinance field operations have been human intensive, making it inefficient and prone to redundancies. This limits the MFIs' ability to scale-up and makes them vulnerable to sub-optimal service, risks and fraud.

## Gaps in the existing technology

- Significant enhancement in the existing technology is needed for data encryption, version control, change management process, backup process and availability of disaster recovery site.

# Regulatory limitations have impeded the digital transformation of MFIs

## Multiple borrowing and over indebtedness

- According to a study by Khalily and Faridi (2011), around 31% of individual MFI members reported multiple memberships in 2009. The trend of multiple memberships has been increasing over the years.

- Bangladesh does not have a credit bureau for MFIs, which has also aggravated risks of over- indebtedness.

## Lack of access to national identity database

- MFIs do not have access to the NID database to help them check the authenticity of clients information and reduce fraudulent activities.

- This often leads to a poor selection of members.

## Low cash withdrawal limit at the agent point (MFS)

- According to MFS regulations as of 2018, "for any cash in transaction in a certain a/c, not more than BDT 5,000 can be withdrawn from that a/c within next 24 hours."

- This limit poses a huge challenge for MFIs who plan to make use of MFS channel for loan disbursements, as many clients want to withdraw the loan amount on the same day.

- MFS loan repayment transaction charges are high. The customer has to pay transaction fee up to 2% of the transaction amount.

## MFIs are not a part of payment system

- MFI clients are not able to get full benefits of products offered by MFIs, as in savings products, for example, as MFIs cannot participate in payment systems of the country like banks do.

- FinTech could become a potential threat in future.
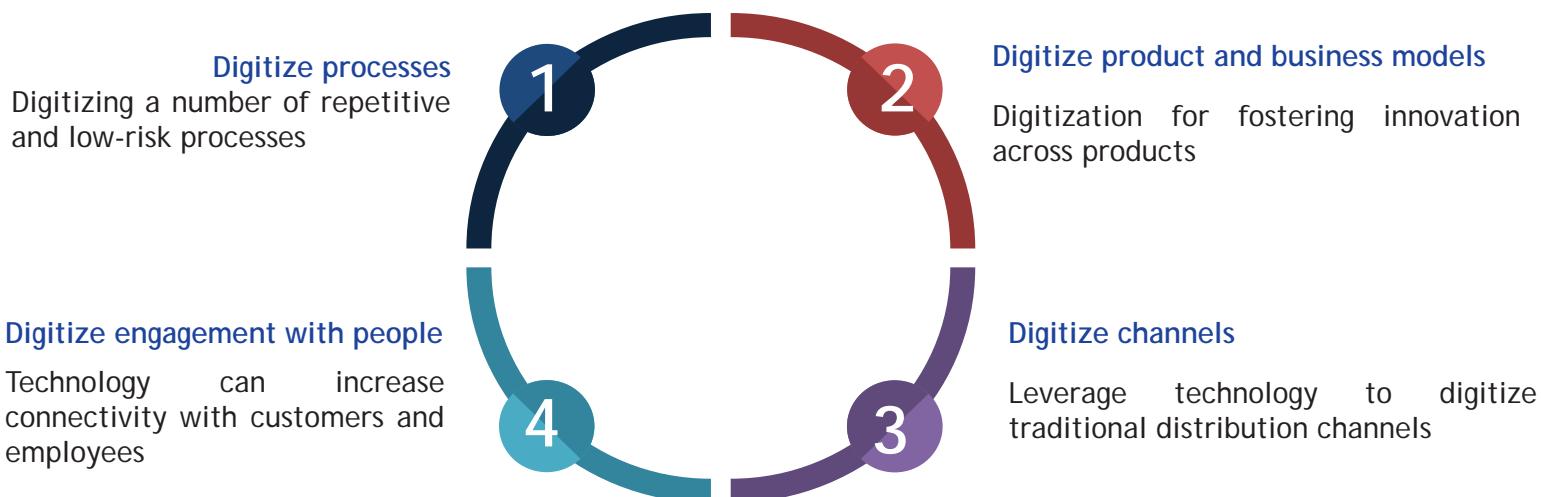
Photo: BRAC / Pronob Ghosh

Chapter 4

# Imperatives for Digital Transformation

# Digital transformation is essential for MFIs to remain competitive and better serve their clients

MFIs have an edge over new digital entrants in terms of stronger connection with customers, innate customer awareness and human touch. MFIs also have an advantage as they operate within a defined regulatory environment, which though fraught with limitations, has enabled their growth in the last several years. If they transform digitally, they have a high chance of retaining or even enhancing their market share and coping with their challenges. Digital transformation is no longer an option for the microfinance industry if they do not wish to become obsolete.

## MFIs can undertake digital transformation in four ways

**Digitize processes**
Digitizing a number of repetitive and low-risk processes

**1**

**2**

**Digitize product and business models**
Digitization for fostering innovation across products

**Digitize engagement with people**
Technology can increase connectivity with customers and employees

**4**

**3**

**Digitize channels**
Leverage technology to digitize traditional distribution channels

| Future digital option (suggested) | Pillar for digital transformation | Challenges it aims to solve |
|---|---|---|
| Digital field application | Customer engagement | Staff efficiency, turnaround time, operational expenses, documentation process, client turnover |
| • Cashless loan repayment<br>• Cashless loan disbursement<br>• Cloud database management | Process and channels | Cash management, operational expenses, staff fraud<br><br>Cybersecurity |
| • Digital credit<br><br>• Core banking system | Product and business model | Competition from FinTech, Operational expenses, new/unreached client segments<br><br>MFI clients are not able to get full benefits of savings product |
| Artifical intelligence | Process and customer engagement | Operational expenses, client turnover, credit underwriting through credit scoring model |

# Chapter 5
## Future Digital Options

Option 1—Digital Field Application

Option 2—Cashless Disbursement

Option 3—Cashless Repayment

Option 4—Outsourced Database Management

Option5— Core Banking Solutions

Option 6—Digital Credit

Option 7—Artificial Intelligence

Photo: BRAC / Pronob Ghosh

Chapter 5

# Option 1—Digital Field Application

# DFA overview

Digital field applications (DFAs) are designed to digitize the workflow. A DFA can be used to support activities such as savings mobilization, social impact measurement and insurance coverage, with their initial usage focused on credit offerings.
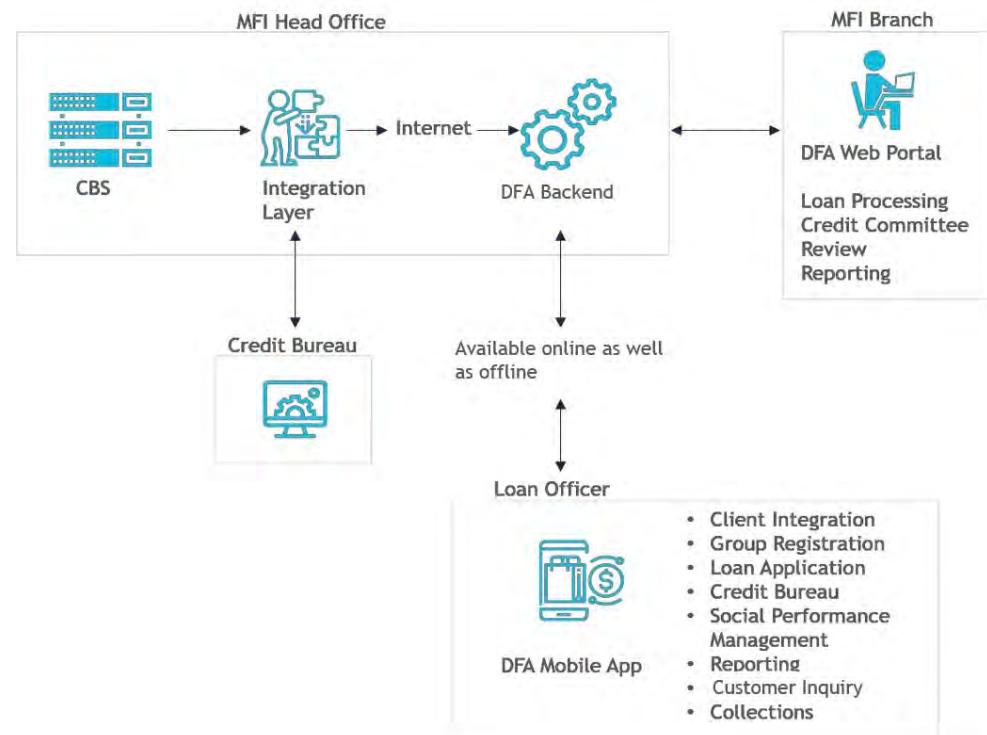
DFA solutions comprise:

(i)   A front-end data capturing application that runs on tablets and/or mobile phones;

(ii) Back-end database hosted on web-servers. The mobile application is usually built on the Android mobile operating system.

## DFA attributes

Use of front-end device (mobile/tablet)

Both offline/online modes

Operational/field processes digitized

Document capture and upload facility

Minimal use of paper

Real-time update with Head Office and Branch

Source: Digital Field Applications: Case Study – Channels & Technology, Accion, 2015

### DFA overview



MFI Head Office

CBS — Integration Layer — Internet — DFA Backend

Credit Bureau

Available online as well as offline

Loan Officer

DFA Mobile App

- Client Integration
- Group Registration
- Loan Application
- Credit Bureau
- Social Performance Management
- Reporting
- Customer Inquiry
- Collections

MFI Branch

DFA Web Portal

Loan Processing
Credit Committee
Review
Reporting

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- Loan officers, branch managers and other field staff use front-end applications for lead generation and loan application processing of prospective and existing clients.

- Several features in DFA are more effective if it is a real-time solution. As an additional feature, DFA also has offline data capture capability. This allows information to be captured with no/poor data service and MFIs to serve their customers hassle-free.

### DFA is widely used by MFIs in India

In India, with additional modules, the DFA back-end has also been used for:

- Electronic Know Your Customer (e-KYC) verification
- Credit bureaus to track the loan history of thecustomer

The additional modules are connected to an MFI's MIS through a digital integration layer (API integration). Similarly, if required, repayment details can also be captured using the DFAplatform.

A large number of MFIs (Cashpor, Margdarshak, Sambandh, Sonata Finance, etc.) in India have been using DFA.
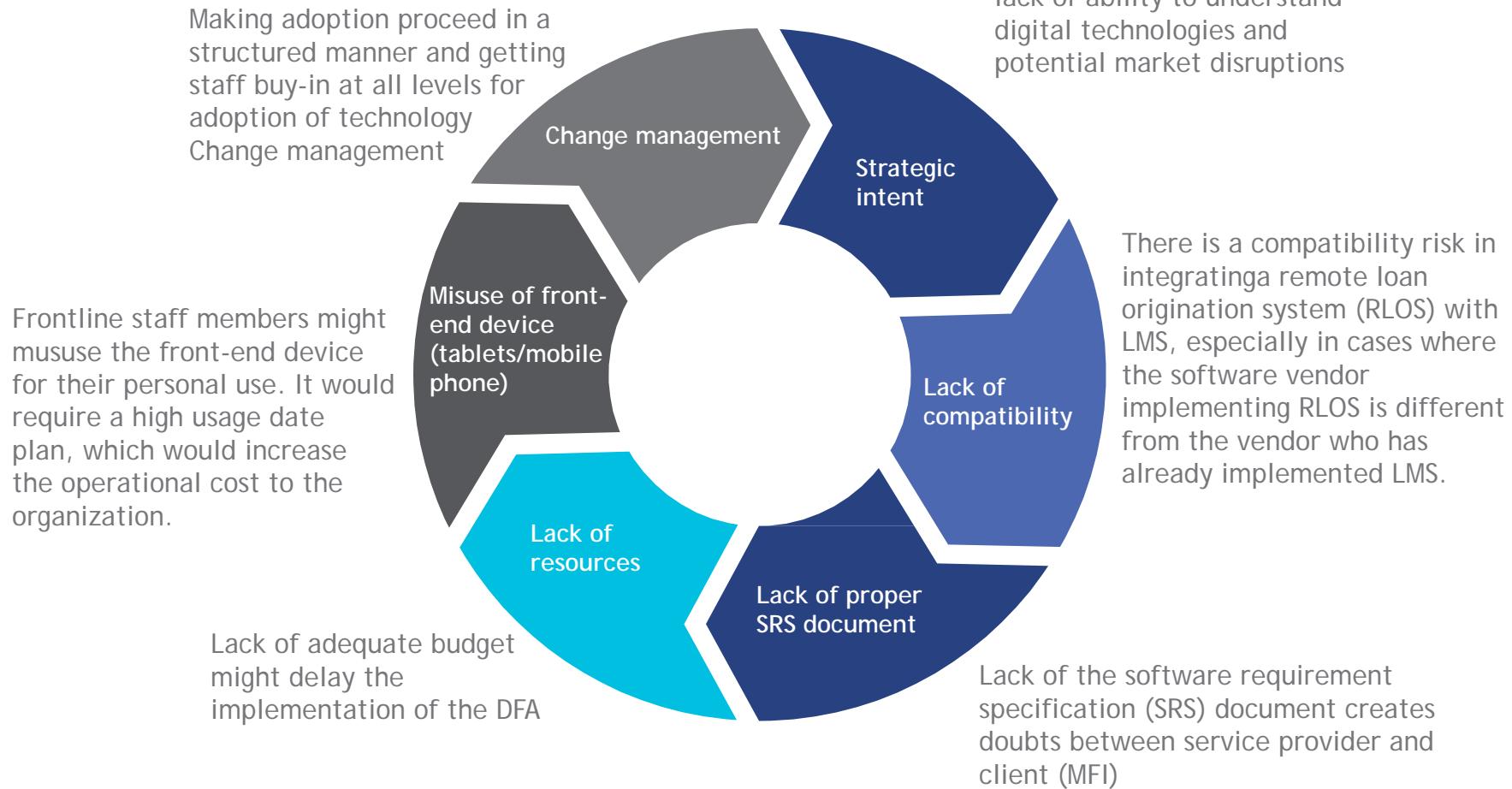
### Digitize operational or field processes



Loan officer generates lead and fills application form using DFA → Loan officer completes E-KYC → Credit Bureau check → Loan appraisal by officer through DFA → Loan processing and sanction → Loan disbursement

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# DFA—Benefits and business opportunity for MFIs

| MFI | | | Client |
|---|---|---|---|
| Cost savings | Efficiency improvement | Other benefits | |
| Reduction in data entry effort potentially leading to a reallocation of human resources | Reduced TAT | Digitization can lead to automated credit scorecard development as all client data available | Client photographs and ID copies not required with digitized KYC |
| Reduced data entry hardware - PC and scanning equipment | Caseload improvement | Improved enforcement of controls and policy (reduced fraud, portfolio at risk including regulatory compliance for KYC and credit bureau checks) | Reduced loan TAT and improved customer experience |
| Reduced stationery and file storage | Increased geographic coverage (loan officers can travel further due to decreased branch-visit requirements) | Options to use GPS data for both client and staff location monitoring | Faster loan approval and faster notification of loan rejection |
| Reduced transportation costs associated with multiple visits | Potential for automated decision with credit-scoring | Additional data and monitoring, i.e. social performance measurement collected at a lower cost | Fewer follow-up visits required to collect missing application documents |

| MFI | | |
|---|---|---|
| Cost savings | Efficiency improvement | Other benefits |
| Reduced need for multiple credit bureau look-ups | Credit bureau look-up in field reduces the time spent with potential borrowers who don't meet basic criteria | Support for loan officer training with tools that assist with credit analysis |
| | Stronger controls at the point of data-capture reduce the need for multiple visits to clients | Loan officers feel technologically savvy and show pride in their work. The DFA often improves their working conditions by requiring fewer visits to the branch and less paper to carry. |
| | | Reduce the risk of client data in physical forms loss due to natural calamities such as flood, earthquake

Reduced risk of ghost accounts |

# Risk involved in the adoption of DFA

A lack of strategic direction, lack of ability to understand digital technologies and potential market disruptions

Making adoption proceed in a structured manner and getting staff buy-in at all levels for adoption of technology Change management

Frontline staff members might mususe the front-end device for their personal use. It would require a high usage date plan, which would increase the operational cost to the organization.

There is a compatibility risk in integratinga remote loan origination system (RLOS) with LMS, especially in cases where the software vendor implementing RLOS is different from the vendor who has already implemented LMS.

**Change management**

**Strategic intent**

**Misuse of front-end device (tablets/mobile phone)**

**Lack of compatibility**

**Lack of resources**

**Lack of proper SRS document**

Lack of adequate budget might delay the implementation of the DFA

Lack of the software requirement specification (SRS) document creates doubts between service provider and client (MFI)

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# Risk mitigation to overcome risks in the adoption of DFA

Strategic objective and functional requirements of DFA should be identified in close consultation with management, field staff, credit experts and risk analysts.

MFI can conduct exposure visit or awareness workshop for MFIs to improve their understanding of digital technology options in the market.

Mobile device management solution can be deployed to prevent misuse of front-end device and internet data by the field staff.

Formal document and agreement needs to be developed with DFA solution provider specifying the detailed aspects related to integration before the development of solution. LMS solution provider should also be consulted for specifying the integration requirements.

Detailed estimates of capital and operational cost should be done before progressing with the development of the DFA solution.

Detailed SRS document should be developed and provided to the DFA vendor to ensure software meets both functional and strategic requirements.



Circular diagram segments: Change management, Strategic intent, Lack of compatibility, Lack of proper SRS document, Lack of resources, Misuse of front-end device (tablets/mobile phone)

# Suggested approach for MFIs' adoption of DFA

| Key activities | Details |
|---|---|
| Strategic analysis | The strategic objective of DFA should be identified by the management, field staff, credit experts and risk analysts. |
| Business process mapping | DFA should aim to improve the processes through the use of technology. The process mapping exercise can help management decide if the required efficiency gains justify the investment in DFA. |
| Create a data collection plan | Handover of data entry responsibility from branch accountant or manager to field staff needs to be carefully managed, making use of best practices of change management to get staff buy-in. |
| Establish project management protocols | Identify champions within the field staff and work closely with them from the pilot stage to rollout of the project. Appoint project managers who would coordinate within MFI and with the vendor as well as report progress to the senior management team. Establish protocols for project governance, change management and escalation. |
| Cater for poor connectivity | MFI should make a detailed analysis of the synchronization process in case it decides to work in both the modes, that is, offline and online mode. |

Source: Digital Field Applications: Case Study – Channels & Technology, Accion, 2015

| Key activities | Details |
| --- | --- |
| Plan integration with LMS | Integration with LMS should be analyzed, designed and tested in consultation with the software vendor that provided the LMS solution. |
| Data storage | Management needs to analyze where and how to store data. |
| Cybersecurity | Plan cybersecurity parameters in detail, such as the mobile device management module, application and integration layer. |
| Vendor selection | Give preference to the software provider who has a deep understanding of MFI operations. |
| Selection of front-end device | Test whether the field staff members are able to capture data efficiently with the front-end device. |
| Software testing | Test whether the DFA application is working seamlessly on the front-end device such as mobile or tablet. |

Note: MFIs having LMS and centralized database that are real-time and web-based can leverage the benefits of DFA to its full potential.

Source: Digital Field Applications: Case Study – Channels & Technology, Accion, 2015

# Software as a Service (SAAS) model (DFA)

| Implementation cost/set up | Operating system cost | Customization of software charges | Monthly recurring charges | Training cost | Support annual maintenance charge | Mobile device management (MDM) - Optional |
|---|---|---|---|---|---|---|
| BDT 250,000 (US$ 2,963) to BDT 750,000 (US$ 8,889) (negotiable) for a fixed number of client (branches/staff members. This needs to be paid to software vendor providing DFA solution. Beyond the base license, which covers a certain number of branches or staff members, software vendor charges a fixed cost for each incremental branch or user.<br><br>Open source (OS Linux/Java/MySQL) at no cost<br><br>Oracle & Microsoft SQL will have license costs. This needs to be paid to the data centre in case data is hosted on the Cloud.<br><br>Note: Set-up cost refers to the cost incurred by the vendor for installing or implementing the software application. | | BDT 12,000 to BDT 15,000 per person-day<br><br>**Hardware cost**<br><br>Cost of one smartphone/ tabletranges from BDT 7,000 to BDT 10,000 | Data centre hosting chargesfrom BDT 50,000 to BDT 125,000 per month for a fixed number of branches (base price) | BDT 18,000 to BDT 25,000 per day<br><br>Minimum 3 to 4 days of training | 12-18% of the annual payout of the monthly recurring charges | Around BDT 400,000 (US$ 4,740) to BDT 600,000 (US$ 7,111) for base number<br><br>Note: MDMrefers to software that controls the usage of mobile/tablet device by users |

Source: Market intelligence

# Case: What do clients and employees have to say about BRAC's tablet journey?

BRAC started developing and pilot testing an android-based loan collection software in 2014 and officially launched it in2017.



**Earlier process—manual data entry of collection**

Credit officer → Collection via sheet at VO → Manual entry in daily cash register at branch → Accounts officer → Manual entry in computer

**New process—Data entry in tablet**

Credit Officer → Collection via tablet at VO → Accounts officer → Sync tablet with the computer

**Key positive impact for the customers:**

- **Time savings:** The time required to update the collection data of 20-25 members was reduced from two hours to 35 minutes.
- **Instant update of data:** Clients can view details of total loan installment, outstanding loan amount and savings information instantly without traveling to a branch. This has also led to increased trust towards credit officers, as the customers can see their loan installment being credited in the tablet (menu in the tablet is also in Bangla).

**Key positive impact on the staff:**

- Reduction in workload: Credit officers simply scroll through a list of client names and input their installment amount; in the past, this required manual data entry for each client and manual calculation using a calculator. Branch accountants save 4-5 minutes per client because they no longer need to enter collection data from collection sheets; with the new software, data is automatically synced with branch accountants at the end of theday.
- Improved convenience: Branch managers use their tablet to access the data of all credit officers of their branch with a single click, and no longer need to carry several files during monitoringvisits.
- Efficient credit decision making: In case of repeat loan customers, credit officers have access to customers' previous loan and savings transactions history with a single click, which helps in calculating credit scores and advising loan amounts to customers.

Source: Focus Group Discussions with BRACcustomers
http://blog.brac.net/bracs-tablet-journey-revolutionizing-microfinance-operations-in-bangladesh/

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# Case: Ujjivan achieved an increase in productivity of loan officers*

| Country: | India |
|---|---|
| Regulatory status: | Credit-only microfinance |
| Target clients: | Individual lending |
| DFA provider: | Artoo |

| Total clients: | 2.2 million |
|---|---|
| Loan portfolio: | US $500 million |
| DFA launch: | May 2014 |

### Primary objective of DFA:

Reduce TAT for new loan and improve loan officer productivity

### Processes covered by DFA:

The solution was designed to act as a customer relationship management (CRM) tool helping Ujjivan manage all elements of their customer interactions in the field and throughout sales process.

- Client registration
- Loan application
- Business analysis
- Credit bureau integration
- Social performance
- Reporting
- Loan workflow

**Solution overview:** Android app paired with a web portal with both offline and online connectivity option

Source: https://artoo.com/case-study-impact-of-digital-field-applications
Digital Field Applications: Case Study – Channels & Technology, Accion

## Impact

- TAT declined from 21 to 10 days for 68% of loans, and 38% of clients received their loans within 7 days.

- Ujjivan benefited from a 134% increase in loan officer productivity, which the management largely attributed to the DFA solution. Decreased TAT allowed officers to serve more clients more efficiently. Caseload per loan officer increased from 144 pre-DFA to 337 post-DFA.

- The cost of the DFA solution provided by Artoo was $237,017 in year one; however, the increased revenues was $1,197,936 due to improvement in efficiency and productivity.

- Combining these costs and revenues, as a result of productivity improvements, Artoo's financial CRM solution generated a year-one ROI of $964,574 for Ujjivan.

\* Status of Ujjivan at the time of writing case study (September 2015)

# Case: A large MFI achieved a decline in TAT of loan disbursement

| Country: | India (Eastern part) | | Total clients: | 767,516 |
|---|---|---|---|---|
| Regulatory Status: | NBFC MFI | | Loan portfolio: | US$ 150 million |
| Target clients: | Group lending | | DFA type: | Android-based mobile DFA |

## This decline in turnaround time is primarily due to three factors:

- **Paperless process**: The client needs to show only the original documents to the field officer. The field officer captures the photograph of these documents and the client using his/her tablet. The client does not need to submit photocopies of documents and photographs.

- **Digitization of loan application form at the front end**: The field officer fills up the loan application form using a tablet. This means that the field officer no longer needs to digitize the loan application at the branch office.

- **Automation of credit bureau verification**: The field officer can check the credit history of the potential client online, and then processes the loans of only those clients whose credit history issatisfactory.

**Improved TAT(days):** *Comparison of loan disbursement TAT before and afterDFA implementation*

| | Proposal Date | CB Check Date | Appraisal Date | Office Order Date | Disbursement Date |
|---|---|---|---|---|---|
| Before Implementation | 1 | 5 | 7 | 11 | 15 |
| After implementation | 1 | 2 | 4 | 6 | 8 |

The DFA brought down their average TAT from 15 days to 8 days, for an improvement of approximately 40%.

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# Case: A large MFI increased staff productivity

| Country: | India ( EasternPart) | Total clients: | 767, 516 |
| RegulatoryStatus: | NBFC MFI | Loanportfolio: | US $150 million |
| Targetclients: | Group lending | DFAtype: | Android-based mobileDFA |

The research team for this study (MicroSave Consulting) analyzed the case-load of loan officers of five randomly selected branches of an Odisha-based MFI, using data provided by the management.
From February to September 2016 the average loan applications processed in a month increased by 15%, up from 38.64 clients per loan officer to 44.28 (average level).

A key benefit of DFA implementation is enhanced staff productivity, particularly of frontline field staff. DFA does this by:

- Reducing the two-step data entry process (data entry on the paper-based loan application form and then into MIS) to a single-step process;

- Reducing instances of repeat visits to follow-up on clients' incomplete KYC documents or information for processing their loan application;

- Enabling quicker access to client's data and credit history, which saves time for credit appraisal for both loan officers and management (Credit Committees);

- Improving staff efficiency helps enhance the case load of field staff and overall through-put of a branch.

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Photo: BRAC / Pronob Ghosh

# Chapter 5
# Option 2—Cashless Disbursement

# Product—Cashless loan disbursement

**Loan disbursement is done through a bank account or a mobile account to transform cash-dependent operations into cashless or cash-lite operations.**

MFI disburses the loan to customer bank account or agent banking account or mobile account.MFIs are facing huge challenges in disbursing loan to mobile account of the customer. Hence, the process described here is only for a bank account.

## Cashless attributes

Customer needs a bank account

MFI does a partnership with the bank

MFI needs to maintain an account with the bank

Client bank account get credited

Real-time transactional SMS to client

## Cashless loan disbursement (bank account) overview

Bank

2.a. Bank credits the savings account of customer maintained with the bank

2.b. Bank sends transactional SMS to customer

Can go to agent outlet

MFI customer

1. MFI uploads loan disbursement sheet on the bank portal

Customer can go to bank branch

3.Bank sends disbursement report to MFI

Customer can go To ATM

4. MFI uploads disbursement report on their MIS (manual/automated)

MIS

ATM

Bank branch

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# Cashless loan disbursement—Key benefits and business opportunity for MFI

| Customer | MFI |
|---|---|
| For customers, electronically depositing money into the bank account is safe. There is a risk to the life of the customer if they take the loan disbursement amount in cash. | MFI can reduce the risk of fraud committed by staff members. |
| Discussion with customers revealed that they can withdraw the money according to their needs. | MFI can reduce the risk of fraud committed by fake customers. |
| Depositing the money into the bank account of customers help them save money. | It improves the efficiency of frontline field staff members. Cash management is a hectic task for the branch staff members and reduces their efficiency. |
| Customers start using the digital channel. | The MFI improves its customer service by offering to pay the loan amount in the bank account. |

# Risk involved in adoption of cashless loan disbursement

Bank account penetration is low in Bangladesh (30%). It is a challenge for the MFIs to disburse the loan into bank account of all MFI customers.

Discussion with financial institutions revealed that instances of fake national ID card are common in the country. Customers who have forged their national ID card will not be able to open a bank account.

Customers face challenges in using digital channels due to the low literacy level in general and the low financial literacy in particular.

Partnerships may lead to grievances and doubts if the agreement between bank and MFI lacks clarity and detailing.

- Low bank account penetration
- Some MFI customers face challenges opening bank accounts
- Low financial literacy
- Partnership agreement with bank
- Lack of communication to customers
- Delay in crediting bank account

Customer have to follow up with MFI frontline field staff member to know whether the amount has been credited to their bankaccount. A lack of communication with the customer might lead to customer dissatisfaction.

Any delay in crediting the bank account of customers after loan disbursement process leads to customer dissatisfaction. Once the MFI updates a loan disbursement in its MIS, the system starts charging interest in spite of the fact that the bank has not credited the customer bank account.

# Risk mitigation to overcome risks in the adoption of cashless loan disbursement

The MFI can support its members in opening bank account.

The MFI can develop digital financial literacy programme for its members. The training Low financial programme can cover aspects literacy such as withdrawal of money from bank, ATM and agent point, and usage of mobile wallet.

The MFI may develop a system to send SMS notification to its members on their mobile devices.



- Low bank account penetration
- Some MFI customers face challenges opening bank accounts
- Partnership agreementwith bank
- Delay in crediting bank account
- Lack of communication to customers
- Low financial literacy

Access to the NID database may help MFIs overcome the cases of fake KYC documents produced by customers.

MFIs making any agreements with banks should draft the contract in detail to avoid any ambiguity.

The MFI can notify the members about the delay in credit due to any technical issues at the bank end. The MFI should also make necessary changes in its MIS to ensure that interest calculation starts from the day the loan is actually disbursed into a member's bank account.

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# MFI approach in adoption

## MFIs can partner with banks and adopt two approaches:

*Approach 1*: Support members to open a bankaccount.

The MFI can support its members in opening a bank account by establishing a partnership with the bank for agent banking services:
- The MFI can become the master agent for agent banking services of a commercial bank.
- The MFI can utilize the existing agent banking network and digital channels of the partner bank.

*Approach 2:* Disburse loan into the client's bank account.

- The MFI can engage in partnership with any commercial bank for doing loan disbursement in the bank account of members.

- Members are required to mention their bank account number in the loan application form. The MFI Head Office will mention the account number in the disbursement sheet and upload it on the portal provided by the bank.

> The MFI can support its members in opening a mobile account by engaging in partnership with mobile financial services providers; however, it will be difficult for MFIs to disburse loans in the mobile account of customers unless there is a policy change on the withdrawal limit.

**Note:** To upload the disbursement report on its MIS, the MFI should have a robust and flexible MIS. The MFI might be required to develop an additional module to upload the disbursement report on its MIS.

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# What clients say

**Members responded positively to the option of using an agent banking point.**

- Members liked the fact that there will be no charges levied to disburse loans at the agent banking point (home). (Note: Home agent point refers to the agent point where client opened their mobile account).

- Members liked that customer authentication requires a thumb impression and not PIN. They think that the thumb impression-based authentication is better and more secure than a PIN.

- They mentioned that no one can copy their thumb impression, unlike a PIN number.

**Agent banking penetration remains low.**

- Most of the members remain unaware of the agent banking point and services offered through it.

- As of August 31, 2017, the number of agent banking points for the two banks with the majority of agent banking points are:
  - DBBL – 1,480
  - Bank Asia – 1,265

Photo: BRAC / Pronob Ghosh

Chapter 5

# Option 3—Cashless Repayment

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# Cashless loan repayment

The MFI encourages clients to repay loans through digital channels to transform cash-dependent operations into cashless or cash-lite operations. The client deposits the loan repayment through their mobile account or bank account. Here, the process is described for loan repayment through the MFS channel.

## Cashless loan repayment attributes (MFS channel)

Customer needs an account (mobile account)

Clients can repay the loan by themselves (self-initiated) or through an MFS agent

Frequency of centre meeting gets reduced

MFI needs to maintain a master account with MFS

## Cashless—Loan repayment through MFS channel



MFI (MFS Wallet)

2. MFI Head Office accesses MFS portal

Collection Report Portal of MFS

3. MFI Head Office downloads collection report

1. Pay installment from own mobile account to MFI (MFS wallet)

MFS Agent

4. MFI uses Push API to update their MIS

1.Customer goes to MFS Agent

MFI Customer

MIS

# Cashless loan repayment—Key benefits and opportunities for MFIs

| Client | MFI |
|---|---|
| It is convenient for the client. The client can deposit the amount at their convenience. They can send the money from anywhere and at any time on or before the due date of repayment. | MFIs can mitigate risks associated with cash management by adopting cashless loan repayment. For example, MFIs can reduce the risks of fraudulent activities committed by staff members. |
| The client has multiple options forpayment. | Operational costs will be reduced as staff efficiency increases. The number of centre meeting gets reduced. |
| The client develops their knowledge, as the centre meeting is focused on financial literacy and social awareness. | The centre meeting can be used more effectively for education and social awareness among members. |
| | It is easy to collect money from those clients who have migrated to another place. |
| | Multiple repayment options strengthen the customer service approach of the MFI. |
| | Time saved in cash management can be used for business growth. |

# Risk involved in the adoption of cashless loan repayment through MFS channel

The MFS provider charges the client for loan repayment to MFI through MFS channel. However, many MFI clients are not ready to bear this charge.

The client might commit mistakes while sending. MFI should be enlisted as a merchant. And, MFI should be added to the Pay Bill Menu of the MFS application.

The MFI needs to educate the members and agent points about how to make repayment transaction using the MFS wallet.

The MFI should ensure that it can update its MIS by uploading the collection report received from microfinance service provider. It would be a challenge for the MFIs if they had to update their MIS manually.

Delinquent clients who are willing to repay can repay using MFS channel. They do not need to wait for the field officer to visit them in person and collect the amount.

- Cost of transaction
- Ease of transaction
- Financial literacy
- MIS Update
- Delinquency management

# Risk mitigation to overcome risks in the adoption of cashless loan repayment through MFS channel

The MFI may share the MFS transaction cost with the customers. MFI can compensate for this cost with gains received from the improved staff productivity.

The MFI may give printed collaterals, including detailed instructions on how to send money to MFI merchant account using a mobile wallet, to their customers.

The MFI can invest in developing an additional module to upload the repayment report on its MIS. This will help the MFI avoid a manual update.

Cost of Transaction

Ease of transaction

Financial literacy

MIS update

Delinquency management

The MFI needs to educate its members and agents about how to make repayment transaction using a mobile wallet.

Field staff can visit delinquent clients who have failed to repay through their mobile wallet.

# MFI process of adopting cashless loan repayment through MFS channel

**1.** The MFI selects the MFS partner using various selection criteria, such as the number of agents, cost of the products offered by the MFS provider, reputation in the market, strategic alignment and flexibility in their approach, among others.

**2.** The MFI makes a partnership agreement with the MFS provider that includes the model of the engagement and details regarding grievance management, pricing, termination clause, the role of the MFI and MFS provider and other considerations.

**3.** The MFI designs the process of loan repayment using the selected MFS channel.

**4.** The MFI trains its staff members and shares the training collateral with them to avoid any doubts regarding policy and processes.

**5.** The MFI selects the branches to conduct the pilot test and communicates the same to its MFS partner in advance. The branches should be selected considering certain criteria, such as availability of agents, geography, client segment and products, among others.

**6.** The MFI analyses the results of the pilot test and rolls out the product

Note: To upload the repayment report on its MIS, the MFI should have a robust and flexible MIS. The MFI might be required to develop an additional module to upload the repayment report onits MIS.

# Case: BRAC Microfinance—cashless savings collection



Figure: Detailed instructions on how to send savings installment to BRAC using bKash provided by BRAC toits customers.

Source: FDG with BRACCustomers

**BRAC collects savings installments from its members through their mobilewallets.**
- For all new subscribers to the Deposit Premium Scheme (DPS), BRAC has made it mandatory to make repayment through bKash instead of coming to an MFI branch to make a cash deposit.
- To facilitate the smooth transition from cash to the bKash wallet for deposit of saving installments, BRAC assists its members to open a bKash wallet. BRAC also provides a detailed instruction card to members in Bangla on how to send an amount to BRAC using their bKash wallet. The transaction charges are borne by BRAC.

**Feedback from customers**
- BRAC customers say that deposit through bKash is more convenient than going to the MFI branch every month. They find it convenient to send money from their home and they save on travel cost.
- Currently, there are no charges on transactions. This has also motivated the members to use bKash for deposit.
- It has saved members from missing their deposit deadlines and the penalty charge of BDT 100.
- They follow the instructions card to send the money. Some customers find it difficult to understand the instructions or lack confidence in making transactions through wallet, and seek help from their family members.

Customers mentioned that they would not prefer want to use a mobile wallet as a medium for loan disbursement due to the transaction limit and charges. Disbursement in a bank account is still acceptable compared with a mobile wallet as they can with-draw money from their loan easily in one transaction

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# What clients say about mobile bankingagents

| Familiarity with<br>mobile banking agents | What people like about<br>mobile banking agents |
|---|---|
| • Members are quite familiar with mobile banking agents and use them on a regular basis for either sending or receiving money, or for both. Some of the group members mentioned that they visit agents three or four times in a month.<br><br>• Members use mobile banking agent services to send MFI loan installment payments to the centre leader or credit officer.<br><br>• Members said that they do OTC transactions for loan repayments in specific situations, such as illness, a personal visit to their native place or village, business tour or emergency situation. | • Members reacted positively to the mobile banking agent points due to the following attributes: Proximity to the members' house, past relationship with the agent, and agent's reputation.<br><br>• Most of the members like the agent points due to two major reasons:<br><br>  1. Agent points make it easy to receive or send money.<br><br>  2. Agent points saves opportunity cost in termsof:<br>    • Proximity, as agent points are located close to customers' houses<br>    • No traffic and travelhassles<br>    • Transportation expenses |

Chapter 5

Option 4—Outsourced
Database Management

# Outsource database management to third-party (cloud)

An MFI runs the risk of data loss or mismanagement in case it manages the data in its own data centre. MFIs should maintain their database on the cloud to ensure that it is professionally managed and secured.

## Database management by third party

## Salient features

🔒 **Secured:** Disaster recovery centre at a different location

🖥️ Professionally managed, quick, reliable, intelligently-designed database

🧾 Cost-effectivepricing

🛡️ **Professionally secured:** CCTV, fire control, water leakage protection, humidity control, resilience with failover options

☁️ 24X7 availability (uninterrupted powersupply, Internet, servers)

Primary server

Application

Database

Mobile application

Replication (Realtime/Batch)

Backup server/ Disaster recovery centre

Application

DBMS

Database

DBMS (Database Management System)

Firewall

Internet

Branch Branch Branch Branch Branch

Mobile/ Tablet

# Risk involved in outsourcing database management

**Limited understanding:** MFIs have a limited understanding of various modalities and pricing models relating to the outsourcing of database management to third-party service providers. Hence, they are not comfortable doing it.

**Data on external servers:** MFIs are not comfortable about placing their business data on servers external to the organization. Also, application codes for LMS and remote loan origination systems (RLOS) are at the risk of compromise.

**Apprehension regarding data migration:** MFIs are apprehensive of data migration processes as they might be too cumbersome. Some of them assume it will pose a significant challenge to migrate data from an in-house data centre to the cloud.

**Apprehension about getting locked with a third party:** MFIs are apprehensive about getting locked into an agreement with a third-party partner that will compromise their independence. MFIs are also concerned that they might not be able to migrate their data in the future.

# Risk mitigation to overcome risks in outsourcing database management

**Risk:** Limited understanding
**Risk mitigation:** MFIs should have adequate understanding of various modalities and pricing models relating to the outsourcing of database management to third-party service providers.

**Risk:** Data on external servers
**Risk mitigation:** MFIs can enter into a non-disclosure agreement (NDA) with third-party service providers. The NDA should have penal clauses and clearly mention that the service provider cannot sell or share their data and programs to any entity. The MFI can also enter into a CoLo (Co-Location) arrangement with the service provider, wherein the server belongs to the MFI. In addition, the MFI pays rent to the service provider for the rack space, power, cooling, firewall/security and bandwidth (connectivity). MFIs can keep the server locked and retain the right to administer and maintain their server.

**Risk:** Apprehension regarding data migration
**Risk mitigation:** MFIs can restore the full database over the internet in a few hours depending on the bandwidth and the speed of connectivity. MFIs can also take the backup on a hard disk and mirror that directly on the server provided by the data centre.

**Risk:** Apprehension about getting locked with a third party
**Risk mitigation:** MFIs should engage with a service provider with goodwill in the market. The contract with service provider should clearly address the exit strategy and prohibit them from keeping any copy of the database without the permission of the MFI.

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# Advantages of outsourcing database management

Non-core operations of the business can be outsourced to expert professional services providers. In that regard, senior management will have more time to focus on the immediate business and organizational goals.
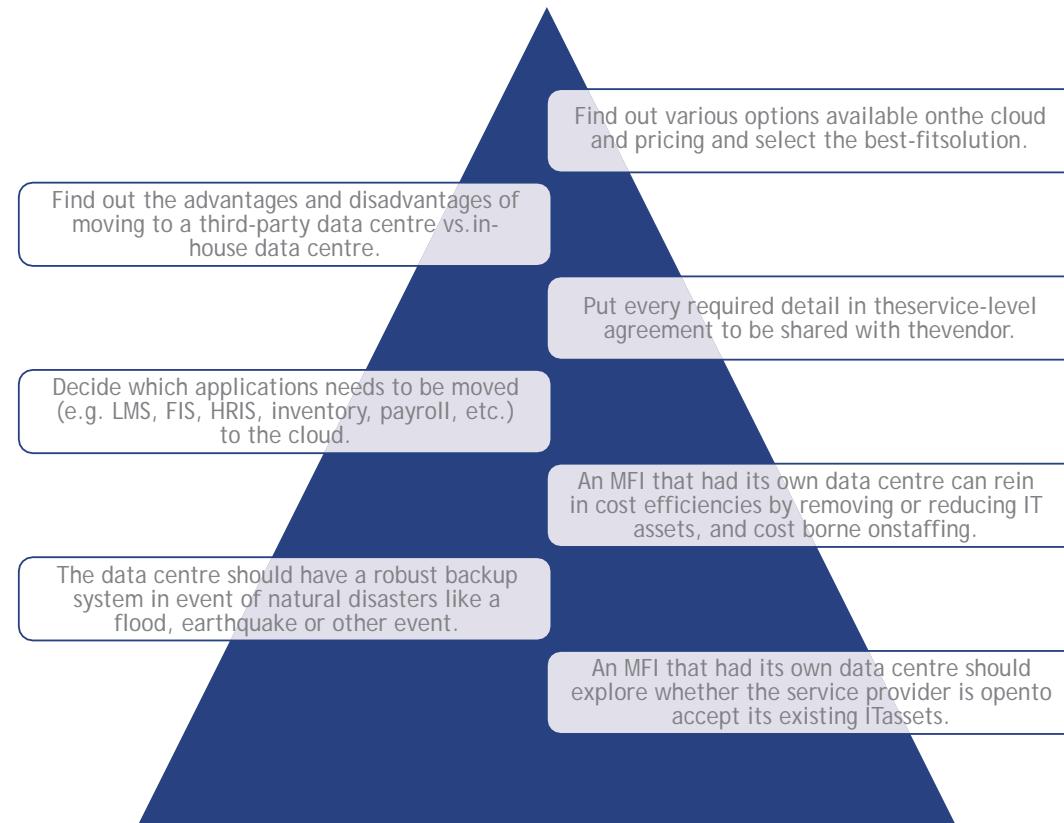
Services can be on-demand and customized as per specific business requirements of the MFI. Having their core expertise in database management, service providers can provide the best levels of reliability and performance (near-100% server uptime, for example).

Since cloud database management is their core business, compliance with various regulations and security standards is very robust so as to not create any instances of mismanagement of data andreducing the risks of cyber-security manifold. Protection of servers from natural calamities is also well taken care of by the service provider as it entails a huge investment.

Services for database management being customizable, MFIs can opt for SaaS model wherein they use the 'pay-as-you-go' model. In this way, they pay only for services they optfor, from a wide range of services offered by the service provider.

**Increased business focus**

**Performance and reliability**

**Security and compliance**

**Pricing**

# MFI approach in outsourcing database management

Find out various options available onthe cloud and pricing and select the best-fitsolution.

Find out the advantages and disadvantages of moving to a third-party data centre vs.in-house data centre.

Put every required detail in theservice-level agreement to be shared with thevendor.

Decide which applications needs to be moved (e.g. LMS, FIS, HRIS, inventory, payroll, etc.) to the cloud.

An MFI that had its own data centre can rein in cost efficiencies by removing or reducing IT assets, and cost borne onstaffing.

The data centre should have a robust backup system in event of natural disasters like a flood, earthquake or other event.

An MFI that had its own data centre should explore whether the service provider is opento accept its existing ITassets.

# Typical data centre costs (in BDT)

| Component | Unit of Measurement | Qty | Unit price | MRC |
|---|---|---|---|---|
| APP SERVER | | | | |
| vCPU | Per core | 4 | 300 | 1,200 |
| Virtual Memory | GB | 32 | 400 | 12,800 |
| Solid State Drive | GB | 250 | 9 | 2,250 |
| | | | | DB Server |
| vCPU | Per core | 4 | 300 | 1,200 |
| Virtual Memory | GB | 64 | 400 | 25,600 |
| Solid State Drive | GB | 2,000 | 9 | 18,000 |
| | | | | Additional components |
| Windows License | OS-2016 | 8 | 280 | 2,240 |
| Shared Firewall | Per Unit | 1 | 3000 | 3,000 |
| Secure Socket Layer Virtual Private Network | | | | 760 |
| Anti Virus | Per VM | 2 | 450 | 900 |
| Public IP | Per IP | 2 | 300 | 600 |
| Backup (CommVault) | Per GB | | 18 | On actuals |
| Grand total | | | | 68,550 |
| One-time setup cost | | | | 20,000 |

Note:
- My SQL will be bundled with the above DB VM
- OS and DB Management will be charged extra ifrequired
- Taxes extra as required

- vCPU stands for virtual CPU (Central Processing Unit)
- GB stands for Gigabytes and is denoted for both Memory as well as Storage
- OS stands for Operating System
- IP stands for Internet Protocol (usually denoted as http://)
- VM stands for Virtual Machine

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Chapter 5

# Option 5—Core Banking Solutions

# Core banking solution

Customers may access their bank account and perform basic transactions from any of the MFI's branch offices.

## Salient features

Reports give a holistic picture of theorganization

One stop solution for all the applications of financial institution

The customer can avail banking services from any of the bank branches or other channels

Versatile: It is able to handle any kind of financial transactions

More evolved and robust

Multi-featured: Multiple products and ability to connect with anyplatform

Capable of handling high transaction volumesacross all channels



CORE BANKING SOLUTION

CBS

Internet

Firewall

Security & Access

EOD & MIS

Wholesale Banking

Treasury

Trade Finance

Digital Loan Origination

Customer Onboarding

Liabilities Products

Asset Products

Financial Accounting

Credit Scoring

Savings

Loan

GL

Geo Tagging

Fixed

Current

Fixed Assets

Internet

Collection

Recurring Deposits

Overdrafts

Inventory Mgmt

Bill Discounting

Credit Bureau

IVR Interative Voice Response

Channels

Agents

Agents

Net Banking

POS

ATM

Internet

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# Costing and pricing—Core banking solution

|  |  |
|---|---|
| **Implementation/setup cost** | |
| • $2 million to $3 million<br>• For 100 branches with 200,000 accounts, which includes the hardware (production & disaster recovery), licenses, OS, Oracle software and implementation<br><br>• Additional branch will cost $10,000 | **Supportannual maintenance contract**<br><br>• Annual maintenance contract kicks-in after the warranty period of 3-6 months<br>• Usually in the range of 12-16% of total base license cost |
| **Training cost** | **Customization cost** |
| • Training involves training-of-trainers (ToT) @ $1,000 per day.<br>• Training runs for two weeks to four weeks | • Customization depends on the nature of the change asked by the client |
| • 10 ATMswith switch will cost $250,000 to $300,000<br>• Per ATM cost will be $10,000 | |

Source: Market Intelligence

# Core banking solution—Key advantages and opportunities

**1**

A core banking solution gives versatility to the MFI to easily configure new products without requiring any customization. Multiple liabilities and asset products with various features and differential interest rates could be defined.

**2**

The client can avail banking products and services through multiple channels such as internet banking, mobile banking, interactive voice response (IVR), ATMs, etc. The client does not need to visit the branch in person.

**3**

The financial institution can integrate their core banking solution with other systems or satellite applications without any hassles. A core banking solution enables seamless exchange of data and file with other systems.

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# Risk involved in the adoption of a core banking solution

- **Lack of adequate resources:** A core banking solution is costly and requires a large investment. This will be a huge challenge for most MFIs, though this might be an option for big MFIs.

- **Cost overrun:** The project may encounter challenges due to constraints or shortfall in thebudget.

- **Lack of risk assessment:** The organization does not conduct a proper risk assessment with regard to thefollowing:

  - Whether the data centre should be in-house or on the cloud?

  - Whether the organization should go for a license model or SaaS model?

- **Lack of adequate training on core banking solutions:** A lack of adequate training and training collateral to staff members poses a challenge for the institution in the implementation of the solution.

- **Roles and responsibilities are not defined:** Financial fraud can take place when the roles and responsibilities of staff members are not defined properly.

- **Lack of adequate planning to store back up:** The organization does not make adequate plans for setting up a disaster recovery (DR) centre and off-site storage of daily or incremental backup.

- **Lack of proper service level agreement (SLA) with vendor:** This results in delays in turnaround time of the project, and resolution of reported problems and issues.

- **Lack of understanding of efforts involved in the migration of data from LMS to core banking solution:** This might increase the project cost and turnaround-time in the installation of the core banking solution.

# Risk mitigation to overcome risks in adoption of core banking solution

- **Lack of adequate resources:** Only big MFIs might consider this as an option.

- **Cost overrun:** The organization should do proper evaluation of total project cost including software, hardware, implementation, integration, license, training and other costs.

- **Lack of risk assessment:** The organization should conduct a proper risk assessment with regard to thefollowing:

    - Whether the data centre should be in-house or on the cloud?

    - Whether the organization should go for a license model or an SaaS model?

- Lack of adequate training on core banking solutions:The service level agreement between the MFI and the software vendor should have a component on Training of Trainers (ToT).

- Roles and responsibilities are not defined: The organization is required to make a detailed plan to define the staff roles and then execute it. There should also be a process to delete/deactivate user-IDs of staff members who leave the organization.

- Lack of adequate planning to store back-up: The organization should make adequate plans for setting up a disaster recovery centre and off-site storage of daily or incremental backup.

- Lack of proper service level agreement (SLA) with vendor: The institution must have a proper and detailed SLA including escalation matrix, compensation clause, grievance management, settlement of dispute (if any), etc.

- Lack of understanding of efforts involved in the migration of data from LMS to core banking solution: The responsibility for data migration must be specified clearly to the vendor.

# The approach to adoption of a core banking solution

- **Establish a digital strategy for the organization:** The organization should develop a comprehensive digital strategy. Installation of a digital solution (including a core banking solution) should be a part of a well-informed digital roadmap for the institution. Also, the institution should consider the following while developingits digital strategy:

  - Changes in the financial services landscape and regulatory norms on products and services
  - **Medium- to long-term** aspirations of the financial institution
  - Analysis of the risks associated with an in-house data centre as opposed to a third-party data centre
  - Selection of pricing model: The CBS on SAAS model could bring down the capital expenditure drastically, however its pros and cons should be analyzed diligently.
  - Business continuity plan
  - Backup and disaster recovery plan
  - Define access control mechanisms
  - Decide the products and services to be offered in the initial period and future

- **Plan to install core banking solution:** The MFI should plan to install a core banking solution only after getting awarded with a banking license or MFI is allowed to become a part of the payment and remittance system. If the MFI is not able to provide the entire range of banking products and services to members, then investment may not justify the benefits of CBS.

- **Core banking solution selection:** Many banks make mistakes in the core banking system selection phase resulting in poor choices. Gartner (2011) in its extensive research on CBS selection suggested eight key criteria for selection: functionality, flexibility, cost, viability, operational performance, programme management, partner management and customer references. The MFI needs to conduct vendor scoping exercise after it has developed a business requirement document (BRD) or technical specifications document. The vendor needs to have the capacity to serve in the country. A proper service-level agreement has to be achieved.

- **Budget estimation and management approval:** Proper evaluation of software, hardware, implementation, integration, license, training, and other costs must be considered and approved. It is advisable to add a contingency amount of about 10-15% to meet project overrun costs or unexpected expenses. The project manager should ensure that the required budget is available before the start of the project.

- **Install CBS:** Operationalize the core banking solution as defined by the model selected (SaaS orotherwise).

- **Software testing:** The organization should conduct 'user acceptance' testing to check whether the solution is running as per the requirement.

- **Regulatory approval:** The organization should obtain the approval of the regulators before commencing operations.
- **Data migration:** The software vendor does data migration from the existing system to the core banking solution.

Chapter 5

# Option 6—Digital Credit

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# Digital credit—Overview

Digital credit is an avenue to provide short-term liquidity to cash-strapped vulnerable households and microenterprises. Digital lending is the process of offering loans that are applied for, disbursed, and managedthrough digital channels, in which lenders use digitized data to inform credit decisions and build intelligent customer engagement.

## Digital credit attributes

**Instant** — Mostly concentrated inKenya, a growing trend across the world

**Remote**

**Automated** — Digital credit is often used to finance day to day needs and emergency needs in Kenya

**Direct** — Sources of data forcredit-scoring:
- Traditional bankdata
- Mobile phonedata
- Previous digitalloans
- Digital footprints
- Mobile money data

**Collateral-free**

## Digital credit customer journey



The customer finds out about the loan via an SMS blast.

Within minutes, the customer downloads the app and applies with minimal documentation.

The loan is approved within minutes and disbursed into the customer's mobile wallet.

The loan is repaid with the click of a button, and followed up with a customized offer.

Help is available 24/7 through chat or call centre.

Source: Accion, Demystifying DigitalLending

Source: CGAP, Digital Credit's Evolving Landscape: 3 Things You Need to Know,2017

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# Digital credit—Advantages and business opportunity for MFIs

## Advantages in adoption of digital credit

**Achieve business growth of the organization:** The MFI would be able to serve new client segments, including customers who are cash-strapped and need an instant loan on a short-term and collateral-freebasis.

**Ready to compete with FinTechs:** The MFI should not be complacent about potential competition from digital credit providers. The growth of digital credit is likely to happen in Bangladesh as in other countries like Kenya and India. An MFI that offers such products can compete with emerging FinTechs and banks in the future, or else they could becomeobsolete.

**Product diversification and value-added services:** Offering such products would help the MFI diversify its products, meet emerging needs and become a more customer service-orientedorganization.

**Reduce operational expenses:** The digital credit involves minimal use of human resources and hence the operational expenses are expectedto be very low.

# Possible partnership for MFIs to conduct digital credit

| First option:<br>Partnership model for MFI | Second option:<br>Partnership model for MFI |
|---|---|

**MFI+MNO+MFS**

| Balance sheet |
|---|
| Credit-scoring |
| Data pool |
| Payment account |
| Access point |

| MFI will score, underwrite, lend |
|---|

| MNO provides data |
|---|

| Uses MFS wallet and agents for cash-in and cash-out |
|---|

- MFI does the credit-scoring, underwriting process and lends to customer.
- MFI should partner with MNO to provide data
- MFI should partner with MFS provider to provide mobile wallet to customers and leverages their agent channel for cash-in and cash-out

**MFI+MNO+Tech Firm+MFS**

| Balance sheet |
|---|
| Credit-scoring |
| Data pool |
| Payment account |
| Access point |

| MFI will underwrite, lend |
|---|

| Tech firm scores |
|---|

| MNO provides data |
|---|

| Uses MFS wallet and agents for cash-in and cash-out |
|---|

- MFI does underwriting process and lend to customers
- Technical firm does the credit-scoring
- MFI should partner with Mobile Network Operator (MNO) to provide data
- MFI should partner with MFS provider to provide mobile wallet to customers
- MFI leverages MFS agent channel for cash-in and cash-out

Source: CGAP, Digital Credit's Evolving Landscape: 3 Things You Need to Know, 2017

▮ Bank    ▮ MNO    ▮ Tech firm

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# MFI approach in adoption of digital credit

| | |
|---|---|
| **Assess and build digital readiness** | ▪ Define a baseline to understand the institution's digital readiness (people, processes and systems) to understand the time required for readiness before the actual launch of digital products.<br>▪ Does the institution support a culture of innovation?<br>▪ Do the staff have the required skills and capacity?<br>▪ What will be the new incentive structure in the case of digital lending for staff? |
| **Set digital lending goals and objectives** | ▪ Distinguish between the institution's objective for digital lending and the value proposition for customers.<br>▪ How does it align with the institution's overall mission and strategy?<br>▪ Distinguish between the pilot test and the long-term goal of digital lending products. |
| **Define channel strategy** | ▪ Who are the target segments?<br>▪ What types of credit products?<br>▪ Determine the effectiveness of the current distribution network.<br>▪ Assess the customer preferences for digital channels.<br>▪ Identify sources of data. |
| **Identify potential partners to supplement digital credit product** | ▪ Review competencies in the digital lending process, specifically the systems and skills required, and identify business-critical areas of strength versus competency gaps or activities that could be outsourced to a specialized partner or FinTech to expedite delivery. |
| **Set up separate unit to drive digital lending** | ▪ In the early stages, the MFI can dedicate a separate unit that has sole responsibility as a standalone business vertical to prepare for, pilot test, and implement digital lending with the intent to integrate the unit with the rest of the credit vertical at a later stage. |

Source: https://www.microfinancegateway.org/sites/default/files/publication_files/1123_digital_lending_r10_print_ready.pdf

# Risk involved in the adoption of digital credit: Lessons from Kenya

**Lack of intent and belief**
Sometimes, managers of financial services providers (FSP) feel that digital lending "won't work for our customers". They believe that their customers lack comfort with digital channels, struggle with inconsistent connectivity, or prefer face-to-face interactions with loan officers.

**Lack of appropriate scoring models**
- Higher ticket size and lower interest rates for good borrowers
- Cross-selling other products

**Poor customer targeting (attracting high risk applicant pool)**
- Higher annual percentage rates (APR) (drive off good borrowers)
- Push messages (unnecessary borrowing)

**Lack of collection strategies (human touch)**
- Behavioural nudges for collection

**FinTech apps not running on low-end phones**
- Lower-income segment

**Poor product design and pricing**
- Transaction fees, bank transfer charges, per-payment penalty
- Not disclosing critical terms and conditions, unclear repayment schedule

# Risk mitigation to overcome risks in the adoption of digital credit

**Risk:** Lack of intent and belief
**Risk mitigation:** MFIs can review the approach taken by global players providing digital credit. In addition, the MFI can conduct market research that would help them understand their target customers' behaviour and preferences with regard to the usage of digital channels. Findings from the research would help MFIs develop a robust digital strategy and implementation plan.

**Risk:** Poor customer targeting (attracting high risk applicant pool)
**Risk mitigation:** Digital strategy should clearly specify the target customer segments and their digital footprints.

**Risk:** FinTech apps not running on low-end phones
**Risk mitigation:** MFIs can adopt technologies that work on low-end phones or help customers acquire smart phones through providing access to credit.

**Risk:** Lack of appropriate scoring models
**Risk mitigation:** Scoring models should be dynamic and pilot-tested before the roll out.

**Risk:** Lack of collection strategies (human touch)
**Risk mitigation:** MFIs should have their own strategy to tackle delinquency and defaults.

**Risk:** Poor product design and pricing
**Risk mitigation:** MFIs can conduct market research to design the product and price it appropriately.

# Case: Tala, an online lender

Amy Stewart, Kathleen Yaworsky and Paul Lamont, of Accion, highlighted the emerging best practices, current trends, opportunities and challenges of digital lending for FSPs in their "Demystifying Digital Lending" report. The following are their observations:

• "Tala is an online lender in Kenya offering mobile-based nano-loans via an Android application. After customers opt-in, Tala's proprietary algorithm scrapes approximately 10,000data points from the phone (including SMS, call records, locational data, etc.) to analyze and scorecustomers.

• Tala's customer engagement is completely digital; there are no physical branches or any in-personengagement.

• Tala's customer engagement leverages customer data to provide a personalized financial experience via a sophisticated mobile application and through social media channels like Facebook.

• Through the app, customers can manage all aspects of their account, including checking balances, making payments or accessing support through an in-app messenger that promises a response within 24 hours. They can also track their customized 'Tala credit score', set financial goals and use personal financialmanagement tools."

Source: https://content.accion.org/wp-content/uploads/2018/09/1123_Digital-Lending_R10_Print_Ready-2.pdf

# Case: Zest Money—finance for assets, education, travel

- Established in 2015, headquartered in Bengaluru
- The core business idea of Zest Money is that of asset finance (fashion, home appliances, industrial equipment etc.), education finance and travel finance. It operates on partner websites such as Amazon.in, flipkart.com, makemytrip.com, shape.edu.in and upgrad.com, among others.

| Digital credit attribtes | Product | | |
|---|---|---|---|
| | **Target segment** | **Product attributes** | |
| **Instant**<br>Most of loans being approved in less than a few hourse | **Age profile**<br>Open to perosn of all ages | **Ticket Size** Up to INR 2,00,000(approx. US$ 2,807) | **Interest rate**<br>Interest @ 2.5% p.m.<br>Processing Fee @ 2.5%<br>Down Payment @ 20%<br>Late Payment<br>NR 500/Installment |
| **Remote**<br>Physical identification is not required (entirely paperless) Remote | **Income bracket**<br>No income bracket; credit limit depends on income | **Promotion**<br>On product page as 'Eligible for Zest card less EMI'<br>On payment page as 'Zest EMI'<br>USP/Tagline:<br>'Digital EMI without Credit Card' | **Documents needed**<br>**Aadhar,** permanent account number, signed NACH form, monthly income and expenditure details, bank statements |
| **Automated**<br>Process is completely automated | **Occupational bracket**<br>No occupational limitation | **People**<br>Support via<br>help@zestmoney.in | **Physical evidence**<br>E-mail, SMS<br>No physical office |
| | **Credit History**<br>People with sronger credit history have higher credit limit | | |

Source: The Key Attributes of Digital Credit
https://zestmoney.in/

**zest**

### Process to apply for the loan · Repayment process

| Process to apply for the loan | Repayment process |

**Decide what you want to purchase** → **Customer to decide amongst the partner websites where to buy** → **Customer to select the EMI plan that best suits him/her** → **Complete the profile and provide requisite detail (new customer)**

**Login to Zest Money and enter product and website details**

**Complete the documentation**

**On approval get payment vouchers for that website**

**Use vouchers to make the payment on the website**

**Get account verified using e-KYC and net-banking**

**Returning customers can directly login and details will be retrieved**

**Set-up automatic repayment using NACH**

**Loan activated on approval**

**Auto debit from bank account through NACH mandate**

OR

**Contact customer care to repay through other payment modes**

**Once approved payment link will be sent over email**

**Pay using debit card or net-banking**

■ Steps by customer
■ Steps by organization

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Chapter 5

# Option 7—Artificial Intelligence

# Artificial intelligence in microfinance

Artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks. Application of AI in the microfinance industry can provide a major boost in operations and prepare MFIs for the data-driven future.

## Salient Features of AIsolutions

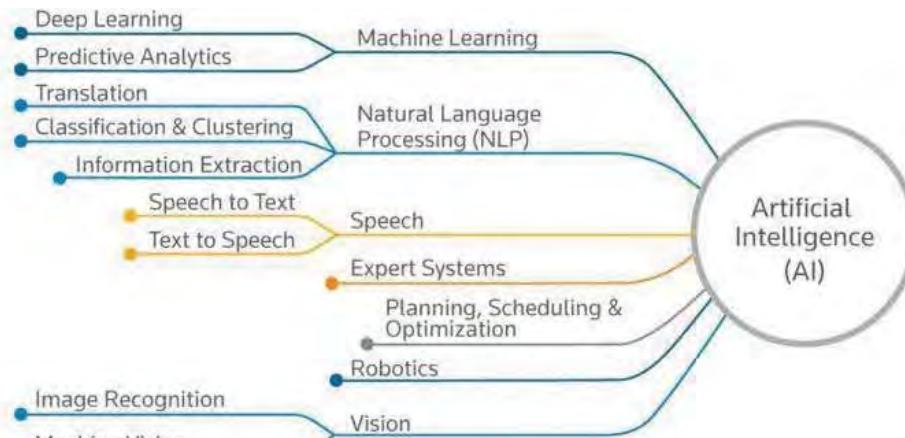Use of data-driven algorithms, such as Big data, predictive dataanalytics

Dynamic in nature

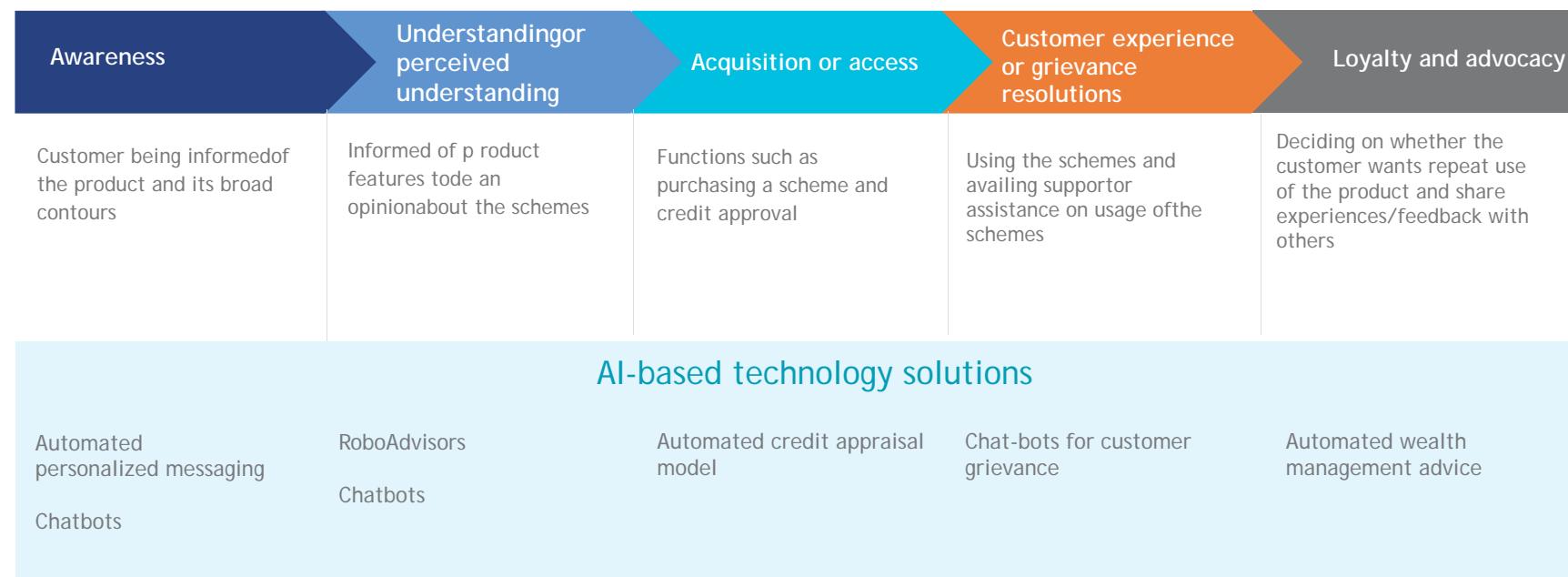AI uses machine learning to continuously adapt to the data itreceives

Lower operational costs of implementing AI technology

## Artificial intelligence spectrum



Deep Learning
Predictive Analytics
— Machine Learning

Translation
Classification & Clustering
Information Extraction
— Natural Language Processing (NLP)

Speech to Text
Text to Speech
— Speech

Expert Systems

Planning, Scheduling & Optimization

Robotics

Image Recognition
Machine Vision
— Vision

Artificial Intelligence (AI)

Source: Neota Logic

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# Artificial intelligence in microfinance

AI can be applied in microfinance industries at multiple steps in the customerjourney.

| Awareness | Understandingor perceived understanding | Acquisition or access | Customer experience or grievance resolutions | Loyalty and advocacy |
|---|---|---|---|---|
| Customer being informedof the product and its broad contours | Informed of p roduct features tode an opinionabout the schemes | Functions such as purchasing a scheme and credit approval | Using the schemes and availing supportor assistance on usage ofthe schemes | Deciding on whether the customer wants repeat use of the product and share experiences/feedback with others |

## AI-based technology solutions

| | | | | |
|---|---|---|---|---|
| Automated personalized messaging | RoboAdvisors | Automated credit appraisal model | Chat-bots for customer grievance | Automated wealth management advice |
| Chatbots | Chatbots | | | |

# Artificial intelligence in microfinance—Chatbots

AI-based Chatbots are virtual assistants that can help customers transact or resolve their problems by having conversation with them. This automated conversational interface uses natural language processing (NLP) to interact with clients in natural language by text or voice and use machine-learningalgorithms to improve over time.

## Salient features of chatbots

Virtual agent: Can be available24/7

Emotionally intelligent: Can infer customer personality traits and deliver personalized experience

Able to process large amounts of structured and unstructureddata

Low interaction cost: Can handle large customer segment simultaneously, location agnostic, multilingual

Can be developed on existing platforms used by users such as social media and SMS



Source: https://www.findevgateway.org/sites/default/files/publication_files/fibr_artificial_intelligence_final_may2018_1.pdf
https://dionhinchcliffe.com/2016/04/13/how-chatbots-and-artificial-intelligence-are-evolving-the-digitalsocial-experience/

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# Application of chatbots by microfinance institutions

Chatbots can be applied in a number of ways in the microfinance industry.

| Financial education | Product advisory | Customer queries / Grievance resolution | Helping staffdeliver better services |
|---|---|---|---|
| • Chatbots can be used to make financial education content more personal and engaging. For example, customers can subscribe to topics such as budgeting and savings products, or receive notification regarding their spending habits, loan repayments and savings goals.<br><br>• Example: Vision Fund Microfinance in Myanmar partnered with ONOW and launched a chatbot platform called Mr. Finance to provide financial literacy to its microfinance customers. | • Chatbots can be used to guide customers towards the right products to meet their needs.<br><br>• They can help customers to better understand financial services terms and conditions such as pricing, repayment terms,etc.<br><br>• In India, online insurance players such as Policy bazaar and Easy Policy say that chatbots are enabling them to better understand customers' requirements and help the customers choose the right policy, at a fraction of the cost and with a substantial increase in conversion rates, compared to human agents doing the same tasks. | • Chatbots can be used as an **additional** medium by customers to asktheir queries, through a channel that could be available to them 24/7. | • Chatbots can help the staff in automation of some regular tasks, such as updating field visit records or providing handy product information to address customer queries efficiently. |

# Artificial Intelligence in microfinance—Chatbots

| Benefits of chatbots | Anticipated challenges |
|---|---|
| **Accessibility**<br>It is available 24/7 and can be accessed from anywhere. Mobile phone users, especially young generation find it more convenient to text their queries | **Relative immaturity of machine learning and data analysis**<br>Chatbots are relatively new in terms of their use in the financial industry, especially microfinance. Getting access to data to train chatbots to reply in a way that is human will take at least fewyears |
| **Better than Interactive Voice Response (IVR)**<br>Customers can interact with chatbots in a normal conversational manner and are not limited by predefined options and answers. | |
| **Efficiency and cost-saving**<br>Chatbots can be reliable and accurate in terms of providing information as compared to human staff. They can be effective in dealing with routine and frequently asked questions and free the call centre staff to handle more complicated issues. | **Technology partner**<br>Building a chatbot would require partnering with FinTechs who have invested in developing chat algorithms in local languages and dialects and have the team in place to continue to refine and iterate based on a MFI's specific use-cases. |
| **Interactive tool for educating customers**<br>Chatbots can be interactive tools for educating customers by sharing personalized messages as per the interest of customer in the form of text, stories, videos, etc. | **Human customer service cannot be completely bypassed**<br>Chatbots will not be able to completely fill the customer service gap and a handover to a staff member who is capable of dealing with complex or non-outline issues still be required. |

Source: http://www.i2ifacility.org/insights/articles/to-bot-or-not?entity=news

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# Case: Mr. Finance, a chatbot for microentrepreneurs

**Casey Hynes writes in a Forbes article about Mr. Finance, a chatbot from Opportunities Now Myanmar that has been teaching entrepreneurs in the country about money management.**

Vision Fund Microfinance in Myanmar partnered with ONOW and launched a chatbot platform called Maung Sa Yin Kaing or Mr. Finance in 2017.

The bot works through Facebook Messenger and offers microentrepreneurs short lessons on money management and financial literacy. Customers do not want to use the internet to download bulky apps and do not want to spend phone story memory for apps. Therefore, Facebook was chosen as the interactive channel for this bot as it is the most-used site over the internet by people in Myanmar.

Users engage with Mr. Finance to read 'gamified' stories and fun interactive modules to improve their financial understanding.



## Key features

| Message-basedconversations | Always available | Emotionally engaging | |
|---|---|---|---|



| Gamified novel | Business troubleshooting | Timely reminders |
|---|---|---|

Ms. Hynes writes, "Mr. Finance's content modules are organized along a storyline, following an entrepreneur as she makes different financial decisions along her journey. Users can also search for information on financing and business best practices.

As the system learns more about each user's goals, it can tailor its content recommendations accordingly.

Mr. Finance even sends push notifications to remind users about lessons and nudge them towards their goals. For example, an entrepreneur who wants to set aside 500 kyat (US$ 0.33)* each day might receive a notification before leaving work reminding her to set the money aside."

Source: https://www.forbes.com/sites/chynes/2017/06/08/meet-the-chatbot-thats-a-teacher-storyteller-financial-guru-for-myanmars-microentrepreneurs/#7d335b7d41a4
* MMK 1 = US dollar 0.00066) as of Feb 5, 2019

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# Key considerations before building a chatbot

1. What problem does the chatbot solve? Examples: financial education, product suggestion, customer grievance resolution, etc.

2. Is chatbot the best medium to achieve theoutcome? MFI should, for example, also weigh any other conversational interfaces while selecting the best medium.

3. Do the end-customers have means such as phones and digital skills? Do they want to use a chatbot for this purpose?

4. How will the chatbot go to the market, e.g. via existing messenger channels such as Facebook and WhatsApp, or via a mobile app, or via the MFI's website?

5. Is the chatbot reducing cost or increasing sales orboth? MFI should, for example, also analyze whether chatbot is able to reduce the operational costs, customer turnover or increase sales.

6. What operations must the chatbot need to perform to be useful?

7. What level of conversational sophistication does the chatbot need in order to serve the customers? For example, at what level would there be an escalation to a human agent?

8. What data does the chatbot need access to and where is itlocated? Example: the chatbot can be given access to database containing information about products and services.

9. How can the successful interactions of the chatbot bemeasured?

10. Is the chatbot replacing any work that staff or other people are doing?

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# Artificial intelligence in microfinance—Credit risk assessment

Traditionally, financial institutions use their past knowledge and experience of financing micro-enterprises to carry out credit assessments. This approach works fine as long as the financial institutions remain small in scale. However, once they achieve scale, they are likely to face some challenges such as client selection, loan appraisal, maintaining portfolio quality, etc.

**Data-driven credit risk assessment tools** can counter these challenges because of the following characteristics:

- Risk assessment with artificial intelligence makes the process dynamic. Machine learning models can be updated on a regular basis to inform creditdecisions.

- The variables in the model for defining the assessment score can change based on the data trends, making the process extremelyobjective.

- Based on the same data, the algorithm will dynamically assign weightages to variables that become more credible and important in assigning a credit assessment score.

Source: "Artificial Intelligence: Practical Superpowers", Microfinance Gateway publication

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# Artificial intelligence in microfinance—Credit risk assessment

| Benefits of the statistical credit-scoring tool | Anticipated challenges |
|---|---|
| **Effectiveness**<br>It predicts all possible determinants of customers' repayment behaviour along with their relative contribution, thereby improving the overall effectiveness of the credit appraisalprocess.<br><br>**Efficiency**<br>The scorecard is typically bias-free and enhances the efficiency of the appraisal process.<br><br>**Accuracy**<br>Statistical credit-scoring ensures more accurate assessment of applicants, thereby potentially reducing PAR and improving portfolio quality. | **Data intensive**<br>The financial institution needs to have a significant number of relevant data points to be able to apply artificial intelligencefunctions.<br><br>**Technology partner**<br>Application of artificial intelligence software requires technical know-how. The financial institution will have to partner with a technology firm for the solution. Striking a synergy with the AI solution and the financial institution's functions is key.<br><br>**Human judgement**<br>AI solutions will make the financial institutions processes scientific. However, more often these decisions will have to be supplemented with human judgement and subjectivity, to arrive at an appropriate decision such as lending, product offering and resolution of customer grievances. |

Source: "Artificial Intelligence: Practical Superpowers", Microfinance Gateway publication

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# Case: The Lenddo score, an AI-based algorithm

**Using artificial intelligence-based algorithms for credit risk assessments is among the most popular use cases currently employed in the African financial services market.**
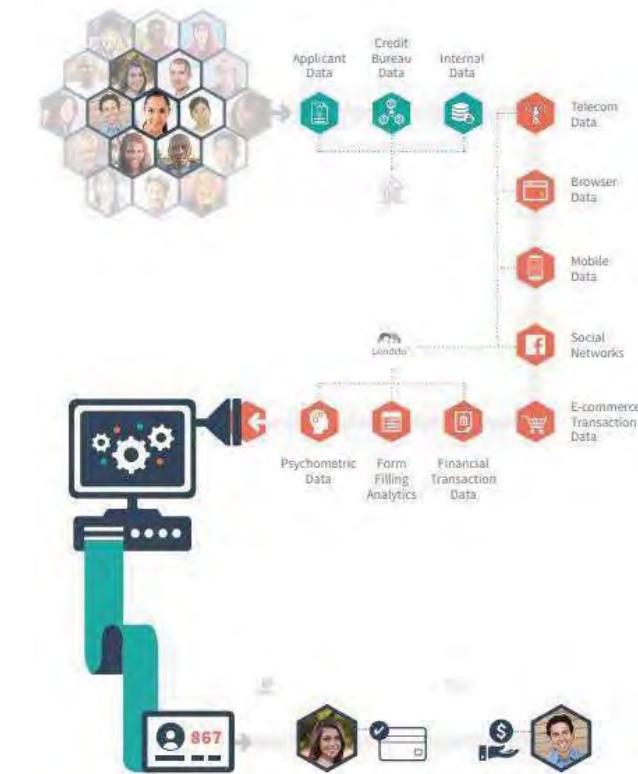
Lenddo-EFL, a leading technology firm, provides credit-scoring and identity verification technology. They work with B2B clients to score potential customers based on a mix of traditional data and non-traditionaldata.

Lenddo's machine learning algorithms analyse up to 12,000 variables for a particular candidate, to assess credit worthiness. The algorithm takes into account financial transactions as well as highly predictive behavioural data points to predict if the candidate poses a delinquencyrisk.

This optimizes the credit appraisal process, to ensure the lender has all relevant data points for decision making.

AI-based risk assessment solutions are highly effective considering thin-file customers. In case of insufficient business or financial history data, alternative data through the digital footprint can be analysed to assess creditworthiness.

Financial institutions using this solution have recorded processing of up to 50% more credit applicants, and also reduced the default levels.
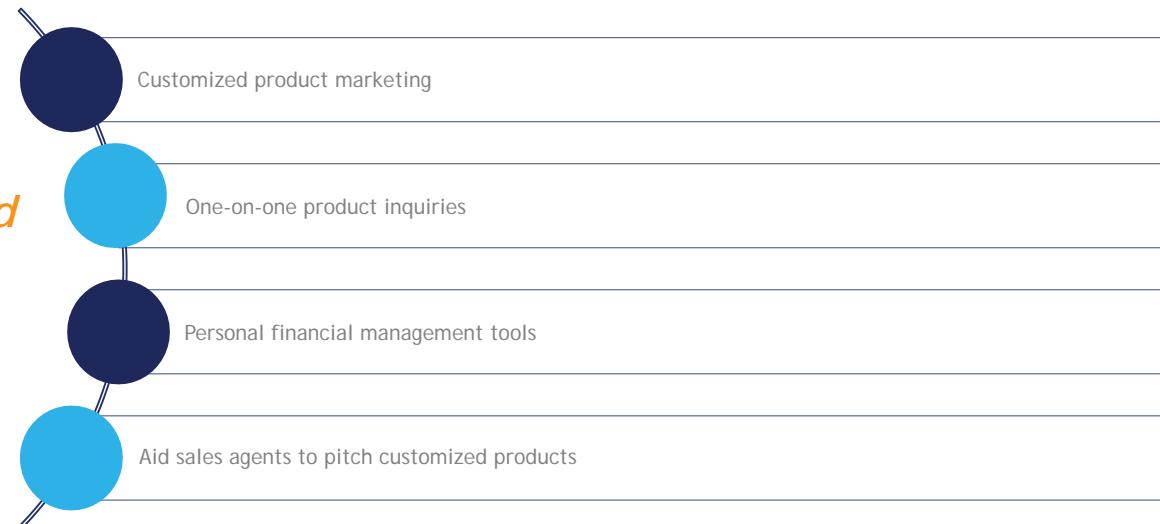


Source: https://www.lenddo.com

# Artificial intelligence in microfinance—Robo advisor

Self-learning artificial intelligence algorithms can administer profiling questionnaires, analyse results and perform specific functions. With a combination of natural language processing and machine learning, artificial intelligence algorithms can take the raw conversational data derived from customer interactions and adapt responses and financial advise for a customized user experience.

These tools can also be programmed with data from past clients to identify trends and patterns in product choices, expenditure and deposits, based on the monthly average balance (MAB). These insights can then be used for developing customized product bundles and wealth management advice.

*Robo advisors can be used for selected customer interactions, such as:*

Customized product marketing

One-on-one product inquiries

Personal financial management tools

Aid sales agents to pitch customized products

Source: Expansion of Robo-Advisory in Wealth Management,Deloitte

# Case: Abe AI, banking powered by artificial intelligence

Abe AI, based in the United States, has partnered with Absa Bank, a South African subsidiary of Barclays, to understand how to intervene early and guide customers towards their financial goals.

The artificial intelligence-powered banking solution provides a conversational solution for financial management. The solution utilizes several machine learning financial algorithms to:

- Predict a customer's next purchase
- Promote or automate savings
- Provide overdraft protection
- Predict cash flows

The algorithms are remodelled in real-time as new data is collected. Eventually, Absa hopes to provide customers with nudges towards healthier financial behaviour.

The product incorporates insights with money management tools, personal financial education and community widgets.



Source: https://www.abe.ai/
"Artificial Intelligence: Practical Superpowers", Microfinance Gateway publication

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# Key considerations for using AI solutions

**1.** **Regulatory environment**

In order to achieve effective growth and outreach, the following elements must be aligned with the business strategy: data storage and localization norms, enabling environment for FinTech such as incubators, and accelerator programmes to boost the use of technology at a larger level.

**2.** **Organizational capacity**

Implementing AI solutions requires significant investment of time, resources and money. In some cases it may even need organizational restructuring. This needs clear intent and understanding of organizational capacity, before steps are taken towards these solutions.

**3.** **Data quality**

Any AI model's prediction are directly tied to the data fed into the algorithm. Thus, the results are as good as the data input. Incomplete, irrelevant and biased data can lead to incorrect predictions. Data quality therefore is key to getting AI right.

**4.** **Customer protection**

AI and machine learning models are data intensive. This data comes from the end customer. It is therefore imperative to install checks and balances in the organizational systems to ensure complete data privacy and customer protection. Country-specific norms also become key consideration.

**5.** **Customer trust**

In order to maintain the robustness of AI models, firms must regularly update customer data points. For this, they need to earn the trust of customers. This becomes more crucial for financial data, as individuals are more sensitive about it.

Adapted from—"Artificial Intelligence: Practical Superpowers", Microfinance Gateway publication

# Approach to AI implementation

**Why AI?**

Implementation of any new technology must be a deliberate and thought-through process to achieve the desired impact. The foremost step towards implementing AI is to ask two questions: Who will this AI affect? What problem will this AI solve?

**Status of data**

Data is at the foundation of AI solutions. It is therefore important to assess the level of readiness with respect to data collection, storage and format. Is there a clear understanding of what data needs to be captured? what already exists? and what would be the analysis framework for the data captured? Answering these questions will require a clear understanding of the end customer.

**Institutional readiness**

Transition to technology-based solutions may require organizational restructuring. Further, in order to prepare for a new technology integration, the firm must have an understanding of the status quo. This will help anticipate challenges in the transition and also identify strengths on which to build.

**Collaboration**

AI and machine learning solutions are highly technical in nature. Often, financial institutions may not have the expertise and/or the bandwidth to develop and implement such solutions in-house. The implementing organization must then look for active collaboration with technology firms specializing in AI solutions. Partnerships with technology partners must be built on a clear and thorough understanding of the end goal, in order to form operational synergies.

**Technology integration**

AI solutions are dynamic and need to be updated regularly, with relevant data. This will require procedural modifications, to assimilate the new technology into operations and other functions within the organization. Further, existing operational and product processes will have to be re-aligned with the new technology.

**Skill development**

The AI solution will analyse large amounts of data to give out predictive information. The team utilizing this information will need to develop evidence-based thinking. The algorithm will learn and adapt. The team interacting with the technology will thus need to understand how it works, trust its analysis, and apply learnings from the predictive patterns into the decision-making process.

**Roll-out and feedback**

With this set-up, the technology-enabled product can now be rolled out for pilot testing among a selected segment of customers. It is important to have continuous monitoring and evaluation of the product, to understand if it is meeting the stated goal. In the case of front-end technology being modified by AI implementation, reception by the customer segment is also crucial.

Adapted from—"Artificial Intelligence: Practical Superpowers", Microfinance Gateway publication

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# How MFIs should go about adopting digital solution

Each MFI should formulate their own digital strategy before commencing implementation.

- As part of the strategy there is need to:
  - Understand the demand for digital financial services, and leverage the institution's position to establish itself as an innovative market leader in this area.
  - Leverage digitalization to increase revenues and decrease operational costs.
  - Have a high-level roadmap on the way forward to achieve objectives, with clear prioritization of the areas that need to be digitized first.

- The strategy development framework is as follows:

| Define rational | Define objective | Identify actions | Develop an implementation roadmap |
|---|---|---|---|
| • Why is this strategy being developed? | • What is the desired outcome? | • What needs to be done to make the strategy a success? | • Which areas will be affected? Who needs to do what? |

- The key steps to development of strategy are as follows:
  - Assess situational context (assessment of external environment, institutional readiness, customer value proposition)
  - Identify       strategic objectives for digital transformation that fit with the organization
  - Formulate strategic plan (technology, distribution, key partners, cost structure, revenue, pilot testing and roll out)

Chapter 6

# Regulatory Gaps and Policy Recommendations

# Regulatory gaps and policy recommendations

| Opportunity | Current status | Way forward | |
|---|---|---|---|
| Access to the NID database would enable MFIs to authenticate clients and reduce fraudulent/ghost clients as well as benefit the regulators in their efforts to ensure identification of all. | MFIs do not have access to the NID database. Consequently, client verification is difficult, and fraudulent cases may occur. | **Short term:** Investigate how NID access could happen with MFIs, i.e. what is required, how to go about it, technical specifications.<br><br>Organize a consultative process between the Microcredit Regulatory Authority (MRA) and Election Commission (regulatorybody for NID) to support MFIs in NID data access. | **Medium term:**<br>• Pilot NID accesswith a few MFIs<br>• Learn from pilot<br>• Develop a roadmap for all MFIs to have access to NIDdata<br><br>Approach: Collaborative effort between MRA and NID |
| Integration of MFIs into a payment system would benefit their clients with access to a broader range of financial products, such as savings, and consequently support the financial inclusion agenda in Bangladesh. | MFIs are not yet part of payment systems. Consequently, MFI clients do not fully benefit from all financial services. | **Short term:**<br>• Assess the sector's suitability for integration with payment systems<br>• Develop a roadmap for integration<br>• Develop an MFI sector strategy for payment system integration<br>• Hold consultations with Bangladesh Bank and MRA to see howintegration may be possible | **Long term:**<br>Introduce gradual integration starting with low-hanging fruit<br><br>Approach: Collaborative effort between MRA and Bangladesh Bank |

| Opportunity | Current status | Way forward | |
|---|---|---|---|
| An increase in the cash withdrawal limit in mobile accounts would enable MFI clients to withdraw the entire loan amount on the same day. It would help MFIs to disburse the loan into customer's mobile account and transform their cash dependent operations into cashless or cash-lite. | According to MFS regulation 2018, for any cash intransaction in a certain account, not more than BDT 5,000 can be withdrawn from that account within next 24 hours. | **Short to medium term:** Bangladesh Bank should assess the risksof increasing the cash withdrawal limitusing mobile accounts.<br><br>Bangladesh Bank should take adequate risk mitigation measures before increasing the cash withdrawal limit. | **Approach:** Bangladesh Bank can increase the cash withdrawal limit step-by-step and assess the risks every time. |
| Regulator should make it clear who would bear the transaction charges for loan repayments made by clients through MFS agents. | Responsibility to bear transaction charges for loan repayments made by clients through MFS agents is not clear. | **Short term:** MRA should conduct a consultative workshop with MFIs to understand their views. | **Approach:** MRA can approach Bangladesh Bank after having conducted the consultative workshop. |

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| Regulatory challenges | Policy recommendations | How to adopt | Responsible regulator |
|---|---|---|---|
| A specific IT guideline including the data security standard, data protection, business continuity standard and cybersecurity, among others, would enable MFIs to implement standard IT practices. | MRA does not have an IT policy or guideline for MFIs. | **Short to medium term:** MRA should draft standard IT practices for large, medium and small MFIs. | **Approach:** MRA should seek the opinions of MFIs and experts through a consultative workshop. |
| A clear guideline on the requirement of maintaining a disaster recovery centre would help MFIs who want to maintain their own data centre implement standard practices. | There is no policy for MFIs to maintain a disaster recovery centre. Most of the surveyed MFIs who have in-house data centres do not maintain a disaster recovery centre. | **Short to medium term:** MRA should draft a policy and seek stakeholders' opinions. | **Approach:** MRA should seek the opinions of MFIs and experts through a consultative workshop. |

Photo: BRAC / Pronob Ghosh

# ANNEX

## Annex 1: Cases on various digital options

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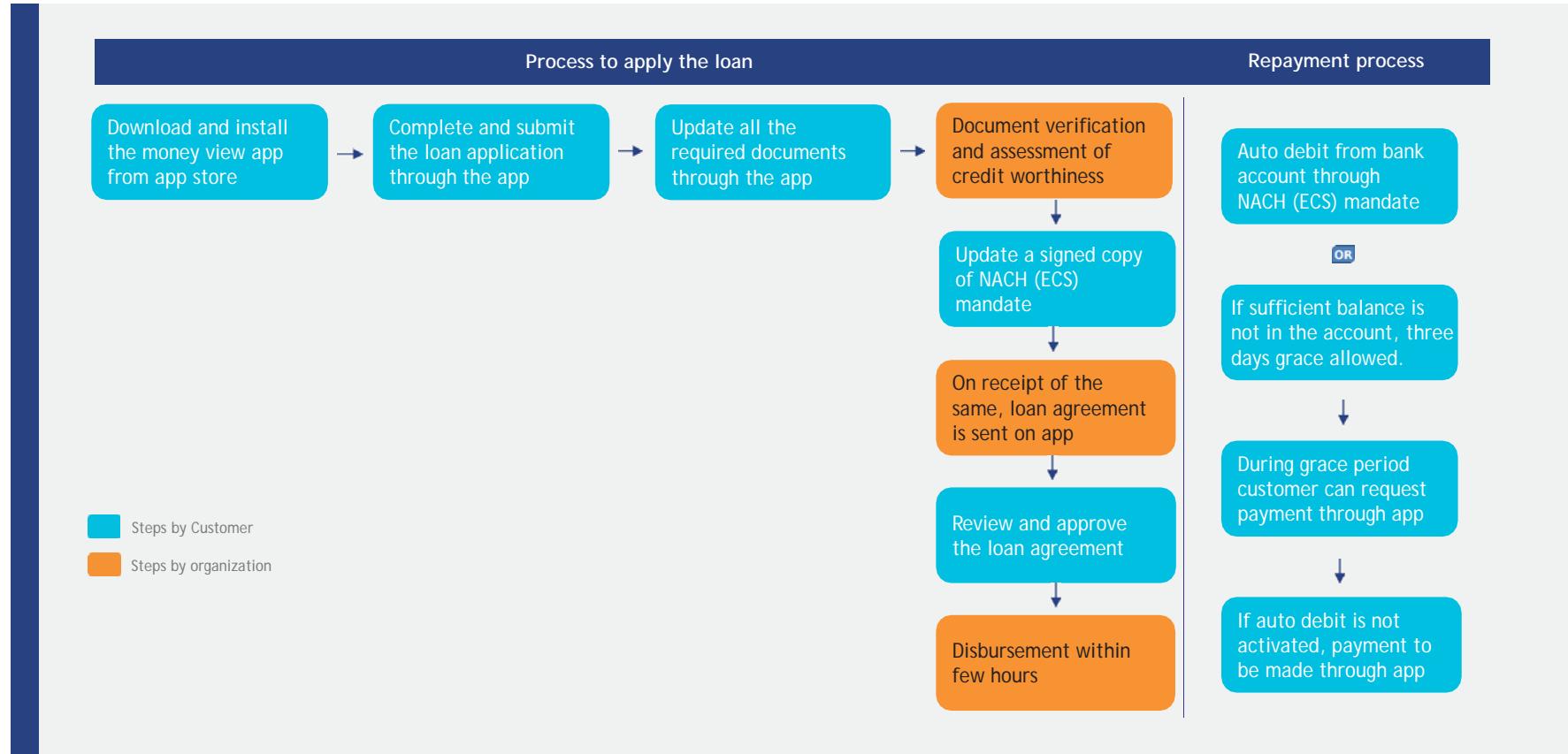SHAPING INCLUSIVE
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# Case: Money View, an app for digital credit

Money View™

- Established in 2014, head quartered in Bengaluru
- Core business idea: App-based platform for personal loans (it only facilitates the process of lending and repayment of the loans)

| Digital credit attributes | Product | |
|---|---|---|
| | *Target segment* | *Product attributes* |
| **Instant** Loan is disbursed in just a few hours. | **Age profile** Open to person of all ages | **Ticket size** Min: INR 10,000 (US$ 139) Max: INR 500,000 (US$ 6,989) | **Interest rate** Algorithm-based interest rates Interest rate: 16%+ Processing fees: 2%+ |
| **Remote** Physical identification is not required (entirely Paperless) | **Income bracket** Monthly in-hand salary Salaried: Rs.15,000 Self-employed: Rs.25,000 | **Promotion** Facebook, Twitter, Linkedin USP/Tagline: Get a loan with your phone | **Documents needed** Aadhaar card, current address proof, bank statement (salary account) three months If self-employed, with need ITR verification form for last two years |
| | **Occupational bracket** No occupational limitation | | |
| **Automated** Proscess in completely automated | **Credit history** A minimum CIBIL Score of 650 is required to get the loan | **People** Support via loans@moneyview.in +91 9972377893 | **Physical evidence** E-mail, SMS & app notification No physical office |

Source: https://moneyview.in/

Money View™

| Process to apply the loan | Repayment process |
|---|---|

**Process to apply the loan:**

Download and install the money view app from app store → Complete and submit the loan application through the app → Update all the required documents through the app → Document verification and assessment of credit worthiness

↓

Update a signed copy of NACH (ECS) mandate

↓

On receipt of the same, loan agreement is sent on app

↓

Review and approve the loan agreement

↓

Disbursement within few hours

**Repayment process:**

Auto debit from bank account through NACH (ECS) mandate

**OR**

If sufficient balance is not in the account, three days grace allowed.

↓

During grace period customer can request payment through app

↓

If auto debit is not activated, payment to be made through app

Legend:
- Steps by Customer
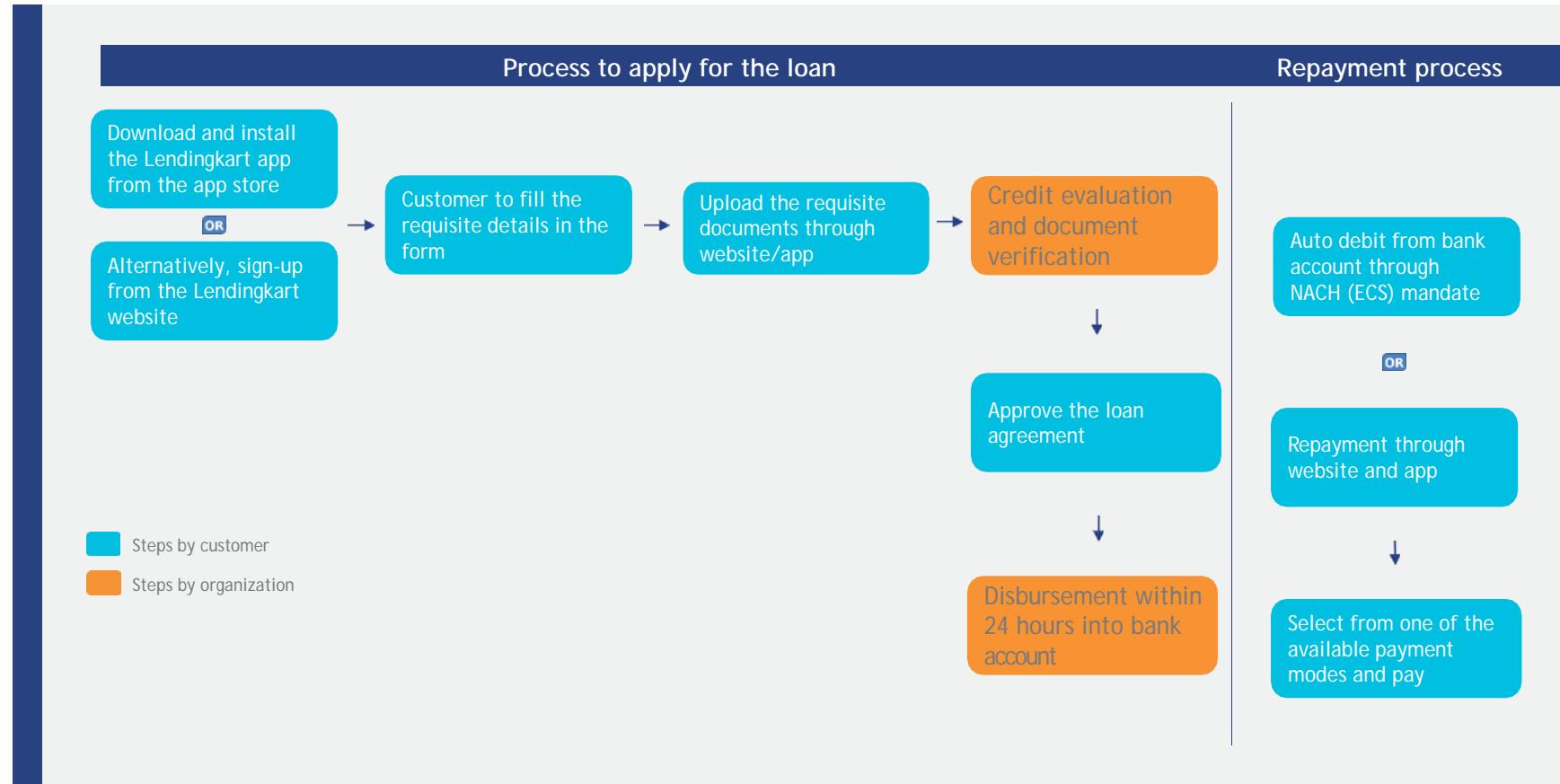- Steps by organization

Source: https://moneyview.in/

# Case: Lendingkart, an app for digital credit

**LENDINGKA₹T**

- Established in 2014, headquartered inGurugram
- Core business idea: Small business loans, without collateral and minimum documentation

| Digital credit attributes | Product | | |
|---|---|---|---|
| | **Target segment** | **Product attributes** | |
| **Not instant**<br>Takes 24+ hours to get approved | **Age profile**<br>Minimum business existence is 6 months | **Ticket Size**<br>Min: INR 50,000 (US$ 699)<br>Max: INR 10,000,000 (US$ 139,783) | **Interest rate**<br>Algorithm-based interest rates<br>Interest rate: 18%+<br>Processing fees: 2% |
| **Remote**<br>Physical identification is not required (entirely paperless) | **Income bracket**<br>Annual turnover at least INR 600,000 (US$ 8387) | **Promotion**<br>Facebook, Twitter, LinkedIn<br>USP/Tagline:<br>'Think Cash, Think Lendingkart Group!' | **Documents needed**<br>Address proof, identity proof, business existence proof, copy of income tax return (two years) and bank statement (six months) |
| | **Occupational bracket**<br>No occupational limitation | | |
| **Automated**<br>Process is completely automated | **Credit history**<br>A minimum CIBIL Score of 700 is required to get the loan | **People**<br>Support via<br>info@lendingkart.com<br>0124-3864889 | **Physical Evidence**<br>E-mail, SMS & App notification<br>No physical office |

Source: https://www.lendingkart.com/

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**ENDINGKA₹T**

| Process to apply for the loan | Repayment process |
|---|---|

Download and install the Lendingkart app from the app store

**OR**

Alternatively, sign-up from the Lendingkart website

→

Customer to fill the requisite details in the form

→

Upload the requisite documents through website/app

→

Credit evaluation and document verification

↓

Approve the loan agreement

↓

Disbursement within 24 hours into bank account

Auto debit from bank account through NACH (ECS) mandate

**OR**

Repayment through website and app

↓

Select from one of the available payment modes and pay

■ Steps by customer
■ Steps by organization

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# Case: Sajida Foundation, a financial advisory app

**Arishul Amin of BFA writes in NextBillion about the Android-based Financial Advisory Services (FAS) app that it developed for Sajida Foundation in Bangladesh. The FAS app helps field officers identify "super savers" and provides officers with useful simulation tools.**

### Identifying supersavers



Figure 1. Portfolio summary (Displays: outstanding loan balance, balances of three savings accounts, PAR rate, number of clients)



Figure 2. Centre summary (Displays: member -wise list with indicators for quality of loan and savings, and length of membership)

Mr. Amin writes in his NextBillion post about the FAS app, which was piloted in two branches and is now being deployed to other branches.
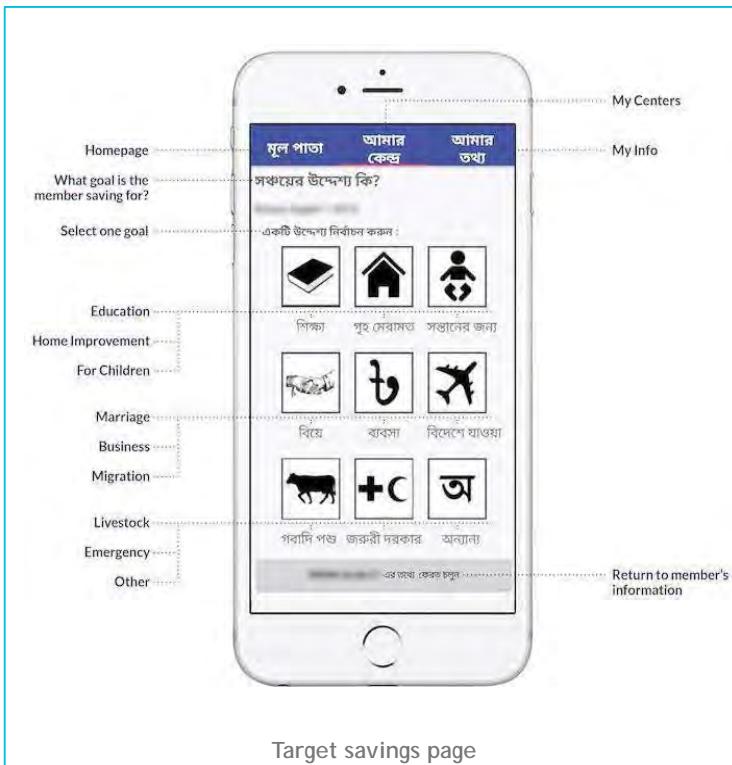
"The centre summary, like a dashboard in the app, displays a list of all the members in that centre, along with the status of any current loans and savings (Figure 2). The app categorizes clients into 1, 2 or 3 stars.

Three stars: Members with three stars have more than BDT 10,000 in their voluntary savings account, and have not withdrawn for more than a year. These "super savers" are the primary targets for term accounts.

Two stars: Members with two stars have between BDT 5,000 and BDT 10,000 in voluntary savings, and have held that balance for more than a year. They are secondary targets, who may be engaged in a conversation about long-term goals and term deposit accounts.

One star: These members have between BDT 4,000 and BDT 4,999, and have not withdrawn in more than a year. These clients are clearly savers, but have not yet achieved the minimum balance for term deposits. Field officers coach them in considering their long-term goals and encourage them to save the minimum level."

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Target savings page

Mr. Amin continues in his post, "The Summary page allows field officers to quickly identify members with three stars and 'good' loans, to efficiently zero-in on those who may be interested in flipping from savings to termaccounts.

From the Summary page, clicking on any member takes the field officer to a page with details on current and previous loans; balances of compulsory, voluntary and term deposit savings; and the option to see more details such as choosing a new savings goal tosimulate.

These client histories help officers as well as members, who appreciate being able to see their entire portfolio at a glance. In addition, the stars seemed to have a motivating effect for clients, which is an unexpected but welcomeside-effect."

*The pilot test has shown positive results with an increase of 59% more savings in pilot branches in comparison with non-pilot branches.*

Sources: https://nextbillion.net/cross-sell-done-well-how-one-finance-app-found-a-balance-between-digital-and-human-touch/
and Sajida Foundation Annual Report 2017

Annex 2: List of
people interviewed

Photo: BRAC / Pronob Ghosh

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# List of people interviewed

| Organization | Name | Designation | Country |
|---|---|---|---|
| Ambala Foundation | Ripa Khatun | Deputy Manager, MIS | Bangladesh |
| ASA | Atanu Chatterjee | Head of IT | Bangladesh |
| AUP | Muzibul Islam Faruque | Executive Director | Bangladesh |
| BRAC | Shahed Shams Azad | General Manager, Microfinance program | Bangladesh |
| Data edge | Md. Asifuzzaman | MD | Bangladesh |
| GUP | Md. Monzurul Islam | Executive Director | Bangladesh |
| MSS (Manabik Shahajya Sangstha) | Md. Modabber Hossain | Assistant Director | Bangladesh |
| MSS (Manabik Shahajya Sangstha) | Md. Zakir Hossain | Director | Bangladesh |
| Margdarshak Financial Services Limited | Yogendra Bharti | Deputy Vice President | India |
| RIC | Md. Khairul Islam | Sr. Officer (Automation) | Bangladesh |

| Organization | Name | Designation | Country |
|---|---|---|---|
| RIC | Md. Rajib Hossain | Assistant Manager – IT department | Bangladesh |
| Shakti Foundation | Imran Ahmed | Senior Director | Bangladesh |
| Shakti Foundation | Sabyasachi Roy | Director (Head of IT) | Bangladesh |
| Sonata Finance Private Limited | Akhilesh Kumar Singh | Chief Financial Officer | India |
| TMSS | Md. Abdul Qader | Deputy Executive Director | Bangladesh |
| TMSS | Md. Ali Hossain | Finance Expert | Bangladesh |

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