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CLIENT-FOCUSED MFI TECHNOLOGIES CASE STUDY

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INTRODUCTION

How can microfinance reach greater scale and improve operational efficiency? This question has haunted the microfinance industry for several years and various initiatives have been tested in order to answer it. One of these initiatives is the use of client-focused technologies to improve the outreach and performance of microfinance institutions (MFIs) as these technologies create new distribution channels and can lower the transactional costs of these institutions.

In order to understand the potential use of client-focused technologies for microfinance, this study examines three types of client-focused technologies, which are defining the current technological efforts in the microfinance industry: personal digital assistants (PDAs), point-of-sale (POS) devices, and cell phones. Through a series of examples from different parts of the world,¹ the study outlines approaches to consider when examining the adoption of client-focused technologies in the daily operations of MFIs.

Furthermore, the study aims to address five key questions related to the use of the client-focused technologies for microfinance purposes:

- 1) Does client-focused technology help MFIs reach scale and efficiency?
- 2) Were the institutions' expectations of these client-focused technologies met?
- 3) What are the reasons for success or failure of the different business models used to deploy these client-focused technologies?
- 4) Do MFIs have a quantifiable return on investment from implementing these technologies?
- 5) What are the technical and non-technical prerequisites that an MFI will need to consider to start using one of these technologies?

The answers to these questions are based on the experiences described in the case examples and should not be taken as conclusive for every condition or scenario; rather, they may serve as a guide to factors for consideration when implementing these technologies.

¹ See Annex 1 for a list and description of institutions mentioned in this study.

Information Collection Approach

The information presented in this study was collected using a variety of sources:

- Phone and face-to-face interviews with implementers and providers of client-focused technologies,
- Observations during field visits, and
- Secondary sources.

For the phone and face-to-face interviews, a detailed interview guide was created for each technology in order to help the interviewer collect consistent information for the case examples. Some interviews were more in-depth than others and some included actual field visits for observations.

I: PERSONAL DIGITAL ASSISTANTS AS A TOOL TO MAKE MICROFINANCE OPERATIONS MORE EFFICIENT

Personal digital assistants represent the first attempt to apply client-focused technologies for microfinance purposes. Therefore, this discussion of microfinance and client-focused technology usage begins with PDAs, explaining why MFIs decided to use PDA solutions for microfinance purposes.

An initial reason for using PDAs for microfinance purposes was that PDAs may help MFIs increase the productivity and efficiency of loan officers in performing key tasks. For example:

- The promotion, evaluation, and approval of microloans requires detailed information about the client, the business, the family, and any other aspect related to the client's business activities. Therefore, loan officers must collect large amounts of information in the field, and there is a tendency for the information to be incomplete or to contain errors. A PDA solution could help the loan officers to better collect the information and minimize the number of mistakes or incomplete applications.
- It can be time-consuming for the loan officer to manually transfer the collected field information into the institution's main management information system (MIS). A PDA solution could provide for electronic transfer of data.
- A PDA solution can help provide detailed information about a client when the loan officer performs the follow-up visits.
- If the country has a credit bureau, the use of a PDA with wireless communication capabilities and connectivity to the credit bureau would enable the loan officer to immediately identify any clients with past credit problems.

Our first example, Banco Solidario in Ecuador, illustrates one institution's experience with PDAs and provides an overview of the potential use of PDAs for streamlining microfinance operations.

EXAMPLE #1: BANCO SOLIDARIO'S EXPERIENCE WITH PDA APPLICATIONS

I. THE ECUADORIAN CONTEXT

The Ecuadorian microfinance industry is composed of several players, which include commercial banks, microfinance banks, credit and savings cooperatives, and nongovernmental organizations (NGOs). There are also a vast number of informal lenders that contribute to creating a highly dynamic and competitive industry. This market environment calls for the use of technologies that will help MFIs achieve gains in productivity and efficiency in order to price their services more competitively and be more competitive overall.

The total market for MFI services is large. It is estimated that there are more than two million microenterprises in Ecuador. About half of these are located in rural areas with limited access to financial services, which drives MFIs to seek more cost-effective ways to reach rural areas in order to increase their outreach.

SiCredito Movil

Summary of Findings

Current Status:

- Implementation completed. Pilot lasted over one year.

Key Points:

- Use of PDAs contributed to improvements in loan officers' productivity and efficiency.
- Use of PDAs contributed to improvements in portfolio at risk management.
- Good adoption of technology by loan officers.

Expectations Met: Yes

II. OVERVIEW OF BANCO SOLIDARIO'S PDA EXPERIENCE

In 2001, Banco Solidario, with support from ACCION International, implemented a PDA-based application for microfinance purposes. This first generation of ACCION's PortaCredit application was called CrediPalm. The Palm-OS-based application was implemented in all of the bank branches to create:

- An easy way to capture and store credit evaluation information in the field,
- A solution that allowed credit officers to become more familiar with the use of technology for their daily field activities, and
- An effective interface between the main MIS of the institution and the PDA application.

During the final stages of the implementation process of the PortaCredit application, Banco Solidario took the strategic decision to start looking for a similar application based on Microsoft's PocketPC operating system. The key reason for this switch was that Banco Solidario was also converting its main MIS for credit operations, SiBanca, into a .Net-based platform. The institution considered that having its MIS and PDA application running on the same platform and programming language would allow for better integration and communication between the two systems. This decision resulted in the development of SiCredito Movil, the current PDA application in use at all the bank branches. This application was developed by Enlace Informatica, Banco Solidario's information technology partner and provider.

The technical characteristics of SiCredito Movil include:

- Windows CE Operating System.
- Programming based on .Net.
- Data transmission through replication for MS/SQL databases and web servers.
- Modem-enabled PDAs for wireless communications.

How Does SiCredito Movil Work?

SiCredito Movil works through a series of modules installed on the credit officers' PDAs. These modules include the following:

- **Agenda:** Allows loan officers to organize their daily activities. For instance, the loan officer can prioritize her visit schedule according to which clients have the greater potential to qualify for a loan or which clients should be given a higher priority because of their risk level.
- **Visit Schedules:** Helps the loan officer to better track her field activities by providing a list of scheduled visits for the day.
- **Loan Simulations:** Permits the loan officer to perform loan simulations in the field. The simulation can include calculating the monthly loan payments or the maximum loan amount a client can afford.
- **Loan Applications:** The most important function of the SiCredito Movil solution. It allows the loan officer to electronically capture and register the information on potential borrowers. Loan officers minimize the opportunity for errors or unfinished loan applications because the module requires the loan officer to correctly and completely fill out all of the fields in the different screens. Once the loan application information has been completed and the loan officer returns to the institution, the loan officer can electronically transfer the information to the bank's main MIS. Banco Solidario is testing PDAs with wireless communications capabilities to allow loan officers to perform the transfer of information directly from the field to the institution's MIS.
- **Online Consults:** Allows the loan officer to consult online with local credit bureaus to check the credit history of potential borrowers.

III. ORGANIZATIONAL BUY-IN

Banco Solidario decided to implement the technology for several reasons. First, the institution wanted to take advantage of some of the capabilities of PDAs, such as their portability and their ability to process and store large amount of information. Therefore, Banco Solidario started looking for ways to employ PDA devices as an effective tool to support the daily field activities of loan officers.

The institution also needed to find a way to improve the productivity and efficiency of its loan officers in the field. Hence, Banco Solidario realized that PDAs could become an effective tool to support the loan officers' field activities. For instance, SiCredito Movil has a series of checks that prevent the user from registering in the system incomplete applications and that alert the user about potential mistakes in the information.

What Benefits Is the Institution Currently Achieving?

Banco Solidario's experience with PDAs has been fruitful and has met expectations. Some of the benefits obtained from the implementation of the PDA solution include an increase in loan officers' productivity and efficiency and better management of the loan portfolio quality.

In the case of loan officers' productivity and efficiency, Banco Solidario has seen these two indicators increase as shown by the number of operations performed with the help of the PDA solution.

As Figure 1 indicates, loan officers' level of usage of the PDA solution more than doubled during the first seven months after introduction of the solution. Utilization is defined as the total number of transactions done with the help of the PDA solution as a percentage of total number of operations the loan officers do in a specific month. For instance, Banco Solidario's loan officers were using the PDA solution to perform more than 80 percent of their daily field activities during the seventh month of implementation.

The gradual increase in utilization was due to the learning process necessary for loan officers to feel comfortable using the PDA devices and applications. Once the loan officers understood the technology and saw the improvements on their efficiency and productivity as a direct result of using the tool, they increased the utilization of the PDAs in their daily operations. For example, loan officers realized that it took less time to process loan applications because part of the manual work necessary to process loans, such as the calculation of the client's income during the field evaluation and the data entry of the client's loan information in the MFI's database, was now automated by the PDA application.

Another indicator that the productivity and efficiency of loan officers have increased due to the use of the PDA solution is the total amount in loan allocation resulting from loan applications processed with the assistance of PDAs. As Figure 2 indicates, the amount of portfolio allocated as a result of using the PDA solution went from a very low level of less than US\$2 million to about \$10 million in approximately 10 months. In other words, the PDA application allowed loan officers to process loan applications faster, increasing the number of applications disbursed and therefore the loan portfolio amount. The adoption of this new PDA system was a major change for the MFI during this period. Therefore, it is possible to infer that the increase in portfolio was in part due to the PDA application.

Moreover, Banco Solidario has also seen better management of its portfolio at risk by using the PDA solution, mainly because the PDA tool allows loan officers to see the evolution of their portfolios directly on the PDA device. Similarly, the PDA application allows loan officers to better schedule their field visits to give higher visit priority to clients with high overdue balances. Loan officers spend about the same amount of time in the field as they did before the introduction of the PDA solution, but they now make better use of that time by ensuring that they visit the clients with the greatest default risk. Consequently, the amount of portfolio at risk of Banco Solidario has gone from a peak of \$80,000 to less than \$40,000, as indicated in Figure 3.

In sum, Banco Solidario's experience demonstrates the potential use of PDAs for improving the performance of loan officers. At the same, PDAs can also become an effective management tool to monitor the quality of an MFI's loan portfolio.

FIGURE 1: LEVEL OF USAGE OF PDA APPLICATION ²

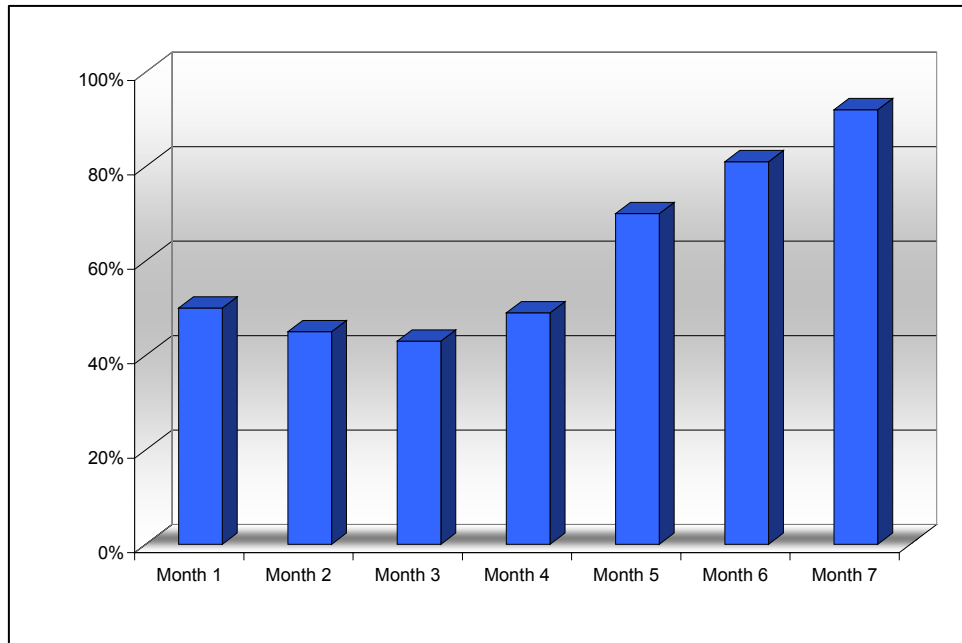
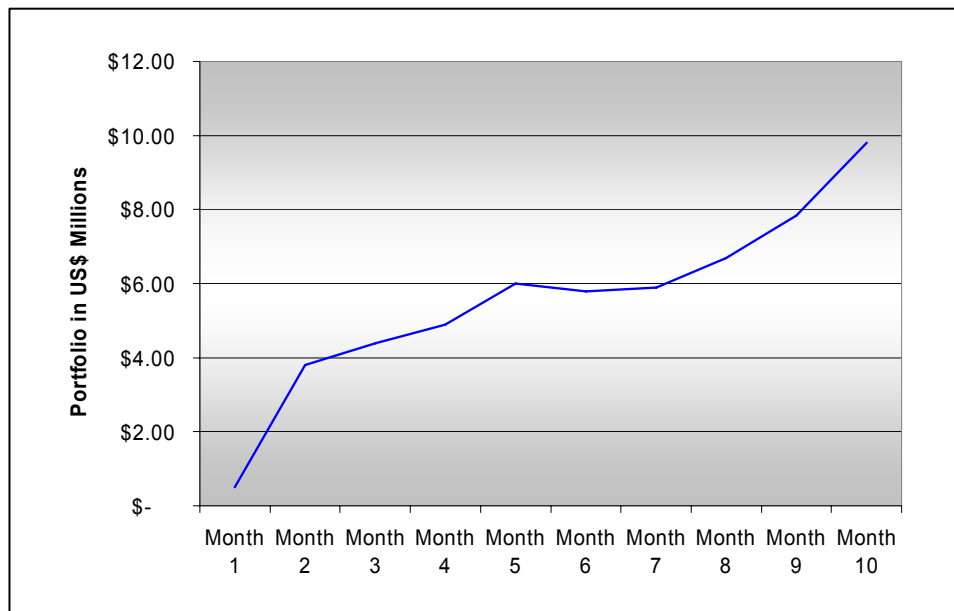


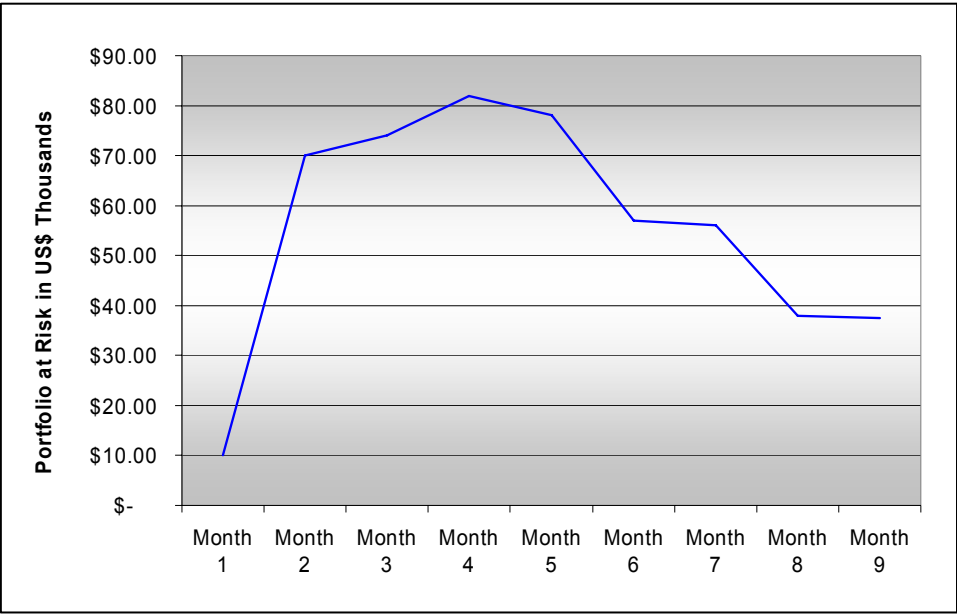
FIGURE 2: LOAN ALLOCATIONS WITH THE PDA TOOL ³



² Source: Information Provided by Banco Solidario

³ Source: Information Provided by Banco Solidario. Loan Allocation refers to the number of loans processed using the PDA solution.

FIGURE 3: EVOLUTION OF PORTFOLIO AT RISK AFTER IMPLEMENTATION OF THE PDA SOLUTION ⁴



⁴ Source: Information provided by Banco Solidario. Portfolio at Risk refers to the portfolio of past-due loans.

II: INCREASING THE SCALE AND PRODUCTIVITY OF MICROFINANCE OPERATIONS THROUGH POINT-OF-SALE DEVICES

Several MFIs, commercial banks, and non-bank financial institutions are currently considering POS devices as a potential way to cost-effectively increase their distribution channels and to offer convenience to their clients for the payments of loans and services.

Because the informal sector concentrates not only in urban areas but also in rural and remote regions, financial institutions have traditionally provided financial services in those areas by setting up branches. The main problem with this approach is the high set-up and operational costs associated with opening and supporting remote branches. Therefore, financial institutions, especially MFIs, have started to look at POS solutions as an alternative to branches to cost-effectively serve remote areas.

This section of the case study presents examples from Colombia, Malawi, Peru, and Uganda to provide several experiences for the deployment of POS solutions for microfinance purposes.

EXAMPLE #2: THE COLOMBIAN AND PERUVIAN EXPERIENCE WITH THE CORRESPONDENT AGENT (CA) MODEL

I. THE COLOMBIAN AND PERUVIAN CONTEXT

In Latin America, despite the efforts of financial institutions, the penetration of financial services is still low. As Figure 4 indicates, the outreach of financial institutions is still below the 40 percent mark for several Latin American countries, including Colombia and Peru. This low penetration is mainly due to the high set-up and operational costs associated with creating the banking infrastructure. This problem intensifies when financial institutions want to reach lower segments of the market because these segments present characteristics—such as remote locations and lack of good communications infrastructure—that make the delivery of financial services more difficult.

Correspondent Agent Model

Summary of Findings:

Current Status:

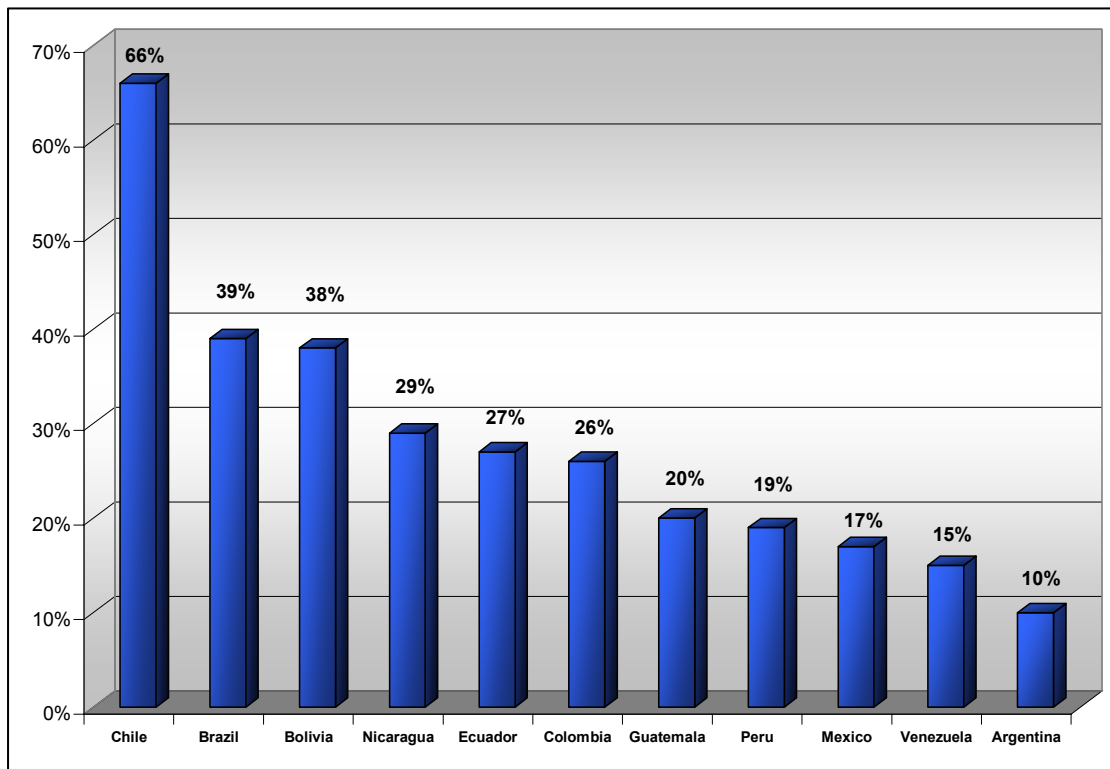
- Implementation completed in Colombia. Implementation in progress in Peru.

Key Findings:

- A cost-effective distribution channel for reaching lower-income clients in remote areas.
- Selection and training of agents is extremely important.
- Regulators have shown flexibility for the use of the CA model.

Expectations Met: Yes

FIGURE 4: OUTREACH LEVEL OF FINANCIAL INSTITUTIONS IN KEY LATIN AMERICAN COUNTRIES ⁵



Several Colombian and Peruvian financial institutions have been testing the use of branch-equivalent solutions that allow clients to access and perform financial operations without requiring the bank to establish a physical bank branch. In Colombia and Peru, the most common model for these branch equivalent solutions is the correspondent agent model that uses a network of local agents—supermarkets, gas stations, and convenience stores—to provide financial services to clients in remote areas. This model takes advantage of the increasing acceptance of card-based transactions in those two countries.

The CA model allows financial institutions to reach remote areas by using a combination of POS terminals and magnetic strip cards. This model is currently implemented in several Latin American institutions, including BANCOLOMBIA-CONAVI in Colombia and Interbank in Peru. Their experiences are described in this example.

II. OVERVIEW OF THE CORRESPONDENT AGENT MODEL

Under this model, the financial institution works closely with an external technology provider to identify potential locations for the remote branches. The ideal locations include retail stores, supermarkets, convenience stores, and gas stations. The hardware requirements for these locations are minimal, mostly consisting of the POS device. However, the infrastructure requirements can

⁵ Source: International Monetary Fund website.

represent a challenge, especially in rural areas. To operate, this model requires some of the following infrastructure: electrical power, a phone line for data transmission, or GSM coverage for wireless communications. The owners of the locations are normally referred to as bank agents because they represent the financial institution in the eyes of the clients.

It is preferable for the agent to be a client of the financial institution, to facilitate the transactional flow and payment settlement in the CA solution. That is, if the agent is a client of the bank, the system can automatically credit and debit the agent's account as the transactions take place in the store. Furthermore, the system can directly post and withdraw from the agent's accounts any fees associated with the use of the POS device.⁶

The types of transactions supported by the system include the following:

- Deposits in savings or current accounts (if regulation permits),
- Payments for services and products,
- Transfers between accounts of the same institution and between accounts of different institutions, and
- Card-less transactions by allowing the clients to enter their account numbers and respective PINs directly into the POS device.

What Are the Benefits of the CA Model?

From the Colombian and Peruvian experiences, the main benefit the CA model offers to financial institutions is the fact that this solution is a cost-effective way to increase outreach in remote areas. For instance, Figure 5 shows the cost differences in setting up a bank branch, an ATM machine, and a CA agent in Peru. It is clear that the CA model provides great savings for financial institutions to increase their local coverage: a branch is 40 times more expensive than using a CA agent. Similarly, an ATM is seven times as expensive as a CA agent.

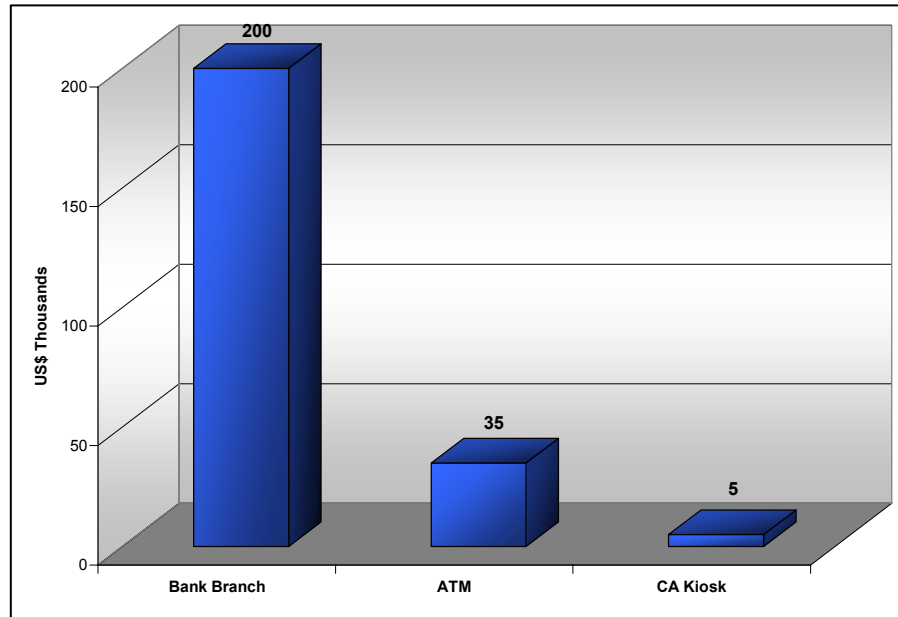
The CA model also benefits the clients of a financial institution. The following benefits were experienced by the clients of CONAVI-Colombia and Interbank-Peru:

- Because the model is based on agents that are located near the client's home or business, the client does not need to travel long distances carrying a large amount of cash to perform financial transactions. In other words, the CA service provides more convenience and security to the clients.
- The clients of these institutions also note that the transaction time tends to be shorter at the agent location than at a bank branch.
- It is estimated that a client's total cost to visit a branch—transportation plus any potential loss of income from being away from her business—is about \$2. Under the CA model, clients can spend less than a dollar, including the transaction fee and time. Hence, the clients perceive the CA service as a less expensive alternative to visiting a branch.

⁶ If the country's communications infrastructure has reliable land phone or GSM coverage, the system can individually settle transactions automatically as they occur. In the Peruvian and Colombian examples, these countries' infrastructures allow for a real-time individual settlement of transactions.

The clients consider the service to be a less expensive alternative to the transportation cost to visit the branch. Hence, the service also provides some savings to the clients.

FIGURE 5: COST COMPARISON: BRANCH, ATM, CA IN PERU ⁷



Which Were the Major Challenges for the Implementation of the CA Model in Colombia and Peru?

The challenges identified in the implementation of the CA model in Peru and Colombia are related to aspects of the business model used for deploying the technology. The following are the main challenges that CONAVI-Colombia and Interbank-Peru experienced:

- Agent-related challenges:
 - Training: Under this model, the agent is not an employee of the financial institution and does not have a supervisor.⁸ Agents have direct contact with the financial institution's clients. Hence, the training of the agent was an extremely important factor for the successful implementation of the CA model.
 - Transactional screens complexity: The implementation also showed the need for straightforward transactional screens. That is, the POS screens must be designed in such a way that makes it easier for the agent to follow the transaction sequence. For example, a deposit transaction should consist of a few screens asking for information such as the client's personal identification number (PIN) to start the transaction, amount to be deposited, account number or list of the client's accounts, and deposit confirmation number. The Colombian and Peruvian

⁷ Source: Superintendence of Bank of Peru

⁸ Agents must sign an agreement with the financial institution they will represent. The agreement sets the rules and responsibilities for both the institution and the agent. The agreement deals with topics such as fees, tax considerations, fraud control, and cash management.

experiences showed that having complex transactional sequences and screens tended to slow down the transaction time and created confusion among agents and clients.

- Cash management: The implementations showed that some agents were not able to maintain the necessary cash balances to keep up with the transactions flow. Therefore, it is important to specify to the agents the minimum cash balance they need to maintain for the daily use of the service. The agents should also be trained in how to handle large amounts of cash because they are the ones responsible for depositing the cash in the financial institution.⁹
- Location-related challenges:
 - Client traffic: The institution must select a location that has high client traffic that would allow at least 400 transactions per month. Otherwise, the institution will waste resources training and equipping an agent that will not bring a sufficient number of daily transactions. Locations near local markets or shopping centers are often ideal places to have an agent.
 - Communications: The location should ideally have good communication systems,¹⁰ such as dedicated phone lines for the POS systems, in order to provide online services under the CA model. Alternatively, the POS system can function in the offline mode, which allows transactions to be performed and stores them in the system memory for end of the day data transfer to the financial institution.
 - Available physical space: The agent must be willing to provide enough space to showcase the service at the location. If possible, the agent should also provide adequate space for the client to conduct its transaction in private. However, clients have not expressed any privacy issues so far; they feel comfortable transacting at the stores with minimal space and privacy.
- Client-related challenges: The Peruvian and Colombian institutions that are implementing the model also had to overcome the challenge of client utilization of the service by educating these clients about the different benefits of the service. The main selling point for clients is “convenience” because the service does not require the clients to travel long distances to a branch to perform their financial transactions. It is also important for clients to trust the service. To create this trust, the financial institution must ensure that agents provide receipts to clients for their transactions. Agent selection also plays a key role in gaining the trust of clients. In the Peruvian and Colombian examples, agents are vendors who are known and trusted in their communities. This established relationship facilitates the clients’ acceptance of the agents as bank “representatives.”
- Roll-out-related challenges: The process of rolling out a CA solution is very different from setting up a branch or installing ATMs. The CA solution has the potential to dramatically increase the number of hourly/daily transactions the financial institution’s MIS must handle. The institution should run several MIS functional and stress tests before rolling out the solution in order to identify any potential weakness in the institution’s system.

⁹ Financial institutions usually require agents to make deposits for the transactions incurred at their locations every 24–48 hours, or when the received funds exceed the security limits. However, this requirement becomes a challenge for agents in remote areas.

¹⁰ In this case, good communication systems or infrastructure refers to dedicated phone lines and/or areas with appropriate GSM coverage to allow the electronic transfer of information.

In the Peruvian and Colombian implementation of the CA model, some of these challenges were overcome by establishing a “help desk” support system that provides technical, functional, and operational support to the agents and clients.

III. REGULATION ISSUES

The regulators in Peru and Colombia have shown flexibility for the implementation of the CA model. The regulators in these countries understand that the low penetration of financial institutions (see Figure 4) is due in part to the high set-up and operating costs of new remote branches and consider the use of the CA model a viable alternative for increasing the outreach of financial institutions.

The Colombian and Peruvian regulators have modified and created new laws to allow the use of the CA model for transactions such as money transfers, deposits in savings accounts, and payment of utilities. The regulators of these two countries have also mandated that each agent must have a contractual agreement with the financial institution. This agreement should specify that the agent is an authorized dealer for the institution and that the institution has properly trained the agent in the different transactions supported by the system.

There are still some regulatory barriers for the complete use of the CA model as an alternative to bank branches. These barriers include restrictions on areas such as the opening of savings deposits and accepting credit applications at the agent’s locations. However, as the financial institutions’ experience with the CA model matures in these two countries, it is expected that regulators will revise these barriers in order to make the CA model a complete banking solution.

EXAMPLE #3: THE REMOTE TRANSACTION SYSTEM (RTS) AT UGANDA MICROFINANCE LIMITED

I. THE UGANDAN CONTEXT

More than 90 percent of the population in Uganda lives in small rural cities and towns away from Kampala, the capital city. These small towns and cities do not have the necessary banking infrastructure to support a vibrant financial sector because the cost associated with building that infrastructure is high. Therefore, it is estimated that about two-thirds of Uganda’s population still lack access to financial services.

This lack of access to financial services does not mean that rural people in Uganda do not need or want financial services. Although a large portion of the population living in rural areas participates in a non-monetary economy, there is great unmet demand in those areas for financial services. This demand is mostly driven by micro and small businesses engaged in the selling of household items. Financial

Remote Transaction System

Summary of Findings

Current Status:

- RTS pilot of three original prototypes for the system completed.
- Currently at last stage of pilot at Uganda Microfinance Limited. 2+ years in pilot.

Main Points:

- A cost-effective distribution channel to reach clients in remote locations.
- Building the network infrastructure for this type of system can be complex and time-intensive.
- Agent selection is a key success factor in this model.
- Clients are willing to use cards.

Expectations Met: Yes

institutions are currently looking at several options to provide financial access to rural areas. One of these alternatives is the use of the RTS described in this example.

II. OVERVIEW OF THE REMOTE TRANSACTION SYSTEM AGENT MODEL

The RTS is a solution that currently allows clients to make savings deposits and payments of microfinance loans through a network of agents.¹¹ This system is at the final stages of its pilot phase at Uganda Microfinance Limited (UML). Once the pilot of the solution is over, this technology should be able to support a full range of financial transactions, including withdrawals and account-to-account transfers.

The RTS solution's goal is to respond to two key issues affecting the microfinance industry: 1) how to scale microfinance operations at low costs, and 2) how to make MFIs more productive.

Regarding the first issue, the RTS solution gives MFIs a way to increase their outreach without the high costs associated with opening new branches. With a combination of POS devices, smart cards, and a network of agents, the RTS solution enables MFIs to offer financial services in remote and rural areas at a fraction of the cost of setting up and operating a branch. As Table 1 indicates, a simple cost analysis of the RTS solution shows the financial benefits of this solution for MFIs thinking of expanding their operations to remote areas.

TABLE 1: BRANCH VS. RTS AGENT COST COMPARISON¹²

	Branch	RTS Agent Model
Set-up costs ¹³	\$40,000–\$60,000	\$1,500
Monthly operating expenses ¹⁴	\$7,000–\$10,000	\$3,550
Other expenses ¹⁵	\$2,000	\$100

How Was the RTS Solution Conceptualized?

The conceptualization of the current RTS model dates back to early 2002 when the Hewlett Packard Foundation, with support from a USAID Global Development Alliance grant, partnered with microfinance organizations, technology providers, and practitioners to create the Microdevelopment Finance Team (MFT).¹⁶ One of the main purposes of this team was to find potential solutions to the question of how to effectively provide financial services in remote areas at low transaction cost.

¹¹ Under the RTS agent model, agents are microentrepreneurs and small business owners who agree to have an RTS device at their shops.

¹² Source: Estimated figures based on interviews with UML staff.

¹³ Set-up costs for a new branch include the actual cost of the branch location and equipment. For the RTS, this cost includes the POS device, initial training of agent, and cost of issuing the smart cards.

¹⁴ Monthly operating expenses for a new branch include employees' salaries and overhead. For the RTS, this cost considers information technology (IT) support, training of staff and clients, promotion of the service, and monthly fees for telecommunications.

¹⁵ For the RTS, other expenses include the approximate monthly fee the institution pays to an agent.

¹⁶ The consortium included members from ACCION International, Bizcredit, FINCA International, Grameen Foundation USA, Freedom from Hunger, Global eChange, PRIDE Africa, and Hewlett-Packard Company.

The MFT developed three business models for the RTS solution: the mini-branch model, the agent model, and field agent model. Each of these models was tested at three different MFIs¹⁷ in order to evaluate the feasibility of using the RTS model according to the operational processes and practices of each institution.¹⁸

Of the three models, the agent-based model implemented at UML brought the highest value-added because of the institution's ability and willingness to adapt its business process to the technology.¹⁹ The agent model allowed the institution not to only reach remote areas without opening new branches; but also to obtain other advantages such as automation of transactions, reduction of client time travel to perform transactions, higher frequency of payments, and reduction of cash management risk.

How Does RTS Currently Work?

The RTS technology currently works through a combination of smart cards and POS devices in a GSM network. The system uses wireless POS devices running the RTS client software.²⁰ These POS terminals wirelessly communicate with a central server, which then connects to the MFI's main MIS. Once the information has been transmitted to the MFI's MIS, this system performs the corresponding entries and reconciliations.

To ensure security for clients, the RTS smart cards contained encrypted information which can only be decrypted by the RTS server. The smart card users have their own PINs to perform transactions. The PINs can be authorized at the server level, when the system is online, or at the POS device level, when the system is on offline mode.

What Were the Major Challenges for the Implementation of the RTS Solution?

The implementation of the RTS solution has had several challenges. Many of these challenges were related to the network infrastructure:

- To some extent, the RTS team had to create the network infrastructure for the system. In order for the RTS project to move forward, it needs a network infrastructure to allow fast and fluid flow of transactions. The current network infrastructure in Uganda is still weak in terms of wired and wireless communications, including poor wireless reception in some areas, flaky signal strengths, and data transmission interruptions due to power shortages. This created a challenge to implementation of the RTS technology because the agents could not properly communicate with UML's main MIS; there were times in which transactions could not go through the system due to those network communications problems.

¹⁷ The participating institutions in the initial test of the RTS solution were UML, Finca-Uganda, and the Foundation for Credit Community Assistance (FOCCAS).

¹⁸ The field agent model deployed at FOCCAS consisted of having loan officers use the RTS POS devices at their meetings with clients to facilitate the capture of individual clients' loan payments, savings deposits, and transfers. The mini-branch model at Finca-Uganda gave the institution the ability to receive loan payments and savings deposits at remote satellite offices. For this, Finca's tellers equipped with a RTS POS device would travel to the remote offices twice per week to meet with group loan leaders to perform transactions.

¹⁹ Magnette, Nicolas, and Digby Lock. *What Works: Scaling Microfinance with Remote Transaction System*. World Resources Institute, August 2005.

²⁰ The RTS software is an affordable, scalable, and replicable application based on Java 2 Enterprise Edition (J2EE) standard software.

- This network issue creates two problems. First, it increases the waiting time for the client. Second, agents must spend more time making sure that the transactions go through the system correctly.

The RTS team plans to overcome the communication problems by taking advantage of the offline mode of the POS system. The team has also joined with local partners to improve the communications for the system.

Another challenge for the RTS project has been obtaining agents for the network. It is difficult to find small entrepreneurs willing to be an agent for the system. Furthermore, the agents need to possess the following attributes:

- Good business skills to understand the business potential of the system and to feel comfortable handling significant amounts of cash.
- Good organizational skills to keep track of the different transactions done with the POS device.
- Basic experience with technology to feel comfortable with the POS device and to be able to read and understand the different screens that the POS system generates.

III. ORGANIZATIONAL BUY-IN

UML decided to implement the RTS solution for the following reasons:

- To serve customers who live far away from the branches. The RTS service allows the institution to provide loan repayment and savings deposit services to clients who live up to 70 km away from a branch.
- To minimize the cash management risk associated with the handling of large amounts of cash by clients. Before the implementation of the RTS solution, the payment transaction time could take up to two weeks and UML clients needed to do a lot of cash movement and tracking—leading to high cash management risk for the clients and high risk for the institutions in terms of lower payment frequency.
- To keep up with competition. Commercial banks offering financial services through client-focused technologies, such as ATMs, made UML start thinking of ways to automate its services to better serve its clients.

UML's clients are very willing to use the system and do not show much resistance to accepting and using smart cards.

- UML clients understand that the RTS service provides them with a closer location to make loan payments and savings deposits.
- UML clients realize that going to an RTS agent is less expensive and less time-consuming than having to go to a UML branch.
- UML clients consider that using the RTS service is safer because they do not need to carry large amounts of cash on long trips to a UML branch.

IV. REGULATION ISSUES

Because the RTS service is still in a pilot phase, the Central Bank of Uganda is providing some flexibility for its deployment. UML and the RTS team are working on a risk management manual to present to the Central Bank of Uganda. This manual will provide information on the procedures to control operational risk and details about the handling of issues such as lost or stolen cards and agents' responsibility for cash management.

EXAMPLE #4: BIOMETRICS AT OPPORTUNITY INTERNATIONAL BANK OF MALAWI

I. THE MALAWI CONTEXT

Providing financial services in Malawi is not an easy task; the country presents several challenges that limit financial activity. For example, it is estimated that more than two-thirds of Malawi's population live in rural areas, making it difficult for traditional banking distribution channels to reach clients. The country's economic activities are highly cyclical because they are mostly agriculture. Hence, Malawi needs financial products that can adapt to the business cycles and support the nature of the agricultural business.

Another important challenge faced by Malawian financial institutions is the lack of a national identification system. Financial institutions are currently seeking innovative solutions to properly identify clients. The use of technology has become key to surpassing these challenges. The example below presents the Opportunity International Bank of Malawi's (OIBM) experience with the use of client-focused technology—biometrics and POS systems—to better provide financial services to its clients.

II. OVERVIEW OF THE OIBM'S POS APPLICATION

As stated above, one of the biggest obstacles to providing financial services in Malawi is the lack of an identity card system in the country. Hence, OIBM has effectively combined biometric-enabled POS devices and smart cards to provide banking services to Malawi's low-income population.

OIBM's biometrics and smart card model overcomes the identification problem by using fingerprints. This eliminates the need for clients to have PINs and makes the transaction process easier for illiterate customers because they do not have to select and memorize any numbers to access their accounts.

As part of this model and through partnerships with small retail outlets, the bank has set up a network of POS agents in rural areas. OIBM is using the POS solution at one of its branches located in a high-transit area, allowing the institution to bring its POS services to more peri-urban and rural clients. The institution currently has more than 60,000 clients using the service on a regular basis.

The types of transactions the POS solution supports include:

Opportunity International Bank of Malawi

Summary of Findings

Current Status:

- Implementation completed. 2+ years in pilot.

Main Points:

- A cost-effective distribution channel to reach clients in remote locations.

Expectations Met: Yes

- Payment for goods and services,
- Cash back,
- Deposits,
- Money transfer within own accounts,
- Money transfer between two client accounts,
- Check bank account balance, and
- In-country remittances.

How Was OIBM's POS Solution Conceptualized?

The lack of a national identification system makes it very difficult for low-income clients to access financial services in Malawi, especially to open bank accounts. OIBM needed a way to respond to this problem and to increase its outreach. The institution reviewed different technologies that could fill the identity card gap.

Once the appropriate technology was identified, the institution worked very closely with its customers to set the specifications for the solution. By using focus groups and surveys to understand its clients' needs and to test the functionality of the service, OIBM was able to define a solution that effectively responded to the needs of its clients. Similarly, during roll-out, OIBM spent a great amount of time educating its clients and ensuring that they could take full advantage of the service. The institution also worked with opinion leaders to demonstrate the use of the technology.

About 95 percent of the POS devices in the system operate in an offline mode, preventing any interruptions of service due to connectivity problems.

III. ORGANIZATIONAL BUY-IN

The organizational buy-in for this solution was a simple process because this was an institution-driven project. The institution realized that implementing this technology would help it achieve its goals of increasing outreach and providing better services to its clients. Hence, OIBM championed the solution internally, touting the following benefits:

- Increase in outreach: The technology has allowed the institution to reach a customer base that would otherwise be outside of the banking system.
- Productivity and customer satisfaction gains: At the branch where one of the POS devices is located, clients can use the device instead of going to the tellers. This has led to more efficient transaction flow at that branch and clients have a better customer experience because they can transact faster. Similarly, the identification of the clients is easier and more effective and bank staff do not have to ask customers to produce proof of identification. The combination of the biometric system and the smart card has also eliminated the need to complete deposit and withdrawal slips. Consequently, the bank estimates that the productivity of its staff has increased by about 25 percent.
- Efficiency of operations: The smart card, which allows money to be loaded on the card, has eliminated the payment of wages in cash to low-income people, thus encouraging more low-

income people to enter the mainstream banking system. Employers pay their employees' wages to OIBM, which in turn loads individual amounts to the employees' accounts.

- Lower operating costs: The solution has allowed OIBM to reach rural areas cost-effectively. Furthermore, the institution is currently going through a process of upgrading the technology to better serve the rural areas. OIBM has partnered with local NGOs and rural retailers to help with the promotion of the service.

In terms of customer reactions, OIBM's clients perceive the technology favorably and they are willing to use it. Some of the reasons for the clients' willingness to use this solution include:

- Security: The biometric feature assures clients that they are the only ones able to access their accounts.
- Status: OIBM has noted that its rural clients feel at par with the urban dweller when they use the technology.
- Simplicity: The use of fingerprints instead of PINs makes the technology very simple for clients to adopt, especially illiterate clients. Clients do not need to select or remember any set of numbers to access their accounts and conduct transactions.

IV. REGULATION

Obtaining the permit to implement the technology was a straightforward process for the institution because the Reserve Bank of Malawi—the main regulator for this type of application—was already aware of the capabilities of smart cards and POS systems. The Reserve Bank of Malawi has long been a supporter of the technology and has undergone a long developmental process to get the technology approved in Malawi. Therefore, regulations were already in place before OIBM started the implementation of this project. Furthermore, the Central Bank of Malawi also invested in the development of a payment infrastructure called “MalSwitch,” which provided a viable platform for OIBM to build its services.

III: CELL PHONES AS A NEW DISTRIBUTION CHANNEL OF FINANCIAL SERVICES

Given the high growth in cell phone penetration in some countries, this case study examines the potential of cell phones to become a channel for delivering microfinance services. The study examines initial experiences in the Philippines and Africa to identify the early successful and failed implementations of cell phones as a tool for conducting microfinance transactions.

According to the World Bank, developing countries account for more than 60 percent of the world's mobile phones²¹ and this figure is projected to continue growing. Similarly, the International Telecommunications Union states that the global compound annual growth rate of cell phone subscribers from 2000 to 2005 was about 25 percent.²² Table 2 presents the compound annual growth rates for the relevant countries in this case study.

TABLE 2: CELL PHONE USAGE IN KENYA, PHILIPPINES, AND SOUTH AFRICA²³

Country	Cell Phone Subscribers			
	2001 (in thousands)	2005 (in thousands)	2005 (per 100 inhabitants)	Compound Annual Growth Rate
Kenya	127.4	4,612.0	13.46	105.0%
Philippines	6,454.4	32,810.0	39.50	38.4%
South Africa	8,339.0	31,000.0	65.36	30.0%

As the number of cell phone subscribers increases in developing countries, the opportunity to offer financial services through mobile phones also increases. There are already some experiments trying to prove the viability of mobile phones to provide financial services. This section of the case study presents examples of mobile banking implementations from K-Rep in Kenya, G-Cash in the Philippines, and WIZZIT in South Africa.

²¹ Adapted from "2006 Overview: Information and Communications for Development. Global Trends." World Bank.

²² Adapted from the International Telecommunications Union report on cell phone subscribers. http://www.itu.int/ITU-D/ict/statistics/at_glance/cellular05.pdf.

²³ Ibid 15

EXAMPLE #5: K-REP BANK'S EXPERIENCE WITH MOBILE SOLUTIONS

I. THE KENYAN CONTEXT

Kenya's banking sector is among the larger and more developed in Sub-Saharan Africa. The banking sector is comprised of a variety of players, including 15 MFIs, 3,800 savings and credit cooperatives, and 42 commercial banks.

However, the six largest banks account for about two-thirds of all assets, loans, and deposits of the banking system. Of these main banks, two—Barclays and Standard Chartered—are subsidiaries of foreign banks and are by far the most profitable, while two Kenyan banks, Kenya Commercial Bank (KCB) and the National Bank of Kenya (NBK), are mainly state-owned. Commercial banks and MFIs are supervised by the Central Bank of Kenya; savings and credit cooperatives are regulated by the Commissioner for Cooperatives.

Financial institutions also face the problem of having high operational costs for increasing their networks. Hence, they are looking at different technologies to lower those costs. The following example explains the experience of K-Rep in adopting cell phones for banking purposes.

II. OVERVIEW OF THE MOBILE BANKING EXPERIENCE AT K-REP

The K-Rep experience with the use of the mobile phones was brief and did not prove successful. By implementing a mobile banking system, K-Rep wanted to offer the following services to its clients:

- Money transfer between accounts,
- Account balance inquiries, and
- Mobile real-time transfers between accounts.

The main problem with K-Rep's mobile banking solution was an inappropriate choice of vendor and technology type. The bank's technology provider was not able to provide an unstructured supplementary service data (USSD)²⁴ technology capable of a reliable transfer of transactional data. Several of K-Rep's mobile transactions were lost between the phone and the bank, creating issues with the transaction reconciliation. From this experience, K-Rep has learned:

K-Rep Mobile Phone Experience Summary of Findings

Current Status:

Project abandoned after pilot.

Main Points:

- Selection of technology provider is key for success.
- Perform thorough technology assessment before pursuing a new technology implementation.

Expectations Met: No

²⁴ The USSD is a technology that permits subscribers of a mobile phone carrier to send and request information, normally with the use of text menus, between a mobile phone and a network application. The information exchange under USSD is done in a continuous session with real-time responses, allowing transactions to be completed in one session. Hence, the user does not need to wait for a text message response or SMS to complete a transaction.

- An institution must perform complete due diligence before selecting the technology. It must have a thorough understanding of how the technology operates, the minimum institutional requirements,²⁵ and the risks associated with implementing the technology.
- The technology provider is key for a successful implementation. The provider should not only be an expert on the technology; but it should also be able to provide the financial institution with guidance about which technology best suits the institution's needs.

EXAMPLE #6: G-CASH

I. THE FILIPINO CONTEXT

In a country where a large portion of its industrial activity comes from micro, small, and medium-sized enterprises, the idea of expanding the outreach of microfinance services is extremely important.

It is estimated that the current microfinance players in the Philippines serve approximately 1.3 to 1.5 million poor families. Although this is a large figure, it still leaves out a great number of poor households without access to financial services. A recent study from the Asian Development Bank confirms that about 17 million poor Filipino households do not have access to any type of financial services.²⁶ The need to provide an effective solution to serve this unmet demand exists. The partnership between Globe Telecom, through its G-Cash mobile banking solution, and the Rural Bankers Association of the Philippines (RBAP) tries to fill this gap by offering an effective solution for the repayment of microfinance loans with the use of cell phones.

G-Cash
Summary of Findings
Current Status:
Implementation completed: G-Cash for commercial purposes. Test pilot in progress: G-Cash for microfinance purposes.
Main Points:
<ul style="list-style-type: none"> • A cost-effective solution for the repayment of loans. • Security issues regarding short message service (SMS) need to be taken into consideration. • Working with regulators is key to put in place or adapt regulations.
Expectations Met: Yes

II. OVERVIEW OF THE G-CASH MODEL

G-Cash is a mobile banking solution offering a range of payment services through the use of unstructured supplementary service data (USSD) in an SMS-like format type. G-Cash is operated by G-Xchange Inc (GXI), a wholly-owned subsidiary of Globe Telecom. The subsidiary manages all of the G-Cash operations and is registered as a financial company.

G-Cash started operations in 2004 and now has more than 3,100 outlets. The users of the mobile banking solution enjoy a wide range of services, including:

²⁵ Refer to Question 5 in Chapter IV: Summary and Observations for information about the minimum institutional requirements to deploy this type of client-focused technology.

²⁶ Adapted from: "Case Study on Philippines: Electronic Banking: Delivering Microfinance Services to the Poor in Philippines." Jimenez, Eduardo C., and Pia Bernadette Roman. <http://www.bwtp.org/arcm/documents/Jimenez.pdf#search=%22G-Cash%20case%20study%22/>

- Payment for goods and services: At any G-Cash outlet, including utility companies, schools, and grocery stores.
- Cash withdrawals: At authorized G-Cash stores.
- Deposits: G-Cash can make deposits through the Text-a-Deposit (TAD) service, which was approved in September 2006.
- Money transfer services: G-Cash allows clients to receive and send local and international money transfers.
- Account balances.
- Airtime transfers between two client accounts.

These services are provided to all G-Cash communications subscribers and are not limited to microfinance clients. G-Cash currently has 1.2 million registered G-Cash subscribers. However, only 250,000 of these clients are active, with positive balances in their G-Cash mobile wallets (m-wallets).

How Was G-Cash Conceptualized for Microfinance Purposes?

The original idea for the service and the pilot came from the Microenterprise Access to Banking Services (MABS) program—a U.S. Agency for International Development (USAID)-sponsored project dedicated to providing technical assistance and training to RBAP member banks to help them expand their microfinance services. The main reason for G-Cash to launch a microfinance service was to gain market share. Globe Telecom currently has 39 percent of the market, while Smart Communications—its direct competitor—has about 59 percent. Globe was eager to enter into an alliance with RBAP in order to increase its outreach.

G-Cash is being used for microfinance as a text-a-payment/text-a-deposit (TAP/TAD) service as a result of a partnership between RBAP and GXI. The pilot of the G-Cash microfinance solution started in April 2005 and ended in September 2005.

How Was G-Cash Implemented for Microfinance Purposes?

The implementation of the TAP/TAD solution started in November 2004 and took about six months of preparation before the pilot began. The USAID's MABS program acted as a coordinator between the RBAP banks and GXI in order to make the TAP/TAD service a reality for microfinance.

After the Central Bank of Philippines (BSP) approved extending the G-Cash remittance service to all interested and qualified rural banks that meet the BSP standards, on February 1, 2005, four banks were selected for the pilot test.

During January and February 2005, MABS and GXI jointly conducted training in the pilot banks. The training included orientation and instructing the banks' staff and borrowers on G-Cash and TAP policies and procedures. The pilot was launched in April 2005. In early 2006, the BSP further approved the use of cash in/cash out services using G-Cash for qualified rural banks.

Thirty-eight rural banks are now offering mobile phone banking services using the G-Cash platform in 184 branches. These rural banks use a number of commercial banks with internet access to handle the financial settlement directly with Globe Telecom's G-Xchange. There are also more than 400

accredited merchants with some 3,500 outlets that now accept G-Cash for payment for the sale of goods and services.

Since January 2006, accredited rural banks have handled a total of 25,000 mobile phone banking transactions for their clients utilizing the G-Cash platform.²⁷ The transaction volume is increasing monthly. In December 2006 alone, these banks handled 10,000 G-Cash-related transactions.

MABS and G-Cash only track the number of transactions so it is not possible at this time to know how many microfinance clients are using these services.

What Were the Major Challenges for the Implementation of G-Cash Microfinance Service?

Some of the challenges encountered during the implementation of the service included:

- **Regulation:** Despite the fact that the BSP has shown support for this technology, the granting and approval of G-Cash TAP/TAD service for microfinance was a long process.
- **Security:** The BSP was also concerned about the security of the USSD technology. Hence, it required G-Cash to shift from a string text format to an application menu to ensure the encryption of the user's PIN.
- **Interface:** G-Cash did not originally require an interface with the MIS of the partnering rural bank. The reason for this was that the number of transactions supported by the cell phone solution was still low and they could be handled manually. However, G-Cash and the RBAP banks are currently working on creating a proper interface to automate the communication between the G-Cash solution and the RBAP MIS. This development is being supported by USAID MABS funds.
- **Clients:** Some clients are concerned that the text message confirmation is the only proof of payments. However, clients can get a monthly printout of the TAP transactions and the actual text messages are stored in GXI's system for up to six months.

It is also important to note that the cost of cell phone devices did not represent a challenge for G-Cash. The Philippines is probably the most competitive mobile phone market in the developing world, with the highest coverage, lowest service cost, and largest percentage of users. This fact has helped to lower the price of cell phone devices. New cell phones cost around US\$30 and used phones are priced at less than \$15, making these devices very accessible to microentrepreneurs.

What Are the Major Advantages G-Cash Offers for Microfinance?

G-Cash presents the following advantages to microfinance organizations. First, it provides an inexpensive solution for the repayment of loans. The service only costs \$0.02 per transaction, making the electronic payment of loans very affordable for RBAP clients. Similarly, the service is very easy to use by any type of client. Text messaging is very popular in the Philippines; hence, the use of the cell phones to send electronic payments has been well received. The system now offers a

²⁷ All G-Cash transactions are for clients of the rural banks in compliance with the Philippines' central bank regulations. Those small number of remittance transactions for non-clients must comply with strict Know-Your-Customers (KYC) procedures.

menu-driven application to replace the text string approach, which greatly facilitates the use of the system.

The G-Cash service helps the participating RBAP banks to better manage their loan officers' time. In the Philippines, loan officers typically go out and collect payments from the clients. They have been very supportive of the initiative due to the time savings they experience from clients text messaging their payments. Initial calculations show that loan officers spend about 63 percent of their time collecting payments; therefore, the TAP service offers a significant opportunity to reduce this time.

III. REGULATION

G-Cash is an innovative service that breaks many of the traditional banking rules. The regulation of the service was a challenge at the early stages of the project because regulators did not have a clear idea of the rules that applied. Therefore, the MABS team and Globe Telecom legal advisors worked very closely with the BSP to solve the regulatory issues related to G-Cash payment services. These concerns included:

- Money laundering: The BSP required G-Cash to establish transaction limits to ensure compliance with the “Know Your Customer” and the Anti-Money-Laundering Act. These limits are \$200 per transaction, \$800 per day, and \$2,000 per month.
- Registration requirements: All G-Cash users must fill out documentation to become approved. Users are required to show ID at the time of registration and any time they use G-Cash.
- Switch to menu-driven application: In the past, all text messaging was done by using a string of text commands. This represented two main challenges. First, it was hard for the clients to remember the commands, and human errors were made easily. Second, it allowed third parties to see the user's PIN in the outgoing message box. Hence, G-Cash was required to address these two issues and to develop a user-friendly, more secure end-user interface. This new interface consists of a menu that standardizes all commands and encrypts the PIN at the point of entry.
- Transaction history: The BSP required G-Cash to keep all transactions in an electronic ledger in the Globe system for six months.

The BSP is currently supportive of the service and it accepts G-Cash as a formal retail payment system.

EXAMPLE #7: WIZZIT, A BRANCHLESS BANK

I. THE SOUTH AFRICAN CONTEXT

Access to financial services in South Africa is still limited. It is estimated that about 37 percent of South African adults do not have access to any type of financial services. An additional 8 percent of South Africans only have access to informal financial sources, such as burial societies or small savings clubs. Moreover, client distribution shows that those who have access to financial services tend to belong to the upper tiers of the population.²⁸

Similarly, the traditional characteristics of financial products offered by South African banks do not tend to address the needs of low-income and unbanked sectors. For example, the high account maintenance fees and minimum account balance requirements make it almost impossible for poor people to open, much less maintain, a bank account. The banking infrastructure is concentrated in urban areas, leaving rural customers with few options to perform transactions. It is important to address these issues to increase the outreach of financial services in South Africa. The WIZZIT experience presented in this example outlines a creative way to address some of these issues.

WIZZIT: A Branchless Bank

Summary of Findings

Current Status:

Implementation completed. 2+ years for conceptualization and pilot.

Main Points:

- Good solution for banking hard to reach clients.
- Microfinance services are still in development.

Expectations Met: Yes

II. OVERVIEW OF THE WIZZIT MODEL

WIZZIT was conceived in 2002 with the aim of providing affordable transactional capability to a previously underserved and mostly unbanked market. From its outset, WIZZIT Bank was established as a commercial, mobile phone-based bank, operating off of the banking license of the South African Bank of Athens.²⁹

Following extensive market research, the development of an affordable solution, and an agreement with the South African Bank of Athens, WIZZIT was commercially launched in the first quarter of 2005. WIZZIT currently operates nationwide, from capital cities to rural areas, and has about 50,000 clients.

In addition to its strong mobile phone component, the WIZZIT model incorporates more traditional distribution channels to allow clients to perform cash-based transactions. With a combination of ATMs, POS devices, and Maestro cards, WIZZIT clients have access to cash across the country, allowing them to perform more than just mobile banking transactions. Hence, WIZZIT is a complete financial solution that performs the following transactions:

- Payment of goods and services,

²⁸ Adapted from "Survey Highlights including FSM Model." FinScope South Africa 2005. FinMark Trust.

²⁹ South African Bank of Athens is a member of South African Banking Industry Payment Association. This allows WIZZIT to perform inter-banking transactions and provide its clients with access to ATMs and POS outlets.

- Cash back,
- Deposits,
- Loan payments,
- Money transfers within own accounts,
- Money transfers between two clients accounts,
- Check bank account balances,
- Airtime transfers between two clients accounts,
- International and in-country remittances, and
- Subscriber registration.

There are two main benefits of the WIZZIT model. First, by cutting out the costs associated with a bricks and mortar network and using the existing platform of cell phones, WIZZIT offers transactional banking that is efficient, secure by the use of encryption, and affordable. Second, the high acceptance of mobile transactions in South Africa makes the WIZZIT model very accessible for any person to start using the service.

In terms of regulation, WIZZIT's alliance with South African Bank of Athens makes the company subject to regulation by the South African Reserve Bank. The Financial Intelligence Centre has also an impact on the regulation of WIZZIT because it requires customers to be identified when opening an account. This limits WIZZIT's ability to open accounts in remote areas.

How Does WIZZIT Work?

WIZZIT uses USSD technology that allows for a continuous session with instantaneous responses. The transactions are done in a single session and the system notifies the client when the transaction is completed.

The WIZZIT service works with any type and generation of cell phone. From the outset, the intent of the WIZZIT solution was to work across all cell phone networks and on all GSM cell phones in the market, including older generations. This network has extremely high coverage across the country, covering not only major cities, but also rural areas. The network is also very stable, allowing for an effective transmission of text messages. The only equipment requirement is the ability to send and receive short text messages (SMS).

However, the high cost of cell phones is definitely an inhibitor to reach the rural markets in Africa. While cell phones are commonly provided "for free" as part of a subscription contract package, the poor often cannot subscribe to these packages. Pre-paid cell phone kits are also expensive, starting at about \$140.

The fact that mobile phones tend to be replaced every two years with new models has created a growing number of secondhand cell phones in South Africa. These secondhand phones are either sold or simply passed on to others who then purchase prepaid network access. However, this phenomenon occurs mostly in urban areas, where the majority of the mobile subscribers are and where income levels are the highest.

As a response to these issues, WIZZIT is exploring the opportunity to issue SIM cards that a person can use in someone else's phone. WIZZIT is also exploring the possibility of providing a handset to a community, farm, or SME, enabling people in that community to use that phone for their banking needs.

How Is WIZZIT Used for Microfinance Purposes?

WIZZIT is currently looking for ways to offer its services to microfinance clients. Through a partnership with Beehive, a local MFI, WIZZIT is testing the reaction of microfinance clients to its services. Beehive's staff are trained as WIZZIT agents, and clients who join the MFI are offered WIZZIT accounts. The loans of the MFI's clients are directly disbursed to the WIZZIT accounts and the clients can use their accounts to directly pay their loans, providing a branchless way for clients to manage their microfinance loans.

III. REGULATION

As a result of the WIZZIT alliance with South African Bank of Athens, WIZZIT is subject to regulation by the South African Reserve Bank. Under Exemption 17 of the Financial Intelligence Centre (FICA), customers are required to present an identification card in order to open an account. There are transaction limits under this law, but for WIZZIT's market—mostly the unbanked—those restrictions are perfectly acceptable. In the unlikely case that a WIZZIT client exceeds the allowed limit, WIZZIT must get a copy of the proof of residential address to be fully compliant with FICA.

Accommodating FICA's requirements hinders WIZZIT's ability to open accounts in remote areas. For example, faxing a copy of a client's ID from a rural area to a WIZZIT office can be very expensive. The ideal would be for WIZZKids³⁰ to have camera phones and simply take pictures of the clients' IDs and email them to the office.

Under circular 6, there are more limits and restrictions, but the circular stipulates that rather than requiring a copy of the ID, the institution may instead verify the ID number against a third-party database. The costs of verification are prohibitive, however, so WIZZIT decided not to pursue it.

³⁰ WIZZkids are representatives of WIZZIT in remote and rural areas of South Africa. They receive training from WIZZIT so that they can promote the company's services and help clients to open accounts.

IV: SUMMARY AND OBSERVATIONS

The aim of this study is to answer to several key questions about the potential of client-focused technologies—specifically PDAs, POS devices, and cell phones—to help the microfinance industry reach its goals. From the information presented in the case examples, the following questions can be answered.

QUESTION 1: DOES CLIENT-FOCUSED TECHNOLOGY HELP MICROFINANCE REACH SCALE AND EFFICIENCY?

Most of the examples presented in the case studies indicate that client-focused technologies do help microfinance organizations increase their scale and efficiency. For instance, the Banco Solidario's PDA applications showed positive impact on the efficiency of loan officers by giving them a tool for improving the loan application process. The Banco Solidario example also shows that PDAs are helping loan officers manage their time more effectively by allowing them to better organize their field visits.

Similarly, POS and cell phone systems offer a unique opportunity to MFIs to increase their outreach in remote and rural areas. Based on the three POS examples, it is clear that POS-based systems are a less expensive solution, when the country infrastructure allows, for providing financial services to remote and rural clients when compared with the expenses associated with opening a new branch. However, as shown in the RTS example, the development of this type of solution can sometimes be slow and complex because they depend highly on a good communication infrastructure—not available in every country.³¹

One of the insights gained from the examples presented in this case is that MFI clients and unbanked people are willing to try the technologies once they understand the direct benefit of using them. Thus, the financial institution providing the service needs to correctly price the technology so that the client can perceive that the benefit associated to the cost of the service. For instance, most clients using the POS services presented in this case study like using these services because they provide a less expensive alternative to traveling long distances to perform transactions. Also, providing adequate and continuous training for clients is crucial to their success in adopting the technology.

QUESTION 2: WERE THE INSTITUTION'S EXPECTATIONS ON THESE CLIENT-FOCUSED TECHNOLOGIES MET?

In six of the seven case examples, the institutions' expectations were met, and they were able to obtain the following results:

³¹ In two of the POS examples, the implementation of these solutions took more than two years.

- Increase in client outreach: The technologies provided the institutions with a tool to reach clients that they otherwise would not be able to reach. This is primarily the case for POS- and cell phone-based solutions.
- Gains in staff productivity and efficiency: The clearest case is the PDA technology, which can become a powerful tool for improving loan officers' efficiency of field operations.
- Competitive advantages over competitors: These technologies are helping microfinance organizations to keep up with the competition of commercial banks. By the same token, commercial banks are looking at these technologies, as in the case of Latin American institutions, to go down-market and start reaching the microfinance segment.
- Institutional goals: Some of the institutions mentioned that the technologies helped them to meet their institutional goal of reaching underserved segments of their markets.

However, it is important to note that two of the examples presented are still in their pilot stages. Thus, a complete assessment of the expectations set and the benefits received from these solutions is difficult at this point.

QUESTION 3: WHAT ARE THE REASONS FOR SUCCESS OR FAILURE OF THE DIFFERENT BUSINESS MODELS USED TO DEPLOY THESE CLIENT-FOCUSED TECHNOLOGIES?

The examples in the case studies allow us to see that factors such as institutional buy-in, the choice of technology provider, the state of local infrastructure, and regulations play a key role in the success of these technology projects.

Institutional buy-in is important for successful implementation because it allows the technology project to receive the necessary resources—human and capital—for the project to move forward. For instance, OIBM's strong support of its POS project made the project a success and allowed the institution to properly allocate its resources. Similarly, the internal efforts and strong interest of UML's management in the RTS project helped to keep the project moving despite a long pilot.

An institution considering implementing these technologies must be aware that the implementation will divert some key personnel, such as the IT manager or the branch managers, from their existing responsibilities and must plan accordingly. Similarly, the institution should show its commitment to the project by linking it to a strategic business goal, such as outreach to underserved clients, which will support their efforts to gain organizational buy-in. The existence of internal champions who are respected members of the institution, who are known thought leaders or change agents, is also beneficial as it facilitates collaboration among stakeholders within the institution and between the IT provider and the institution.

Additionally, the choice of technology provider is fundamental to the success of the implementation. The provider should be able to offer the institution a variety of options to accommodate the technology according to the business needs of the institution. Moreover, the provider should be an expert on the specific technology and should ideally support the institution on both the implementation itself and the required business planning needed to make the technology work.

The local infrastructure is also a main success factor. The ideal situation for these technology projects is to make use of the existing infrastructure to deploy the technology, because having to create the infrastructure for the technology can be a slow, expensive, and complex task. In this case, the institution must understand the capabilities of the local infrastructure. The institution should take a close look at issues such as remote communications networks to assess whether or not these networks can support the data traffic that the technology solution will generate. Moreover, the financial institution and the technology provider should work together to determine if the technology can be adapted to work with the current infrastructure, thereby eliminating the need to invest time and resources to build the infrastructure from scratch.

Financial institutions should also be aware of local regulations that might jeopardize the implementation of the technology. Regulatory issues such as the risk associated with the electronic transactions or the security of the systems must be addressed and taken into consideration prior to implementation of the technology. It is also important to educate the regulatory bodies about the technology and help them understand the way the technology will be used for microfinance purposes.

QUESTION 4: DO MFIS HAVE A QUANTIFIABLE RETURN ON INVESTMENT FROM THESE TECHNOLOGY IMPLEMENTATIONS?

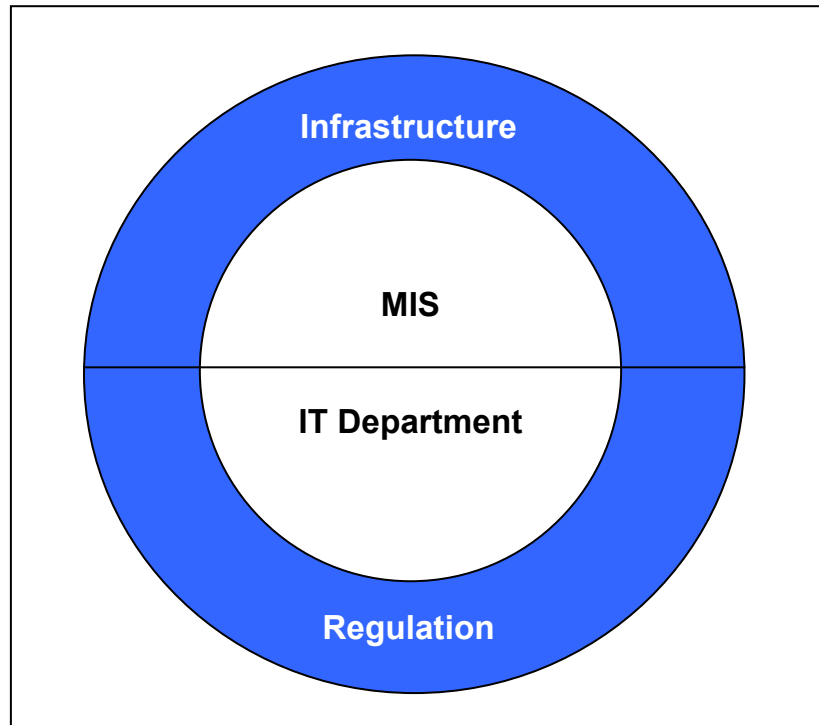
When collecting information for the case studies, it was difficult to determine in quantifiable terms the potential return on investment from these technologies. This is due to the fact that MFIs have difficulty measuring the return on investment from these implementations. MFIs do not currently have the tools, nor do they collect financial metrics, to allow them to perform a thorough pre- and post-investment analysis.

However, the examples presented here do show clear cost benefits from implementing the three client-focused technologies, such as the cost differences between the expenses associated with setting up and operating a branch and the expenses of implementing the POS agent model. In the Colombian, Peruvian, and Ugandan examples, the branch cost hinders the ability of a financial institution to reach remote areas and the POS agent solution becomes a viable solution for reaching those areas. Furthermore, the PDA example shows that using technology can also help to improve the portfolio quality of microfinance institutions, providing important savings in the collection of past-due loans.

QUESTION 5: WHAT ARE THE TECHNICAL PREREQUISITES THAT AN MFI SHOULD TAKE INTO CONSIDERATION TO START USING ONE OF THESE TECHNOLOGIES?

We can divide the prerequisites into two categories: the macro requirements and the micro requirements. As Figure 6 indicates, the macro requirements refer to the country's infrastructure and regulation. The micro requirements are at the institution level and are mainly represented by the financial institution's MIS and IT department.

FIGURE 6: MACRO AND MICRO REQUIREMENTS FOR TECHNOLOGY IMPLEMENTATIONS



Macro Requirements – Infrastructure










The country's infrastructure plays a key role in the success of the implementation of a specific technology. Financial institutions need to pay close attention to existing communication networks. Figure 7 can help institutions thinking of implementing one of these technologies to determine if their country's network infrastructure is ready to support the technology.

The matrix divides the country communications infrastructure into three areas: wired network communications, wireless network communications, and offline capabilities. Then, the needs for these types of communications are assessed against each client-focused technology. PDA systems do not require a fully operational wired or wireless communications networks because the need to perform online transactions is normally low. They do require a full offline capacity, which refers to the ability of the device to store information to be later transmitted to the financial institution's database.

In the case of POS systems, the network communications needs depend on the type of card implemented with the system. If the POS system is implemented with smart cards capable of maintaining larger amount of individual account information, the system can support offline transactions, providing a solution for countries in which wireless or wired communications networks are deficient. Nevertheless, the drawback of using smart cards is their cost: they can cost as much as 200 percent more than a magnetic strip card, which requires a good communications network.

Cell phone-based technologies clearly depend on a full wireless network infrastructure, because these devices do not operate in an offline mode or on a wired network.

FIGURE 7: COMMUNICATIONS INFRASTRUCTURE VS. TECHNOLOGY TYPE

		PDA	POS	Cell Phones
Country Communications Infrastructure	Wired Network Communications			
	Wireless Network Communications			
	Offline Capabilities			

Legend: shaded circle - required; semi-shaded circle - semi-required; blank circle - not required/not supported.

Macro Requirements – Regulation

The country's existing regulations and regulatory environment are critical in the proper deployment of these technologies. The financial institution seeking to implement these technologies must work closely with the country's regulators to avoid potential delays in the implementation due to regulation issues. The institution might need to explain to the regulatory bodies how the technology will be used for banking purposes and how any security concerns about the technology will be addressed. This is particularly relevant for mobile phone banking and POS agent models since a non-bank entity is facilitating financial transactions.

Micro Requirements

The financial institution's MIS plays a key role in the proper development of these technologies. Figure 8 provides a quick overview of the type of MIS issues to take into consideration when implementing these technologies.













As the matrix indicates, the three technologies can operate in either a basic or a robust MIS. However, a more robust MIS allow for more functionality. For instance, if an MIS is capable of storing non-financial information, this information collected by the PDA can be transferred to the MIS and later used for purposes such as credit scoring or data mining.

Regarding the need for an interface, all client-focused technologies require an interface or switch for the applications to communicate and interact with the institution's main MIS. However, in the G-Cash example, the solution did not originally require an interface with the MIS of the partnering rural bank because the number of transactions supported by the cell phone solution was still low and could be handled manually. Nevertheless, an interface for a cell phone-based system will be required once the number of transactions increases.

Finally, the financial institution's IT department is important for the implementation of these technologies because it will provide the back office and potentially the project management support for the development. Before implementing any of these technologies, an MFI must assess the ability of its IT department to properly manage each step of the technology implementation. If the IT department is not capable of handling the implementation by itself, the institution will need to work

very closely with the technology provider to identify potential consultants or external parties to provide the skills and knowledge and to transfer those skills and knowledge to the internal IT department.

FIGURE 8: MANAGEMENT INFORMATION SYSTEM VS. TECHNOLOGY TYPE

		PDA	POS	Cell Phones
MIS	Basic MIS*			
	Robust MIS**			
	Interface Required			
	Interface Not-Required			

* A basic MIS refers to a system that mostly provides accounting and loan tracking functionalities to an MFI. This type of system will require a high degree of customization to support client-focused technologies.

** A robust MIS is a system that not only provides the basic accounting and loan tracking functions to an MFI, but is also capable of facilitating fully automated transactions across different hardware and software platforms. These systems are more stable and mature than basic MISs and they incorporate industry standards that make easier the integration of client focused technologies.

In summary, each of the areas described in this list of prerequisites is essential for the proper implementation of these client-focused technologies. It is, however, important to note that each technology implementation and each country has unique characteristics. Hence, the prerequisites presented here are generally applicable to all MFIs but other aspects might need to be taken into consideration when implementing these technologies.

ANNEX 1: PROFILES OF PARTICIPATING INSTITUTIONS

BANCO SOLIDARIO

Banco Solidario was initially established in Quito, Ecuador, in May 1995 as Estrategia Financiera S.A. (ESFISA). In August 1995, the institution changed its name to Sociedad Financiera Enlace S.A. A year later, the Ecuadorian Superintendency of Banks authorized the merger of Enlace Sociedad Financiera S.A. and Sociedad Financiera Finambato S.A. to become Banco Solidario S.A. Banco Solidario, a member of the Enlace Financial Group, is the first social mission-bearing financial initiative in Latin America, born out of 100 percent private capital. In addition to Banco Solidario, Enlace includes Fundación Alternativa (the social promoter), Enlace Valores, Enlace Inmobiliaria, Enlace Informático, Enlace Fondos, and Enlace Más (a training center).

Banco Solidario is a commercial bank dedicated to providing financial services to the microenterprise sector. By addressing Ecuador's economic development with creative financial products and services, Banco Solidario is meeting the needs of microentrepreneurs previously unable to access the formal financial system. The bank is committed to protecting both its shareholders' capital and the savings entrusted to it by its clients.

UGANDA MICROFINANCE LIMITED

The co-directors of UML, one Ugandan and one American, met while pursuing graduate degrees in international development. Uganda Microfinance Union (UMU) was born out of their thesis paper, with the aim of tailoring microfinance services to the Ugandan setting rather than directly importing models from other countries. In August 1997, UMU was launched with a small seed grant from the Central Bank of Uganda. UMU grew rapidly in its first eight years of existence, paving the way for an institutional transformation to a microfinance deposit-taking institution in late 2005. UML now serves more than 80,000 clients with credit and savings products.

UML's mission is to provide customer-focused and secure financial services to microfinance clients and other stakeholders in a courteous, efficient, and transparent manner.

OPPORTUNITY INTERNATIONAL BANK MALAWI

OIBM is a member of the Opportunity International Network, a leading network of microfinance institutions and banks that operate in more than 40 countries in the developing world. OIBM was awarded a full commercial banking license by the Reserve Bank of Malawi on March 21, 2002.

The institution's mission is to provide credit, depository, and value-based auxiliary financial services to the entrepreneurial poor and marginalized of Malawi as a means to transform lives of people living in poverty, strengthen family livelihood incomes, increase standards of living, and create jobs. The institution targets the poor in underserved areas, including peri-urban and rural areas.

K-REP

K-Rep was founded as an intermediary organization in 1984, providing funds to NGOs for on-lending to microenterprises, and was expanded to work on USAID's Private Enterprise Development Project in 1987. In 1997, K-Rep Bank Limited was formed as a subsidiary of K-Rep Group and in 2000 it became the first commercial bank in Kenya to directly target low-income clients.

The mission of K-Rep Bank is to provide banking and microfinance services to low-income people on a commercially viable basis.

WIZZIT

Wizzit offers a secure and efficient payment mechanism to unbanked and underbanked people in South Africa. The initiative was conceived at the beginning of 2002 and—following three years of in-depth research into the market needs, finding an affordable solution, and securing a banking partner—the business was test-launched in November 2004 and commercially launched with all of the necessary regulatory approvals in March 2005.

RURAL BANKERS ASSOCIATION OF THE PHILIPPINES

RBAP was founded in 1955 but initially remained a non-incorporated association of institutions engaged in a common endeavor.

TRBAP was founded for the following reasons: to promote the general welfare and safeguard the common interests of rural bankers; to work for the proper and effective implementation of the laws and regulations on rural banks; to study and devise ways and means of making rural bank facilities more responsive to the needs of the people in rural areas; to act as a medium in the dissemination and operation of rural banks; to initiate and develop a program of activities to stir up rural bank consciousness; and to foster goodwill and mutual understanding among its members.

GLOBE TELECOM (G-CASH)

GLOBE Telecom aims to anticipate and respond to global market trends in telecommunications, while still remaining focused on customer satisfaction. It believes that this strategy will allow the company to grow and prosper. To strengthen this strategy and increase its competitive advantage, Globe empowers its workforce with state-of-the-art IT tools and networking applications.

INTERBANK—PERU

InterBank is one of the largest banks in Peru, with more than US\$1.930 billion in assets, 105 branches, and 500 ATMs. The bank offers a wide range of financial products, including savings, loans, and credit cards. The institution has almost 1 million clients, making it the fifth largest bank in Peru. InterBank is proud of creating innovative channels for providing financial services to its clients.