WORKING PAPER

CGAP

DIGITIZATION IN MICROFINANCE

Case Studies of Pathways to Success

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Consultative Group to Assist the Poor

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EXECUTIVE SUMMARY

THIS WORKING PAPER FEATURES CASE STUDIES ABOUT THE following microfinance institutions (MFIs) that successfully created measurable customer and business value through digitization: Amret(Cambodia), Bancamía (Colombia), Microfund for Women (Jordan), Al Kuraimi Islamic Microfinance Bank (Yemen), and FINCA Impact Finance (global). Based on these cases, we offer insights and recommendations of wider applicability to inspire and inform digitization initiatives by other MFIs regardless of their size, location, or maturity.

While the featured MFIs are achieving promising results, most cases represent incremental improvements to the traditional microfinance model rather than a complete overhaul. For example, all of them maintain significant branch networks, and their customers still conduct most of their transactions in the branches.

Six key insights drawn from an in-depth study of these cases are (see Annex for methodology details) :

1. The most compelling value propositions are created around credit services

Given that credit services generate most of MFI income, it is not surprising that much of the value created with digital implementations is associated with the credit process:

- Automated credit decisioning (see FINCA) generates direct customer and business value by creating efficiencies in the loan cycle.

Examples of building value with digital technology

A Bancamía mobile app that digitized the workflow of commercial officers has increased their productivity by **27 percent** and decreased loan processing time by over **50 percent** within one year.

The number of women using Bancamía digital channels increased **176 percent** during 2020, while transactions made by women have grown **227 percent** in the same period.

The subsidiaries of FINCA Impact Finance have automated and streamlined the loan approval process for **30 percent-50 percent** of their follow-up loans.

Amret in Cambodia has grown a **US$22 million** savings program with its cadre of mobile savings officers that collect small savings during customer visits.

Al Kuraimi Islamic Microfinance Bank customers in Yemen are conducting **45 percent** of their transactions through alternative channels. **30 percent** of Amret customers do the same.

- Commercial officer productivity apps (see Bancamía and Microfund for Women) are also mostly associated with efficiency gains in the lending processes.
- Operational efficiency of agents, who ease ability of customers to make loan withdrawals and payments, can be improved with digital tools.

For many MFIs, follow-up loans represent approximately 60 percent of monthly disbursements. This means that there is a significant, immediate productivity gain in automating the traditional underwriting and approval process, in the form of larger disbursement volumes with less operational expenses and consistent risk costs. The precision of the calculation also allows for risk-based pricing, with benefits for the customer and the company. The automation and algorithmic scoring give the company a framework to continually finetune its underwriting criteria. FINCA Score illustrates the value in automating the credit decision for follow-up loans, based on existing data related to customer repayment history. It also demonstrates that the borrowing history of bank customers has predictive value for follow-up loan automation that is likely superior to public data sources, overcoming the often-cited lack of access to credit bureau data or alternative data.[1]

2. Successful implementations use simple technology and the minimum viable product (MVP) approach

Technical simplicity appears to be correlated with early-stage success in developing new products, channels, and processes. Managers of the featured MFIs give strong advice about the importance of proof of concept on quick-win initiatives to build momentum in the organization. Keeping the technology simple and avoiding the risks of technology overwhelm, which often stems from the ambition to fix several issues at once, are key.

Microfund for Women (MFW) achieved its efficiency gains with an off-the-shelf productivity software. FINCA Score is generated and commercialized through a series of manual steps and data file transfers, which only use internal data found in the core banking system (CBS). Bancamía developed its commercial officer app in-house and integrated it with a traditional CBS without a sophisticated middleware layer. Amret appear to have the most sophisticated integration layer and data warehouse, but even it abandoned the first stand-alone app and built a simpler version with the same functionality.

3. Where technology supports multiple parts of the business, a different approach to measuring return on investment is required

There are different views on value that drive investments in technology. For instance, the investment in a network for cash-in/cash-out (CICO) should yield returns in a relatively short time that are clearly attributable to the specific business needs served. On the other extreme,

1 This may still be a barrier to scoring new-to-bank customers.

new CBS or data warehouses serve the entire business and in these cases the decisions are based on a more long-term vision. The impact of such investments with business-wide impact are particularly hard to measure.

MFIs have frameworks for calculating return on investment (ROI) on technology investments. However, the largest part of the featured MFIs' technology investments were in core systems that support the entire business—all the featured MFIs installed a new CBS within the past four years. CBS upgrades are a permanent feature in the cost structure of a financial institution.

Amret, for example, invested in the IBM middleware solution to manage its large number of integrations and is convinced that it was a sound investment decision. However, it is not easy to calculate the benefit from those integrations and compare it to the marginal cost of the middleware investment. ATM and agent networks, mobile apps, and staff productivity apps, all associated with the middleware layer, affect multiple revenue and cost drivers. Because those investments serve the entire business, it is ultimately the effect on future net income of the company that will produce the ROI.

The featured MFI managers talk about tech investments as long-term strategic decisions to acquire new digitally enabled capabilities. For instance, Fundación Microfinanzas BBVA (FMBBVA) invested in technology at Bancamía and all its subsidiaries to create a core set of capabilities for growing the business in the coming years. For Al Kuraimi Islamic Microfinance Bank (KIMB), the platform upgrades and migration to Temenos CBS were simply necessary to modernize their tech stack. The Amret case demonstrates that for some MFIs, technology investment is a permanent cost center that they manage within the global cost structure to meet return on equity (ROE) targets. Within that framework, technology investment is driven by strategic business choices to acquire digitally enabled capabilities that the company believes will generate value in the future.

4. Change management starts with C-suite competency and requires training down the line

The C-suite managers play the critical day-to-day role in moving digitization forward and building support in the organization. Evidence from the featured MFIs shows that the successful implementation of digitally enabled channels, services, and processes requires technical and management skills that are relatively new. Amret replaced 50 percent of its C-suite managers during the implementation of Amret+, bringing in digitally skilled managers, and this kind of management exchange is not uncommon. MFW elevated its chief technology officer (CTO) to the executive team and created project manager positions. FINCA Impact Finance (FIF) hired an experienced data scientist.

In the case of Amret, Bancamía, and FINCA Score, the transformation strategies were initiated and championed by majority shareholders who played a key role in the actual implementation. Advans placed one of its Amret Board members on the Amret management team to support the implementation. FMBBVA provided ongoing technical support to Bancamía as

it implemented the group technology platform. FIF developed and implements FINCA Score centrally, at the group level.

Successful organizations also put significant effort into socializing the new strategy, deliberately empowering staff to take ownership and training staff in new skills. Both Amret and MFW credit their success to the significant effort they put into internal communications and training of staff, particularly at the branch and commercial officer levels.

The pace of human resource change may well be the critical driver of success in harnessing technology in MFIs. Companies need to deploy skills across many dimensions of the business. A modern tech stack is significantly more complex than traditional CBS platforms. Data analytics require a unique set of skills. Agile product development requires a makeover of traditional management structures and skill sets that cross over between technology and business. Digital marketing becomes increasingly important to engage with customers. And a company's approach to managing new risks must be more creative and informed about digital-related risks than is common in a traditional MFI.

5. Measuring customer behavior change is the key to measuring value created

Measuring changes in customer behavior over time is key to building both customer and business value. MFIs could be doing much more to measure value creation associated with their digital implementations. The business value created through an implementation like a commercial officer workflow app can be measured with traditional productivity indicators, such as loan disbursements per customer/month. The MFIs in this study produce these kinds of direct indicators. Similarly, they track the number of transactions in different channels and sometimes the number of customers transacting in different channels. These are useful indicators of high-level trends, but measuring customer behavior changes is key because this informs iterative improvements to products and services. For many MFIs, this means overcoming the capacity gap in data analytics.

Credit decisioning algorithms are an obvious tool for measuring customer behavior (by tracking behavior relevant to credit risk). Rich insights can be drawn from customer transaction behavior. For example, if customers begin using agent channels for CICO, it is useful to understand the use case that is driving those transactions, and whether the use case is evolving over time. Are those customers repaying their loans? If they are, are they renewing their loans more frequently? Is their repayment performance improving? A similar analysis of customer savings behavior will reveal whether the new channel is generating more or lower-cost savings. Segmenting the customer analysis will reveal actionable information for product development purposes. Overall, however, this kind of analysis remains rare (see, e.g., Amret).

6. Cases of incremental success are the common pathway to digitization

We find no MFIs that are achieving the meteoric growth of payment service providers like Wave Money in Myanmar, or the pure digital mass market banks like TymeBank in South Africa.[2] But we are also not aware that any of these new digital players are doing the kind of last-mile lending that MFIs have done successfully for decades. For now, we see companies like Amret using technology to regain a competitive position with a potential for scale up, KIMB bringing millions of unbanked customers to banking even in a conflict country, and FIF automating the underwriting of its follow-up loan book. If these MFIs can transform these incremental changes into a culture of continuous product development and customer experience improvement, we see potential for significant growth in their customer base and business model.

The small number of MFIs intentionally creating customer and business value through digitization, or rather the large number of MFIs that are not, is perhaps the most significant finding of our study. The featured MFIs demonstrate where and how the value can be created, and we hope that they show the way for the MFIs that are at the beginning of their digital journey.

2 We have observed MFIs using digitization to expand beyond their traditionally narrow focus on enterprise lending to a suite of products that is useful for a broader range of daily financial management needs, and therefore to a broader market segment to which we refer as ‘mass market’ in this paper.

INTRODUCTION

THIS WORKING PAPER TAKES A UNIQUE LOOK AT MFI INNOVATION with digitization by featuring inspirational case studies of how digital solutions create value for customers and MFIs. For at least a decade, the microfinance industry has been watching and discussing changes in the financial sector driven by technology with keen interest in the new potential for expanding the traditional microfinance model. For most of the MFIs we interviewed, their digital initiatives are part of a strategy for reaching greater scale and market relevance by expanding beyond the narrow focus on the enterprise sector to a broader base of underserved *mass market* customers.

We surveyed the industry to find cases of MFIs that are using technology to scale services to the mass market in new ways. After conducting in-depth interviews with over 30 short-listed MFIs, we chose to conduct primary research and additional interviews with the following ***five that have used digital technology to generate a measurable increase in customer and business value:*** Amret (Cambodia), Bancamía (Colombia), Microfund for Women (Jordan), Al Kuraimi Islamic Microfinance Bank (Yemen), and FINCA Impact Finance (global). We set this benchmark to establish a practical measure of success, with particular interest in where and how MFIs are creating value. The featured MFIs are achieving promising results.

How are they creating value?

Across the industry, the implementations that are generating measurable value are clustered around a small number of very practical use cases. Most of the featured MFIs launched their digital transformation strategies by replacing paper-based customer signup and/or loan application processes with **a commercial officer workflow app** that enables officers to perform their tasks on a mobile device. The app replaces the legacy processes, with significant improvements in efficiency, commercial officer productivity, processing time, and time and effort for the customers.

Implementations that expand **CICO points** outside of the branches also produce value for customers and companies, though very few MFIs can measure that value. MFI customers are using CICO networks to withdraw loans and make payments, and MFIs are gaining revenue and efficiency as small transactions migrate outside of the branches. Like the commercial officer app, CICO networks reduce significant logistic pain points that are well understood in the microfinance industry. However, a few MFIs have migrated more than 30 percent of

transactions out of traditional channels and customers use agent channels mostly to make their loan payments.

Customer mobile apps are increasingly common, and many MFIs are also launching other communication channels (e.g., chat bots, WhatsApp, SMS) to provide customers with self-service options for information and transactions. In general, customer adoption of mobile apps has been modest, and most communication channel initiatives are still at an early stage with the first adopters. Some of the customer value generated by these tools is qualitative and difficult to measure, but even basic usage rates have yet to grow to significant numbers.

Many of the MFIs we interviewed aspire to use technology for **automated credit decisioning**. They see this as the most significant opportunity for generating value for customers and the company given that credit is their main product and revenue driver. We found several cases of MFIs achieving impressive results even with simple decisioning platforms that are automating decisions for follow-up loans.

What technology are they using?

Every MFI we interviewed is implementing digital technology in some part of their business. The scope of these implementations ranges from introducing focused productivity apps to wholesale replacement of CBS and data platform. Technology implementation is a permanent activity and cost center in all MFIs. Interestingly, most of the implementations that are generating measurable value were developed and grown to proof-of-concept scale as MVPs on traditional and simple technology.

How are they managing the change?

The challenges of change management are a recurring theme in studies and commentary about digital transformation initiatives in all industries, and especially in financial services. In some of the first programs that funded digital transformation in MFIs, we can see some clues to MFI struggles to convert significant investments in technology into measurable value. The fact that most MFIs we interviewed do not yet claim measurable value creation in their initiatives is another clue. The case MFIs provide lessons about how they managed the changes in their initiatives and the importance they ascribe to getting this part right in a digital strategy.

How are they measuring value?

One of our most significant findings is how much more MFIs could be doing to measure value creation associated with their digital implementations. Most of interviewees reported that their implementations were at too early a stage to measure value creation metrics. In general, we found significant space for MFIs to sharpen their definition of value and develop the practice

and metrics to measure it. We feature the best of what we found in the case studies and discuss the benefits to be gained by improving this practice.

The featured MFIs represent diverse approaches, time in operation, and learning opportunities that showcase how MFIs can create a measurable customer and business value through digitization.

AMRET: BUSINESS MODEL TRANSFORMATION THROUGH TECHNOLOGY (CAMBODIA)

Overview

Amret and its Amret+ initiative represent an example of business model transformation enabled by technology. Amret leveraged digital technology to transform from a predominantly group-loan MFI to a full-service financial institution serving over 500,000 customers. Amret is a US$1.4 billion assets deposit-taking MFI in Cambodia that belongs to the Advans holding network.

In 2017, Amret launched Amret+, a multi-faceted strategy to grow its business and improve its position in a very competitive market. By the end of 2020, Amret had added 168,000 savings accounts and US$416 million in deposits, and is among the top 10 financial institutions in Cambodia. In four years, Amret achieved a significant transformation of its organizational structure and culture, staff, product offerings, marketing, and technology platform.

BOX 1. **Amret in numbers**

- US$1.4 billion in assets
- 505,000 customers
- 4,000 staff
- 158 branches
- 2,100 ATMs*
- 19,000 agents*

*includes partner networks (Dec. 2020)

Strategy

Amret's technology deployments are part of Amret+, a holistic strategy to deliver competitive customer value, modernize operations, and improve the market position and brand. The Amret+ strategy is aimed at creating a full service, mass market financial institution. The vision for the Amret+ initiative came initially from Advans, the majority shareholder. The Board of Directors embraced the strategy and appointed one of its own members as an Executive Director to lead the implementation together with the CEO.

Amret+ is structured to improve the customer experience and business process efficiency by developing new competencies in business intelligence, digital services and operations,

FIGURE 1. **Global road map**

Source: Amret

and more agile organization and processes. The implementation steps for each of these components are defined in a global road map (see Figure 1).

The strategy was adopted in response to a lending interest rate cap (introduced by the central bank in 2017), growing signs of market saturation and slowly diminishing market share. Amret launched Amret+ as a strategy to position the company in the top ten financial institutions in Cambodia. Historically, Amret had been a group loan, credit-oriented institution; the Amret+ strategy is aimed at turning it into a full service, mass market financial institution.

The strategy was explained to staff through a series of workshops that culminated in a final strategy workshop with 350 managers, which is repeated annually. The lead team also deployed an internal communication campaign that created a brand around Amret+. They placed posters in branches and generated videos with leaders in key positions. Early on, the team established metrics and dashboards to measure progress and was deliberate about employing consistent usage of terminology and metrics in all monthly reporting.

The project head attributes some part of their success to the organization's inherently flexible and adaptive nature. Nevertheless, significant staff and organization changes were a part of the process. Amret replaced half of its C-suite positions during the implementation. They redefined regional manager positions to focus their performance on transformation targets. Branch managers were retrained through a 2-year certified training program. They added new positions in data and security areas.

Initial attempts to manage the different projects with existing staff positions were abandoned in year two. At that point, Amret added five project managers to clearly separate the core

business management from transformation management. Project managers were trained, given project management and governance tools, and given cross-departmental authority. Amret also invested significantly in training staff in their new roles. It claims to have been particularly successful at introducing agile product development practices that accelerated the time to market for new products and services.

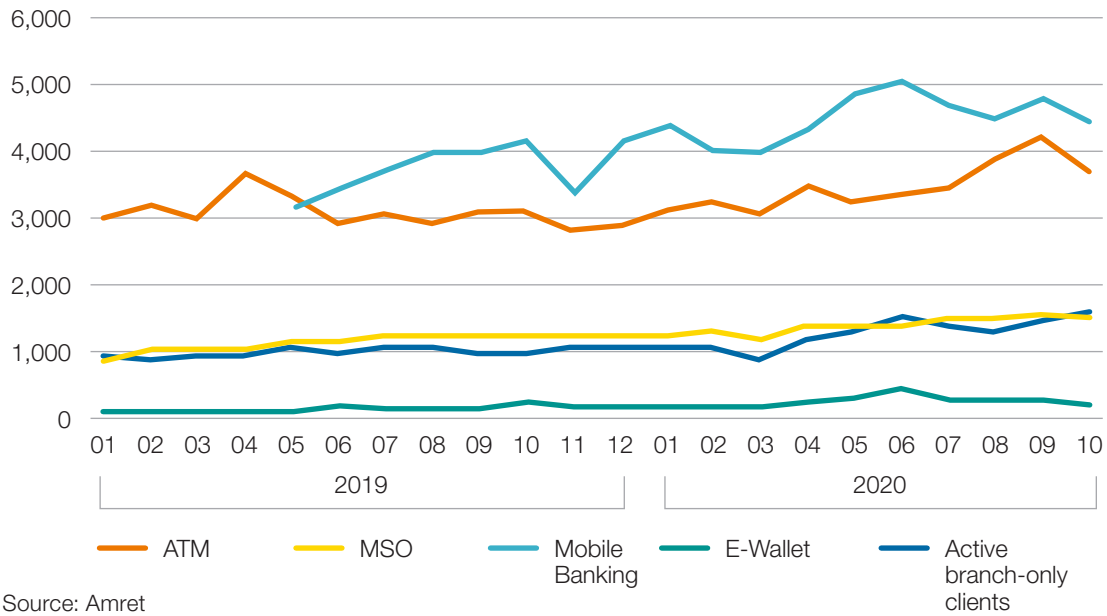
Amret does not attempt to calculate ROI for specific pieces of technology. Prior to the launch of Amret+, Amret had amortized most of its legacy technology platform so there was room in the cost structure to support new investment. The Board agreed to this and simply gave management two core performance mandates: (i) grow the customer base and reach a target of 15 percent ROE; and (ii) maintain the MSME customer focus and excellence in responsible practices. Technology investment decisions, and the return on those investments, were calculated in that framework.

Customer value

The main customer value created by Amret+ is in improved accessibility and engagement through an omni-channel ecosystem consisting of ATMs, Mobile Savings Officers (MSOs), e-wallets and branches (Figure 2). This also includes MSOs who are based out of branches and make onsite visits to customers to collect daily savings deposits.

Customer adoption of the alternative delivery channels (ADCs) has been steady since the launch in 2017. Currently, 30 percent of customers transacting in a given month use an ADC, representing 40 percent of all transactions. This includes steady growth in all channels, except ATM. However, ATM access is still important, as those transactions comprise 27 percent of all withdrawals.

FIGURE 2. **Average client balance (USD) per channel**



Source: Amret

The customers who use the ADCs are also increasing their transaction and savings activity at greater rates than the branch-only customers. Since January 2019, the average number of monthly transactions of ADC customers increased from 3.4 to 4.6, while the average for branch-only customers remained unchanged at 1.6 transactions/month.

Importantly, ADC customers are increasing their savings balances faster than branch-only customers. This is particularly significant because the MSO customers are micro-level businesses that save small amounts every week, a segment that Amret has not been able to serve in the branch (see Box 2). E-wallet customers, many of which are farmers, typically live in rural areas and have the lowest average savings balances.

The average MSO customer increases their deposit balance every month after signup, reaching US$1,600 by their twenty-second month with Amret (Figure 3). The ADC customers are also increasing the scope of services they access from Amret. Historically, the MSO customers have been primarily savers, with only around 8 percent taking out loans prior to the launch of the *Fast Loan* in September 2019. Demand for Fast Loans doubled the number of loans to the MSO customers.

BOX 2. **The customer journey of Ms. Yu**

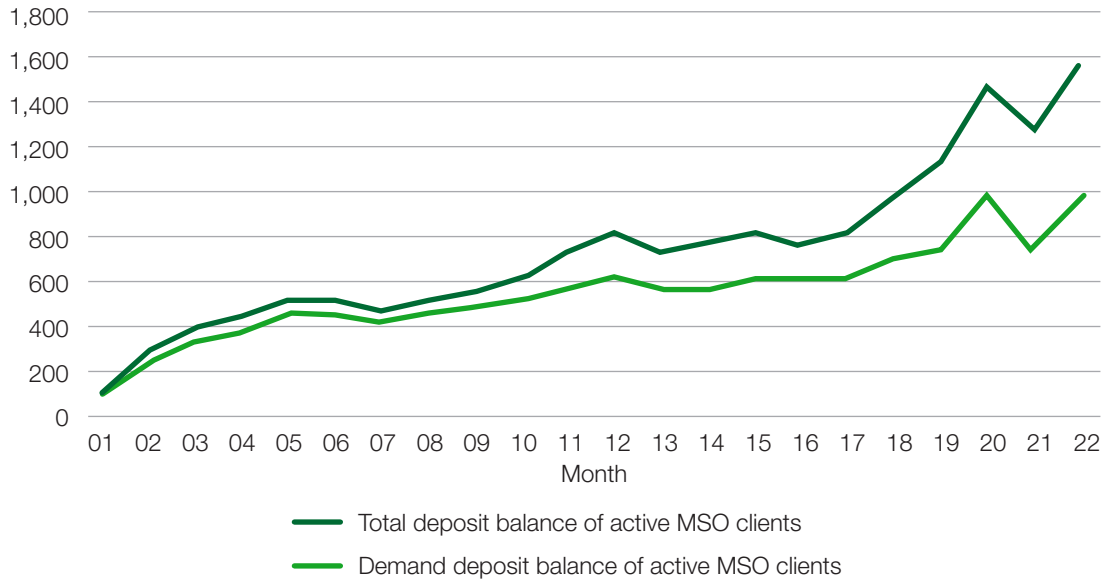
Ms. Yu is a fruit seller in a market in Phnom Penh who nets US$30-40 per day in profit. Prior to her engagement with Amret, she never had a bank account, conducted all her transactions in cash, used money lenders for loans, and joined Ton Ting groups to save money.

Ms. Yu signed up for Amret's Mobile Savings Service in March 2018. Within six months, she was saving US$30 four times per week. In 2019, she had accumulated enough regular savings transaction history to be eligible for an uncollateralized US$500 *Fast Loan*, one of Amret's new automated digital loan products. She reports, "*Sometimes I need quick funds when I have a family emergency or a small business opportunity. I can get a loan without my husband's approval!*" Ms. Yu also sends US$25 per month to her mother through the Wing network. Ms. Yu just purchased her first smart phone, and her MSO will help her set up the Amret mobile app so that she can perform transfers from her Amret account to Wing wallet in self-service, without visiting a Wing agent.

Ms. Yu is one of 25,000 active MSO customers who collectively deposit US$22 million in Amret. The MSO service has been particularly attractive to women, who comprise 85 percent of the MSO customer base. More broadly, 66 percent of Amret customers are women. Interestingly, usage patterns vary by gender and geography. Women use mobile banking and ATMs less than men, where they comprise 41 percent and 45 percent of the active customer base, respectively.

Source: Amret

FIGURE 3. **Average deposit balance (USD) of all active MSO client by month since registration**



Source: Amret

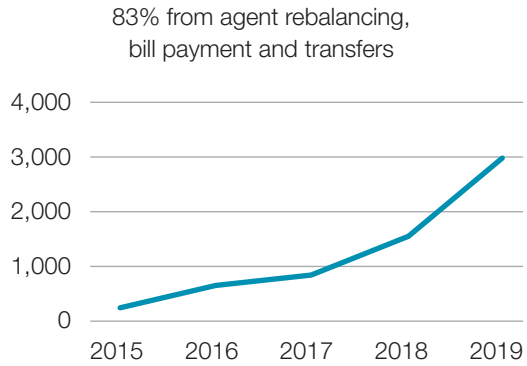
Business value

Since launching Amret+, Amret has added 78,000 new customers and increased the number of customers with deposit accounts by 168,000. Deposit balances increased by US$416 million over the period. Amret management ascribes a significant role to the ADCs but recognizes that the ADCs were one part of a larger transformation to a customer-centric service model, involving also rebranding, product diversification, and capacity building.

With the migration of 40 percent of transactions into the ADCs, Amret reduced the ratio of counter staff/total staff from 27 percent to 25 percent, and significantly increased fee income from higher value branch transactions related to agent rebalancing, bill payments, and transfers (Figure 4).

Amret has also monetized a significant growth in deposits and a reduction in cost of funds. The ratio of demand to total deposits increased from 20 percent to 31 percent by the end of 2020. Cost of deposits declined from 6.7 percent to 5.3 percent, giving Amret an advantage in a market with an average cost of funds of more than 6 percent for microfinance institutions.

FIGURE 4. **Non-loan fee income (USD 000)**



Source: Amret

Technology

Amret has implemented a wholesale transformation of its IT stack during the rollout of the Amret+ strategy. In this process, Amret made deliberate technology choices to scale the capabilities that drive its new digital channels and services, and ultimately customer and business value.

Amret had been using an aging version of its CBS (Temenos T24 R10) throughout the early stages of its Amret+ strategy implementation, while preparing for a February 2021 transition to a new core banking platform built around a more recent Temenos version. Like most CBSs, Amret's legacy system required a significant amount of customization to meet microfinance specific requirements not available in the standard version. Amret had the option of undertaking a sequence of version upgrades to the latest supported version, or to leapfrog. Amret opted to leapfrog and upgrade from Temenos release 10 (R10) to release 18 (R18). This allowed it to build a modern tech architecture capable of scaling the new Amret+ model. The new architecture improves Amret's ability to interface with the outside world through integrations and apps, and to manage, analyze and report on data.

Amret had accumulated around 25 integrations on the legacy system as it added mobile apps, partnerships with mobile money providers, and internal services. Each of these integrations was linked individually to the CBS, and Amret was struggling with the usual problems associated with this architecture. These kinds of integrations are often time consuming and costly, and transactional integrity and management becomes increasingly cumbersome with each integration. For example, Amret had to do daily reconciliations between multiple sources of data.

To solve this problem, Amret added IBM's IIB Enterprise Service Bus (ESB) middleware solution.[3] The new ESB architecture provides Amret with a streamlined way for adding integrations, embed global controls that provide real time monitoring and visibility on all transactions, and improved control and governance across all integrations.

With the modernized tech stack, Amret is extending its mobile app capabilities to provide more products, services, and features to its customers. They are also developing apps for staff to improve productivity and data integrity. In the early versions of these apps, Amret experienced challenges with vendors not always being agile enough to meet time-to-market needs and rapidly evolving requirements. Amret's strategy now is to build strong internal capabilities to develop new digital products and services across its core platforms with a focus on agility, speed and quality. The new CBS, the ESB, and other back-end infrastructure upgrades allow Amret to develop new tools and solutions that equip its field staff with new capabilities to improve customer engagement and deliver business value.

Amret has also created a new data lake architecture that delivers operational and business performance management reports and data analytics. This addresses the growing complexity and fragmentation of data sources in the legacy platform. Amret has invested in

3 An Enterprise Service Bus (ESB) is a middleware solution that manages the workflows between components of a tech stack. Platforms with an ESB architecture can add and modify new components and external connections much more easily than the traditional core banking systems that connect to each component individually.

advanced architecture that delivers high performance, scalable, and robust data processing and reporting capabilities. Amret's new data lake removes the burden of data management and reporting the CBS production environment. This allows for timelier, secure, and flexible data management and reporting. Power BI and other reporting tools, accessible by staff on mobile devices, drive much of the operational and management analytics and reporting. The new environment provides Amret with the ability to rapidly generate data collections for reporting and analytics, as well as new business products.

BANCAMÍA: COMBINING MOBILITY FOR CUSTOMERS, OFFICERS & AGENTS WITH A MINI-BRANCH MODEL (COLOMBIA)

Overview

Bancamía has achieved its greatest advances by digitizing workflows that generate efficiencies for customers as well as the bank. This case study focuses primarily on the *Punto Express* mini-branch model and the mobility strategy, which are the most advanced deployments. The changes they bring to customer and business value are most visible and measurable. The mobility strategy comprises three main initiatives: (i) the commercial officer app; (ii) the CICO agent network; and (iii) the customer mobile app.

Bancamía is a US$577 million-asset Colombian bank that was formed by FMBBVA. FMBBVA acquired and now operates established MFIs in Chile, Colombia, Dominican Republic, Panama, and Peru. It is implementing a group-wide digital strategy that allows it to build capacity and scale financial services to underserved populations.

BOX 3. **Bancamía in numbers**

- US$577 million in assets
- 1.4 million customers
- 3,295 staff
- 213 branches
- 2,605 ATMs*
- 37,635 agents*

*includes partner networks (Dec. 2020)

The *Punto Express model*, combined with the agent network (consisting of 37,635 agents), has significantly reduced operating costs and improved customer convenience. The mobile app that digitized the workflow of commercial officers has increased commercial officer productivity by 27 percent and decreased loan processing time by over 50 percent within one year.

Strategy

The FMBBVA group strategy is to (i) deploy digital technology to create products and channels specifically for underserved mass market customers; and (ii) build an operational and business model capable of reaching significant scale. The strategy is grounded in the concept of "relational banking," a customer-centric focus on building trust and making banking accessible for mass market customers. Digital innovation is an enabler to build customer and/or business value.

The digital strategy includes initiatives across all areas of the business:

- A common core banking system across the subsidiaries;
- The Google suite for managing documents and centralizing electronic records;
- Digitization of forms and documents associated with financial services;
- Data warehousing and analytics; and
- Digital channels that comprise the "mobility strategy": (i) the commercial officer app; and tablet (ii) the CICO agent network and (iii) the customer mobile app.

The sequencing of digital initiatives has been deliberate, guided by an approach to change management that seeks to add initial value to a core group of staff and customers, who then become champions for broader adoption.

Bancamía's digital initiatives are part of a larger institutional transformation that started in 2008 with the transfer of the NGO operations to the bank. The bank first added expertise to build capacity for regulatory compliance and risk management. Current management describes the digital part of the journey as "gradual." FMBBVA provided significant technical support in the first digital deployments but over time Bancamía has developed in-house capacity.

Customer Value

THE COMMERCIAL OFFICER TABLET APP

The commercial officer (CO) app has created customer value with faster processing times and less travel to branches. It was introduced in 2015 as the first significant component of the mobility strategy. Bancamía anticipated that the COs would be important champions to encourage customers and other bank staff to adopt future digital channels and services.

The COs are the heart of Bancamía's service model and the company had the most efficiency to gain in streamlining the COs' workflow. The app enables the COs to conduct all workflows from a tablet, on- and offline. It enables the COs to open accounts, process loan applications, accept payments, and access customer information from the tablet.

By February 2018, 93 percent of all loans were processed by 1,400 COs through the app, serving customers close to (if not at) their homes. Two years after the full launch of the app the productivity of COs had increased significantly to over 17 loans per month.[4] The average loan processing time had been reduced by 52 percent.

4 The numbers in 2020 were affected by the COVID-19 pandemic.

In addition, the app enabled the COs to accept loan payments directly from customers. This feature is particularly useful when the COs are visiting a customer in arrears. In 2019, COs accepted 29 percent of all loan payments directly from customers during field visits. In 2020, the COs also opened 113,000 savings accounts, despite COVID-19 related restrictions in the second half of the year.

Bancamía also has integrated digital file solutions and digital signatures. This allows customers to sign documents digitally, significantly simplifying the process of loan application, account opening, and new product sign-up.

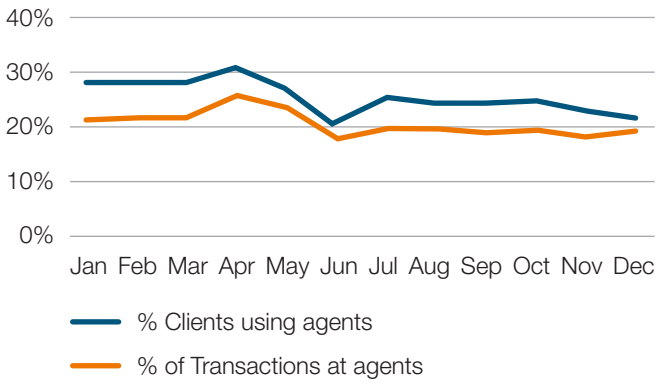
The CICO Network

The second mobility strategy initiative linked back to the launch of the agent network in 2012. Prior to that, the Bancamía CICO service network consisted of the branch network and an affiliated national network of ATMs. The branches were effective for many urban customers but inaccessible to remote populations. Customers have made little use of the ATM cards. By the end of 2020, only around 2,000 customers were transacting at ATMs in any given month.

Bancamía launched its own agent network by turning some of its premier customers into agents. It created a network of 503 agents, combined with 37,635 agents of four partner agent networks (December 2020). During 2020, 16 percent of customers carried out transactions with agents (Figure 5).

The primary customer use case for agent transactions has been loan payments, which comprise 73 percent of agent transactions. Withdrawals have increased to 15 percent of transactions largely because Bancamía customers have received government support during COVID-19 directly into their bank accounts. Other account deposits are around 12 percent of total transactions at agents.

FIGURE 5. **Transactions at agents (2020)**



Source: Bancamía

Bancamía customers are still conducting around 80 percent of transactions in branches, and this figure remained constant throughout 2020. The numbers reflect the proportion of Bancamía customers that are urban and accustomed to engaging with the bank through the branch network. The new channels, and customers that use them, are part of a rural expansion strategy that is still in its early phases.

Women entrepreneurs represent 56 percent of the total customers in Bancamía and 63 percent of them are active in using digital channels. The number of women using digital channels increased 176 percent during 2020, while transactions made by women have grown 227 percent in the same period. In the first quarter of 2021, the number of digital transactions by women continued growing by 25 percent compared to the end of 2020.

THE CUSTOMER MOBILE APP

Bancamía launched the customer mobile app and website as the third component of the mobility strategy in 2019. Activations accelerated during the last quarter of 2020. By November 2020, 150,000 customers (12 percent) had signed up to either the mobile app or website portal. Usage has been increasing month on month, likely driven by early adopters. Fifty-six percent of the customers who installed the app were six-month active for any type of consultation, but only 14 percent had made a monetary transaction with the app in the previous six months. This last group represents around two percent of total Bancamía customers. P2P transfers constitute 64 percent of monetary transactions in the mobile app, followed by 15 percent for top-up purchases and 11 percent for bill payment.

Business value

The mobility strategy has generated both customer and business value. The core business value was achieved through the Punto Express mini-branches. Bancamía has opened 15 new branches as Punto Express and converted around 30 of the existing traditional branches. This has helped reduce the overall operational cost:revenue ratio of the bank from 70 percent to 55 percent in three years and expand presence in rural areas. The efficiency gain is made possible by the digitization of core branch functions and process flows that makes it possible for four to five staff to run a branch, compared to 20 staff in traditional branches. The digital signature and document technology also generate savings of more than 46,000 reams of paper per year. This solution is running in all their offices.

The commercial officer tablet app has also produced a direct benefit for Bancamía with an increase in COs' productivity and reduction in processing time. For a company that relies on 1,400 COs who make frequent visits to customers, this productivity gain could be very significant. If the improved customer experience encourages higher loan renewal rates, that could also increase overall productivity.

Technology

FMBBVA has implemented a consistent technology platform across its subsidiaries. Bancamía migrated to the group CBS (Bantotal) between 2014 and 2016. The platform is on-premises in Colombia. The payment solutions are all integrated directly with the CBS, and there is little API communication with outside vendors. For these reasons, Bancamía is not using an ESB architecture. The bank believes that its architecture is adequate given the modest number of integrations.

The consumer and staff applications have been developed by a centralized FMBBVA team and they are operated from a cloud-based middleware platform. The development team describes its approach as creating bundles of microservices that they reuse in different applications and deployments. However, the team still develops apps on a separate development server

and then migrates to the production servers for deployment; they do not use a containerized environment for DevOps.

The FMBBVA group has established a centralized, cloud-based data warehouse. By December 2020, Bancamía had 5.5 million documents stored in the cloud and 1.5 million biometrically signed documents. The warehouse is populated primarily with CBS data. The integrations of data from payments channels, call center, or SMS communications are ongoing to obtain more insights. The tech team is developing a group-wide analytics and reporting practice. Different user groups are combining the warehouse data with other sources to build separate data sources and analytics methods for specific purposes.

MICROFUND FOR WOMEN: DIGITIZING LOAN APPLICATIONS AND INTEGRATING WITH E-MONEY WALLETS (JORDAN)

Overview

Microfund for Women (MFW) is a case study of creating customer and business value through digitizing the loan application process and integrating with popular payments solutions. By digitizing the loan application process, MFW reduced the average loan processing time by over 60 percent and reduced administrative staff positions by 17 percent. By integrating with the national e-money and payments infrastructure, MFW has improved customer convenience and outreach, enabling 36 percent of customers to receive loan disbursements to their e-wallets without a branch visit.

Launched in 1996, MFW is Jordan's first and largest non-profit with US$85 million in assets. The organization is dedicated to empowering entrepreneurs, women in particular, through an array of financial and non-financial services designed to support their businesses and livelihoods while helping them achieve financial inclusion.

BOX 4. **MFW in numbers**

- US$85 million in assets
- 120,000 customers
- 720 staff
- 62 branches
- 1,000 ATMs*
- 2,072 agents*

*includes partner networks (Dec. 2020)

Strategy

In 2017, MFW launched its digital strategy with the objective of creating value for customers and the company. From the beginning the strategy was very people-centric, focusing on improving the experience for customers and the work experience of MFW staff. For customers, MFW aspired to make loan application and management easier and faster by including as much remote self-service as possible. For staff, MFW wanted to make the company a place where staff spend more of their time on "skillful tasks," with the added objective of making MFW more efficient and faster to innovate.

MFW management is passionate about the importance of change management as the prime driver of its success, more than the technology. On a senior level, MFW consolidated the two deputy general manager roles into a single position to create a more unified management vision and practice. It also elevated the head of IT, with a thorough knowledge of the business, as well as technology and innovation-related skills, to a C-suite position. MFW also created project manager positions for key initiatives. Although MFW added three new key positions with new skills, it also believed in the importance of providing training to "upskill" its existing staff.

Project managers started by engaging stakeholders early in a conceptualization exercise to think about how they would change the way they work. The team identified early champions and launched initial pilots in branches with the first adopter branch managers. MFW chose quick win projects to demonstrate the practical benefits of the changes, and management celebrated the early adopters to create an incentive for others to participate.

Customer value

EXPRESS BRANCHES

The Express Branch was MFW's first initiative, and it has reduced the loan processing time, making the procedure more convenient and easier for customers. The new Express Branch model replaced the all-paper loan application and processing with tablet-based digital onboarding and streamlined digital process flows for approval and disbursements, significantly cutting loan processing times. Loan officers conduct all intake on their tablets and process the applications with digital versions of all supporting documents. The loan officers can apply the same process with the customers who walk into a branch, or remotely when they initiate the process from a customer's location.

MFW launched the Express Branch pilot in August 2019 and by August 2020 it had completed the digitizing of all branches. The average lead time from application to disbursement dropped from 67 to 26 hours, with 44 percent of disbursements occurring on same day. For almost all customers who receive their disbursements to their e-wallets, disbursements occur within 24 hours of application.

Finally, MFW recently added "Automated Branch," an online portal through which customers and guarantors can initiate and complete loan applications remotely.

E-WALLETS AND PAYMENTS NETWORKS

MFW partnered with a local mobile money operator, Al Houloul, to provide MFW customers with e-money wallets (branded as U-wallet). MFW can register its customers with a U-wallet through a website at the time of disbursement. This enables MFW to make immediate disbursements to customer wallets and the customers have access to Al Houloul's multi-channel payment network. This includes 2,072 CICO agents, over 1,000 ATMs and an emerging national merchant network for NFC and QR payments. The e-wallet disbursement replaces physical checks.

MFW was only transferring around five percent of disbursements to e-wallets before July 2020. The Jordanian government began promoting e-wallet usage during the COVID crisis and this encouraged a faster adoption among customers. By November 2020, MFW was making 36 percent of all disbursements into e-wallets. During 2020, MFW customers made 14 percent of their payments through non-branch channels. Customers can also make loan payments through the e-wallet by cashing in at any of Al Houloul agents.

In addition to the Al Houloul network, MFW has expanded its repayment options through banks and eFAWATEERcom, a national interoperable bill pay network that collects payments through banks, a web portal, and 529 cash payment agents. All these platforms are linked through JoMoPay, a national interoperable switch that clears and settles between banks and payment services providers. MFW is also partnering with multiple payments service providers to expand. the access channels and services.

Business value

The Express Branch and distribution channel initiatives have resulted in administrative staff reductions that MFW expects will generate a long-term benefit in a lower cost:income ratio. The reductions in paper processing, teller transactions, and check issuance resulted in a 17 percent reduction in administrative and teller staff in 2020.[5] MFW also expects to see a long-term productivity benefit from the significant reduction in loan-processing time and effort.

MFW acknowledges that the ROI horizon for technology investments is distant. In the long run, it expects a seven percent increase in its annual portfolio growth rate, and a 12 percent reduction in operating costs. The decision to invest and strongly engage in innovative solutions was part of a business development strategy that was developed together with the business development and technology teams. The business development team had clear views about capabilities that MFW needed to stay ahead of all competitors in the market. The technology team helped define the technological needs for MFW. MFW received grants to support the digital initiatives, which were also strongly supported by the board of directors. MFW is convinced that it derives significant benefit from the synergy it has achieved between its technology and business strategies.

5 The overall administrative cost budget was significantly lower in 2020 than in 2019, but MFW cautions that this was partially due to the COVID-19 pandemic.

Technology

MFW laid the foundation for its digital initiatives with the installation of a CBS in 2016. It transitioned and upgraded from a legacy client-server-based platform to an on-premises system with web-based portals for all user interfaces.

The most significant addition to the new platform was a cloud-based business productivity management (BPM) solution that links to the CBS through an API layer. MFW used the BPM to reengineer and digitize all the operational and business workflows associated with the loan process and internal processes.

The loan officer app and the mobile app were developed by the same vendor as the BPM and are integrated directly into the CBS through its native API functionality. Likewise, integrations with payment service providers are direct with the CBS.

AL KURAIMI ISLAMIC MICROFINANCE BANK: BUILDING A DIGITALLY NATIVE MFI TO SUSTAIN GROWTH IN A CHALLENGING ENVIRONMENT (YEMEN)

Overview

Al Kuraimi Islamic Microfinance Bank (KIMB) has been continually deploying technology to build channels and services for mass market customers since its inception. Founded in 2010 in Yemen, KIMB grew out of the first money transfer company to automate the traditionally manual money transfer/ foreign exchange business. Today, it has the largest distribution network of any financial institution in the market. KIMB is the fourth largest bank in Yemen by assets, and the largest by customers, transaction counts and branches. Its implementation of technology (including by the omnichannel and development team located outside the country), as well as KIMB's control over its own development operations, allows it to successfully operate in the challenging environment.

BOX 5. **KIMP in numbers**

- US$1.2 billion in assets
- 1.9 million customers
- 1,848 staff
- 173 branches
- 231 ATMs
- 3,000 agents

*includes partner networks (Dec. 2020)

Strategy

KIMB managed to transform its unbanked, informal money transfer customers into formal KIMB customers. KIMB achieved this by offering unbanked people a place to save and borrow. The bank claims that this focus on mass market customers was a significant step beyond the typical corporate-oriented banking culture in Yemen.

The role of technology begins very early in the KIMB story and continues to expand today. KIMB has been managing digital deployments since the launch of the company and digital technology is an integral component of the bank's competencies and core operational and management systems. Building this capacity has been a challenge in Yemen. The conflict situation made it increasingly difficult to attract the necessary talent to Yemen, so KIMB outsourced parts of its IT operations.

Customer value

KIMB started using digital technology to improve customer experience in 2011 when it launched an interactive voice response (IVR) channel, building off the IVR platform of the money transfer business. That evolved into the Kuraimi Jawal mobile app in 2014. According to KIMB, the IVR customers were already comfortable with using their phones with the bank, and were eager and quick to adopt the Kuraimi Jawal app.

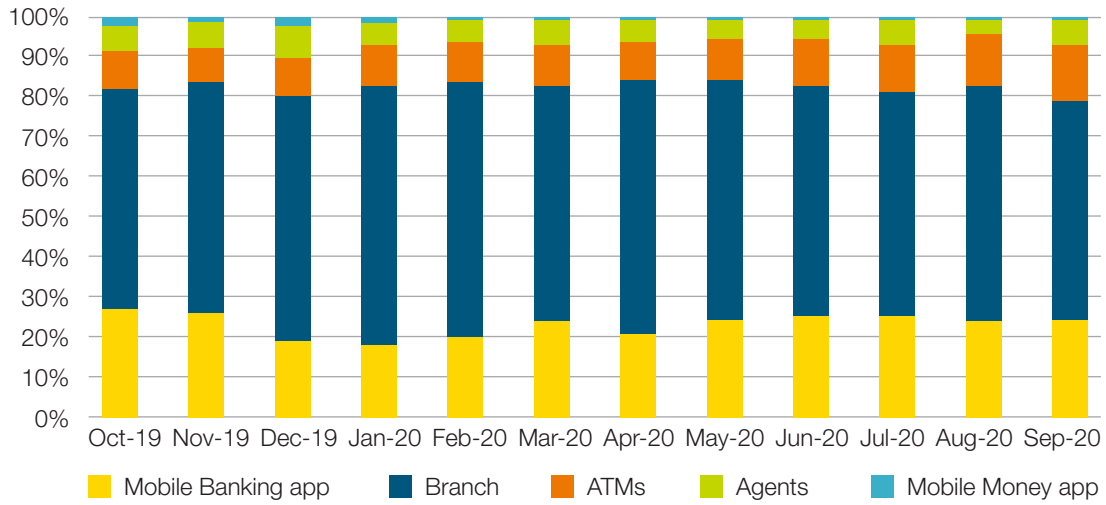
Also in 2015, the bank launched M Floos, an e-wallet to serve remote, lower income segments. At the same time, the bank began building an agent network of CICO service points to complement the network of 231 ATMs. The choice of the e-wallet was due in part to central bank restrictions on signing up bank customers at agents. The M Floos e-wallet enabled KIMB to sign up customers and provide CICO services through an agent network. According to the bank, this strategy was aimed at serving the population in many areas of the country where the cost of building and servicing a branch was prohibitive. By end of 2020, Al Kuraimi had expanded its agent network to 3,000 agents and built out an acquiring network of 10,000 merchants.

In response to those changes, customer behavior evolved. Over 950,000 customers use the ATM network per month. Over 1.1 million customers are enrolled in the Kuraimi Jawal and they conduct over 1.5 million monetary transactions each month. There are 575,000 customers registered with e-wallets (Figure 6).

Business value

KIMB is an exceptional case of an MFI that built a customer base and business model with digital capabilities from its launch. KIMB's investment in technology has enabled it to become a mass market bank in Yemen, making services accessible to 1.9 million customers, many of whom were underserved by other financial institutions. The return on investment of any specific technology deployment would be extremely difficult to measure in the Yemeni context, given that the business of the bank has had to adapt to a persistent civil conflict.

FIGURE 6. **Monthly transactions/channel**



Source: Al Kuraimi Islamic Microfinance Bank

As of early 2021, lending operations were drastically reduced and the loan portfolio was only around five percent of total deposits. Customers are using the bank to store funds, transfer funds, and receive remittances. These are vital services at this time in Yemen and KIMB's investment in digital channels has positioned the bank to provide those services to customers in a very difficult logistic environment.

Technology

In early stages of digitization, KIMB engaged a local tech firm, but eventually established in-house capacity to develop its tech stack. When KIMB launched in 2010, the tech team from Kuraimi Exchange moved to the bank and built core banking functions directly into the existing exchange platform. KIMB then added the mobile money functionality of M Floos to the platform in 2014. It also developed its own mobile app called Kuraimi Jawal.

In 2020, KIMB launched versions 2.0 of M Floos (mobile money), Kuraimi Express (money transfer), and Kuraimi Jawal (mobile banking app) and opted to migrate its CBS to Temenos T24. It is using the integration modules of T24 to integrate with payment systems, and directly integrating its inhouse applications (using the T24 API layer). Therefore, in the short-term it does not see an immediate need for an ESB architecture. It will also use T24's built in analytics module for analytics and reporting on the CBS data. It uses its own reporting tools on the M Floos and Kuraimi Express data bases.

FINCA SCORE: IMPROVING REVENUES AND PORTFOLIO PERFORMANCE WITH CREDIT AUTOMATION (GLOBAL)

Overview

In 2017, the Data Analytics Team of international financial services provider FINCA Impact Finance (FIF) launched FINCA Score, a behavioral score system based on customer repayment history. FINCA Score facilitates automated and centralized credit decisioning in FIF's subsidiaries. FIF is an international holding company with 20 banks and MFIs around the world. Its subsidiaries make over 60,000 loans every month, of which 60 percent are follow-up loans to existing customers. FINCA Score provides a rating to pre-approve loans and provide risk-based loan pricing. By 2020, FIF affiliates had automated or streamlined between 35 to 50 percent of all follow-up loans, with robust portfolio performance and predictive value of data variables.

BOX 6. **FIF in numbers**

- 2.8 million customers
- US$722 million loan portfolio
- US$443 million deposit portfolio
- 20 Banks and MFIs in network
- 9,100 staff

(Dec. 2020)

Strategy

The FIF Data Team, at the group level, generates monthly a FINCA Score for existing loan customers and sends the results to the respective subsidiaries. FINCA Score generates a risk rating on a scale from one to five that ascends with the risk assigned to the customer. Participating FIF subsidiaries have different ways in which they use the score, but typically the subsidiary has established a centralized unit that underwrites and commercializes the loan

offer for the least risky customers. In some subsidiaries, the central units use telephone and SMS to extend pre-approved offers to customers with low FINCA Scores. Due to regulatory requirements in most markets, customers still must visit the office to sign the contract through an expedited process.

The subsidiaries also use FINCA Score in a streamlined underwriting process for customers who do not qualify for an automatic pre-approval. In these cases, the FINCA Score is an important factor in streamlining credit decisions that still require some manual assessment. Some FIF subsidiaries now are testing risk-based pricing based on FINCA Score. In 2020, FIF launched an effort to harmonize the commercialization of the product.

Customer value

FINCA Score significantly reduces the processing time for customers seeking repeat loans. It also enables FIF subsidiaries to extend loan offers to all existing customers well before they have finished paying off their existing loans. This provides customers with certainty about cash flow and an expedited process for loan renewal. Where FIF subsidiaries are offering risk-based pricing, less risky customers also gain the benefit of lower interest rates.

Business value

By the end of 2020, between 30-50 percent of follow-up loans were processed through this streamlined process using the FINCA Score. The time saving in loan processing is significant, but it is difficult to measure with typical productivity indicators because overall loan disbursements declined significantly in 2020 due to COVID-19. In subsidiaries with already low PAR rates, FIF does not expect to lower risk costs with FINCA Score. The benefit of risk reduction accrues in the ability to automate and scale loan decisioning while maintaining the already low PAR rates.

To date, results from FINCA Score are positive. On average, loans rated as low (1) and low-medium (2) are performing 80 percent better (in terms of PAR and write-offs) than the average portfolio, and the high-risk (5) category is five times as risky than the average portfolio. The robust performance of FINCA Score establishes a reliable indicator for automated decisioning and risk-based pricing. The final loan decision is also shaped by business rules (for example, a limit on the increase of loan size), and by FIF's affordability calculation. In both cases, FIF continues to use the same rules as for manual underwriting. Future versions of FINCA Score will test variations to fine tune the risk model.

FIF's experience to date with FINCA Score is an example of how an institution can prove concept with an MVP in the face of limitations on both data and technology. The scoring model uses no more than eight variables from the CBS, of which no more than three are related to historic repayment performance. For this initial choice of data, the team faced two constraints common in many MFIs: i) much of the customer data gathered during intake or underwriting is not in digital form and; ii) in most markets the credit bureaus do not generate scores on FIF's

mass market customer base. However, after years of running FINCA Score, the Data Team is convinced that the CBS data has far greater predictive value than that which the self-reported demographic and business information or credit bureau scores can generate.

FINCA Score moves FIF a significant step toward automated loan decisioning at scale. Even in its current MVP form, FINCA Score does automate the credit decision, which is the step in the traditional workflow that takes the most time and is most prone to judgment error. This introduces predictable consistency in the application of the score and the business rules, positioning FIF to refine its decisioning model over time with systematic variable testing. The FINCA Score initiative also proves concept for the group, which helps FIF make informed decisions about the next phase of automation.

Technology

Much of the process flow associated with FINCA Score is still manual. The subsidiaries manually upload their CBS data to a cloud-based, enterprise data warehouse monthly. The headquarters data team generates a score of each customer and saves the information in an Excel sheet on the cloud-based server, from which the subsidiaries download the file. The information is also housed in the global enterprise data warehouse with an API interface that enables subsidiaries to automate the score-retrieval process. The subsidiaries use the scores to manually generate pre-approved credit offers via phone or SMS, as well as in committee-based underwriting decisions. At present, the customer cannot initiate the process through an app, and the pre-approved loan offers are still extended manually. FIF plans to fully automate FINCA Score with decision engine software.

ANNEX – METHODOLOGY

The case studies were selected based on interviews with 75 different stakeholders (MFIs, funders, service organizations, experts), including 33 in-depth interviews with short-listed candidate MFIs. The initial sample was created based on recommendations from CGAP staff, consultants, members, and partners, as well as other international experts, who all suggested MFIs with potentially relevant digital experience. The sample was diverse in terms of geography, maturity, and size.

During the screening interviews, we narrowed the sample by asking three high-level questions: (i) have you implemented a digital solution?; (ii) has the solution created a value for your business and your customers?; (iii) have you been able to measure that value?

We then developed the case studies from in-depth primary research and interviews with shareholders and staff members of the featured MFIs responsible for the overall management, technology implementation, risk management, finance, product and business development, and customer services.

Our intent is to help MFIs, funders and investors, technology providers, and the development community committed to financial inclusion identify lessons they can apply in the companies they run or invest in.

The views expressed in this Working Paper reflect our understanding of the featured MFIs and cannot be interpreted as universally valid for all MFIs around the world or as endorsement of the featured MFIs. We have intentionally omitted reflections on the impact of regulation under which the featured MFIs operate. While regulation provides an important backdrop to their business and digitization efforts, we believe that lessons featured in this report apply across most jurisdictions. However, regulation concerning remote onboarding, agent networks, cloud computing, use of APIs and the like shape the way digitization is implemented. One of the biggest regulatory barriers that limit the potential of digitization is the restriction on deposit taking that constrains MFIs to act as pure credit providers.

While we tried hard to identify best examples, we did not do a comprehensive landscaping, potentially missing other good examples. Finally, some of our findings may be impacted by the COVID-19 pandemic. Where this is clearly the case, or where we suspect it may be the case, we make explicit reference to that fact.

CGAP
cgap.org