# Bringing Financial Services to **Emerging Countries**

"By delivering branchless banking solutions in emerging countries, Ingenico is proud to support financial inclusion, and to foster a better health, education, and more globally better standards of living for all segments of population."

Michel Leger,
Executive Vice president EEMEA, Ingenico

This White paper has been produced by Ingenico Corporate Communication
and Thierry Spanjaard, Smart Insights – February 2012

ingenico®
beyond
payment

# Executive Summary

Three billion people live on less than US$ 2/EUR 1.50 per day[1]. More than 2.5 billion of the world's adults remain "unbanked" and do not use formal or semi-formal financial services[2].

These alarming figures, combined with the economic growth of emerging countries, lead governments, NGOs, public and private institutions to bring financial services to the lowest income segment of society. These services, leading to financial inclusion, are an efficient way to get people out of poverty through better nutrition, health, education, etc.

Financial inclusion programs have developed an efficient use of technologies to bring adapted financial services to the populations. They take into account the specificities of the targeted populations, high illiteracy rates, often scattered populations in places that are difficult to reach, or far away from traditional bank locations. These populations are in need of a complete array of financial services: deposit accounts, savings accounts, loans, bill payments, and insurance services.

Micro finance institutions usually rely on agent networks to bring financial services to the populations. These agents are also in charge of financial education and ensure end-customers understand the financial services proposed to them. The technologies used in bringing financial services to the masses involve POS terminals, as a means to bring all types of financial services to the population in a convenient secure manner, at a limited cost.

# Table of Contents

# 1. Needs and objectives for financial inclusion and micro-finance services

## 1.1. DEFINITIONS

### 1.1.1. Financial inclusion

Financial inclusion (also called Inclusive Finance) is defined as the delivery of financial services at affordable costs to sections of disadvantaged and low-income segments of society. The term "financial inclusion" has gained importance since the early 2000s, as a result of findings about financial exclusion and its direct correlation to poverty. Financial inclusion is now a common objective for many central banks among developing nations[3].

According to the United Nations the main goals of Inclusive Finance are as follows:

- "Access at a reasonable cost of all households and enterprises to the range of financial services for which they are "bankable," including savings, short and long-term credit, leasing and factoring, mortgages, insurance, pensions, payments, local money transfers and international remittances,
- Sound institutions, guided by appropriate internal management systems, industry performance standards, and performance monitoring by the market, as well as by sound prudential regulation where required,
- Financial and institutional sustainability as a means of providing access to financial services over time,
- Multiple providers of financial services, wherever feasible, so as to bring cost-effective and a wide variety of alternatives to customers (which could include any number of combinations of sound private, non-profit and public providers)."

### 1.1.2. Micro finance - Micro credit

Micro Finance is defined as the provision of financial services to low-income clients or cooperative lending groups including consumers and the self-employed, who traditionally lack access to banking and related services. More broadly, it is an initiative which aims towards "a world in which as many poor and near-poor households as possible have permanent access to an appropriate range of high quality financial services, including not just credit but also savings, insurance, and fund transfers."[4] A major objective of Micro Finance is to help the poor out of poverty.

Micro Finance includes a variety of services, including those of a bank account. A much-talked about service is Micro Credit, defined as the extension of very small loans (microloans) to those in poverty and designed to spur entrepreneurship.

### 1.1.3. Branchless banking

Branchless banking is a distribution channel method used for delivering financial services without relying on traditional bank branches. Branchless banking is seen as an essential part of a financial inclusion strategy, as it provides a cost-efficient means to deliver financial services to disadvantaged and low-income segments of society. Branchless banking relies on technological innovation, such as POS terminals and mobile communications to bring financial services to the targeted low-income population without incurring the cost and bureaucratic burden of traditional bank branches.

## 1.2. TARGETS FOR FINANCIAL INCLUSION POLICIES

Typically, financial inclusion policies target a variety of population classes such as:

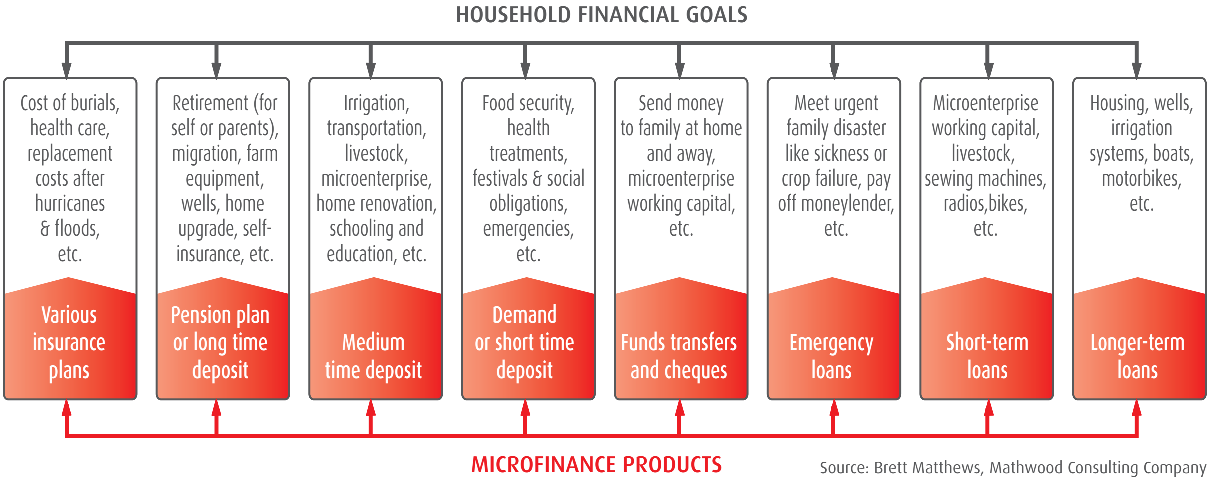
- Low-income farmers,
- Landless workers,
- Self employed and unorganized sector enterprises,
- Urban inner-city residents,
- Migrants,
- Ethnic minorities and socially excluded groups,
- Senior citizens,
- Women looking to start an independent activity,
- Population victims of discrimination based on ethnicity, or place of origin.

However, to deliver efficient microfinance services, there is a need for a fine segmentation of the targeted population.

"For instance, while women clients make up a majority of clients – and in some instances comprise 100% of an MFI's (Micro Finance Institution) clientele, 33% of all microfinance clients are men. These clients operate small businesses, work on small farms, or work for themselves or others in a variety of businesses – fishing, carpentry, vegetable selling, small shops, transportation, and much more. Some of these microfinance clients are truly entrepreneurs – they enjoy creating and running their own businesses. Others become entrepreneurs by necessity when there are few jobs available in the formal sector."[5]

## 1.3. MICRO FINANCE USER LEVEL NEEDS

### Types of microfinance used by poor people




Source: Brett Matthews, Mathwood Consulting Company

Many low-income households need support to build up savings for their future. Savings will be used to support the family or ageing parents, or to pay for education.

Low-income households also need a combination of savings and loans to develop their own activity. They need, for instance, to purchase farming equipment, install irrigation systems, and acquire means of transport such as motorbikes.

Financial inclusion helps to turn low-income households into microenterprises. In many societies, small shops, set up mainly by women, are one of the preferred means for starting an independent activity. A small shop creates a revenue stream, as well as social interaction. Setting up a shop needs an initial capital investment, and then financial support to buy stock, and run the business.

Low-income households are encouraged to set up microenterprises in fields such as agriculture, craftsmanship, etc. Financial support and personal help in setting up the business are integral to all projects. Financial support is typically built up from a combination of savings and loans.

In addition, in many developing economies, most people do not benefit from any public or private insurance. Households have to organize their savings as a protection against job loss or disease. Without insurance, households need to build up savings that will help them in case of disasters such as hurricanes, floods, or bad crops.

## 1.4. CONSTRAINTS OF THE UNBANKED

Low-income level populations are faced with a set of constraints when attempting to access financial services.

Illiteracy is a central concern. In many emerging economies, literacy rates are low, and are considered an obstacle to giving access to financial services. When people are not able to read and write, they also tend to believe that financial services are not suited to them.

On a wider scale, most rural households in emerging economies are geographically and culturally distant from the banking culture. Delivering financial services must go hand in hand with providing financial literacy programs in order to ensure people actually understand how financial services work, and their corresponding benefits.

Banks often focus on the wealthiest layers of society, and this leads to the misconception for most of the population that banking services are not for them.

Practical constraints also exist. In many places banks are only open to the public a few hours a day, for instance, mornings only, Monday to Friday, making bank access unsuitable for many people. Furthermore, the limited number of bank branches means that people living in rural areas have to incur time and transport cost to reach a bank branch.

Finally, in many emerging economies, most of the population is in need of security. People want to ensure their savings are kept safely; they want to be able to send and receive money safely. Many people are reluctant to carry large amounts of cash in an unsecure environment, which is often the case in emerging economies, as carrying cash increases the risk of robbery. Financial services provide far better security than carrying cash.

## 1.5. SOCIETAL NEEDS

Micro finance services, being delivered by agents, or so-called business correspondents, bring households the education and support they need to build their saving plans. They bring warranties that poor people's savings will be kept safely, and that they will be able to consider their future with more security.

Also, some developing economies have set up some support programs for the poorest population classes.

In India, the government has set up subsidies systems under the National Rural Employment Guarantee Act (NREGA), affirmed by legislation on August 25, 2005. The NREGA project is an Indian job guarantee scheme that provides a legal guarantee for one hundred days of employment in every financial year to adult members of any rural household willing to do public work or related unskilled manual work at the statutory minimum wage of INR 60 (EUR 0.90) per day[6].

To distribute subsidies, authorities need an efficient distribution network, able to reach a population in spread out areas. Microfinance institutions are the most efficient way to reach populations living in remote locations.

## 1.6. GLOBAL ECONOMIC DEVELOPMENT OBJECTIVES

From a global standpoint, financial inclusion is a means to globally improve living.

As financial inclusion encourages households to save, it provides low-income populations with a means to pay for schooling, thus bringing a better education level to their families.

Micro finance has direct benefits by helping low-income households to save for their future and economic development. It also has indirect benefits, such as helping the global economic development of a country through microenterprises. Bringing low-income households into the economic community is also a means of encouraging women's and minority rights. Women are often the beneficiaries of loans used to set up microenterprises such as small shops or handicrafts. In addition, minority rights are better guaranteed when populations achieve a level of financial autonomy.

Financial inclusion goes hand in hand with financial education. An educated population is in a better position to repel abusive moneylenders.

In addition, as financial inclusion leads to more dematerialized transactions, the provision of financial services leads to a crime rate reduction.

## 1.7. ROLE OF GLOBAL STAKEHOLDERS

Financial inclusion programs are supported by international organizations such as The World Bank, the Bill & Melinda Gates foundation and others.

The World Bank (International Bank for Reconstruction and Development – IBRD) is working with countries to help them achieve inclusive and sustainable growth.

The World Bank International Development Association (IDA), the World Bank's fund for the poorest, supports microfinance programs.

The World Bank Institute runs an "Innovation for Development" program under which it supports "partners from civil society, businesses, and private actors including social entrepreneurs to complement, support, and create new business models for the delivery of public goods and services. Our vision is to be a catalyst of innovation for development".

The Bill and Melinda Gates Foundation has set up a "Financial Services for the Poor" initiative as it believes providing poor people with reliable access to a range of safe, affordable financial tools and services can be one of the most powerful ways to help them build better, healthier lives. The initiative focuses on distribution channels for financial services, research on the most effective methods, policies, and regulatory changes needed to help deliver safe, quality financial services outside traditional bank buildings, and savings protection[7].

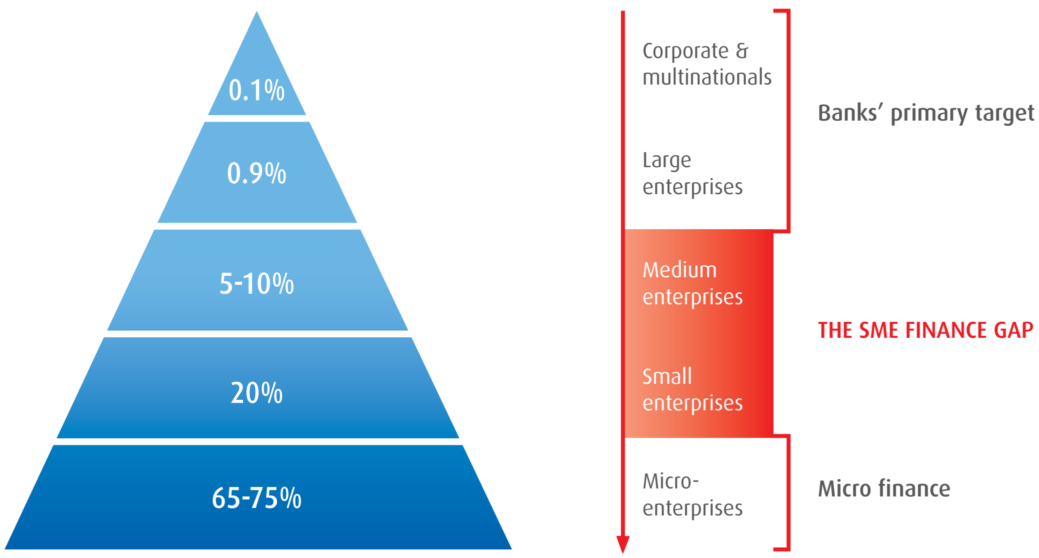
World Bank's Development Research Group publishes the Global Financial Inclusion Indicators (GFII) with a 10-year grant from the Bill & Melinda Gates Foundation.

## 1.8. BUILDING FINANCIAL INCLUSION

The traditional banking industry has been focusing on the wealthiest part of society as the best source for return on investment. In addition, it has a cost structure that is better adapted to high amounts of savings and loans.

New players are emerging to serve microfinance needs, with a different cost structure. They no longer rely on a large number of bank branches, but on a network of agents, generally paid only on a commission basis. Low-income level households and microenterprises represent by far the largest numbers in terms of population.

### Typical business landscape in emerging economies




Source: World Bank

# 2. Needs and solutions for financial inclusion and micro finance

## 2.1. TECHNOLOGY CONTEXT

Many emerging economies have a series of population and technology-related factors in common.

### High mobile phone penetration

In places with weak landline infrastructures, or a lot of red tape involved to obtain a landline, mobile phones have been developing extremely fast, and have reached a high penetration rate. For instance, mobile phone penetration is 90% in Indonesia[8] and 71% in Nigeria[9].

### High availability of mobile phone networks

Mobile phone networks have been deployed extensively, sometimes even reaching more than 95% of the population.

### Weak banking infrastructure and penetration

Banks have not focused on developing large infrastructures. In many countries, bank branches are limited to the capital city and the largest cities, when most of the population is in farming communities in rural areas. For instance, Kenya's banking infrastructure is so poor that it doesn't reach almost 80% of adult Kenyans[10]. Also, Bolivia has 3.65 bank branches per 100,000 inhabitants when the average is 6.75 for developing nations and 30 for developed nations[11].

### A minority of banked populations

Along with a poor banking infrastructure and penetration, banks have only targeted the most creditworthy and have thus disregarded the vast majority of the population. Consequently, levels of banked populations are often low. In Peru, only 3.13% of the adult population has a checking account[12].

### Low literacy rate

In India, the global literacy rate (people aged 15 and over who can read and write) is 61%. But in reality 73.4% of the male population is literate whereas only 47.8% of the female population is literate[13].

## 2.2. INCREASING FINANCIAL LITERACY

Financial literacy is defined as the ability to understand finance. More specifically, it refers to the set of skills and knowledge that allows an individual to make informed and effective decisions through their understanding of personal finance.

By making sound decisions on their own financial needs, households are able to organize their savings, use money transfer services, pay for utilities, and benefit from loans.

The OECD has set up its "Project on Financial Education", which includes an international methodology to assess the level of financial literacy and inclusion of the population, financial education programs at schools, national strategies on financial education, social marketing and communication strategies, role of financial intermediaries in financial education, behavioral economics and financial education, and financial consumer protection[14].

Supported by the OECD, in Uganda, The Association of Microfinance Institutes Uganda developed a three-year experience educating the consumers on financial services. The nationwide campaign addressed four areas where consumers showed a lack of understanding: knowledge of their rights, responsibilities, types and uses of different financial products, and the differences between types of financial institutions. The campaign used a variety of channels to deliver its messages, including rural radio, posters, flyers, music, dance and drama, and the newspaper MoneyWorld (published in five languages)[15].

The STAR Program in Eastern and Southern Africa aims to increase the capacity of Hivos (the Humanist Institute for Development Cooperation, based in the Netherlands) partner civil society organizations working on HIV/AIDS and micro-finance issues to effectively apply ICTs to attain their goals. STAR runs a microfinance component of its STAR Program, funded by IDRC and PSO. The program is based on the view that increased ICT capacity among microfinance organizations will lead to improved and increased access to up-to-date and relevant information for both the organizations and the clients, as well as to increased knowledge-sharing among the different stakeholders[16].

## 2.3. PLAYERS IN FINANCIAL INCLUSION PROJECTS

Financial inclusion projects involve an extensive array of players. Financial inclusion generally goes hand in hand with branchless banking.

### 2.3.1. Agents

Branchless banking involves the role of Agents who are in charge of the customer relationship. Agents are the sole point of contact for customers; they are in charge of delivering financial services to their local community. Agents provide a direct communication channel between the banks and their customers. They are already known among their local community, bring a personal touch to the process and help consolidate the necessary confidence from end users in the banking system.

Agents play a central role in setting up a branchless banking system. As they are in contact with the population and are handling cash, all stakeholders in the system want to ensure they keep a tight control on them. Typical identified risks are cash misappropriation by the agent, and fraud regarding the amount of transactions. This is controlled by performing on-line or quasi-on-line transactions, thanks to data exchanges either over the GPRS network, or via SMS. All transactions are controlled by a supervisor.

Agents are generally paid a transaction fee that varies according to a percentage on the transaction amount. As a complement agents may receive a fixed monthly wage for being part of the system.

In Brazil for example, banks use approximately 160,000 agents – many with multiple outlets – to provide financial services to all 5,564 Brazilian municipalities. In 2010, bank agents in Brazil handled 3.1 billion transactions (6% of all bank transactions), 2.85 billion of which involved cash. In Pakistan there are approximately 17,500 bank agents. In the quarter which ended on September $30^{th}$, 2011, these agents handled 15.88 million transactions totaling PKR 58.7 billion (EUR 650 million) with an average transaction amount of PKR 2,700 (EUR 29.90)[17].

FINO, Financial Inclusion Network & Operations, headquartered in Mumbai, India, is responsible for rolling out complete electronic payment platform projects. FINO solutions are anchored around using biometric smart card, hand-held POS terminals and Micro Deposit Machines to perform field operations and biometric authentication.

FINO has rolled out 18,000 wireless biometric Ingenico BIO930, GPRS terminals and set up industrial-scale, biometric processes to reduce operational, distribution and transaction costs. The Ingenico BIO930 secures the entire biometric process from fingerprint capture to fast and secure match-on-card analysis. Fully EMV and PCI PTS approved, it ensures secure data and application management.

FINO has focused particularly on recruiting its agents nicknamed "Bandhus". FINO agents (or Customer Service Providers – CSPs) are roaming and deliver services at the doorstep of customers. FINO has 22,000 business correspondents across India, enabling them to serve 42 million customers. This means FINO has the most active customer base in the world, and also records the highest transaction volume according to a 2010 study from CGAP. FINO Customer Service Providers do not handle cash directly, as FINO takes care of this for them, but they have to travel and thus have to incur travel expenses to reach their customers. FINO agents in Karnataka offer basic bank accounts from the State Bank of India (SBI). Some agents also sell insurance products.

**Case study**
Mr. Rao is a very successful FINO agent. He does more than 1,000 transactions per month servicing 1,600 customers. During the period of account opening, he opened 400 new accounts per month. He is also very active in selling FINO's insurance product (12 per month). With new accounts opening, Mr. Rao makes a monthly commission of INR 5,600 (EUR 101) of which INR 1,100 (EUR 20) is a guaranteed fixed wage. His major expense is travel (as he goes to the customer, not vice-versa) totaling INR 3,000 (EUR 54). So his monthly profit is around INR 2,600 (EUR 47).

### 2.3.2. Microfinance institutions (MFI)

A microfinance institution is an organization that provides financial services to the poor. This very broad definition includes a wide range of providers that vary in their legal structure, mission, and processes. However, all share the common characteristic of providing financial services to clients who are poorer and more vulnerable than traditional bank clients. During the 1970s and 1980s, the microenterprise movement led to the emergence of nongovernmental organizations (NGOs) that provided small loans to the poor. In the 1990s, a number of these institutions transformed themselves into formal financial institutions in order to access and lend client savings, thus enhancing their outreach[18].

In many cases, MFI services are delivered through Agents.

### 2.3.3. Mobile network operators

Network Operators are involved in providing financial services to the lower income segment. As mobile handset penetration is generally much higher than that of banking services, mobile network operators (MNOs) have an already established distribution network serving remote communities. Many of the mobile handset retailers, or providers of mobile top-ups, have the necessary qualities to become agents for a branchless banking system.

### 2.3.4. Commercial banks

Commercial Banks back microfinance operations in two ways. Indirectly by providing existing MFIs with financial support or by acquiring an interest in a company, or directly by creating a subsidiary or a microfinance product/service offering, a strategy known as downscaling[19].

### 2.3.5. Financial backers

Most micro finance projects are supported by a broad range of donors and investors with diverse institutional characteristics, business models, instruments, return expectations, risk appetites, and conceptions about the ultimate goal of microfinance.

#### Donors include

- Bilateral agencies, such as the Swedish International Development Agency (Sida), United States Agency for International Development (USAID),
- Multilateral Development Banks, such as the World Bank, and UN agencies e.g., the United Nations Capital Development Fund (UNCDF), International Fund for Agricultural Development (IFAD),
- Foundations, such as the Bill and Melinda Gates Foundation, or the Ford Foundation,
- International NGOs that can be either specialized in microfinance e.g. ACCION, FINCA or work in multiple sectors, including microfinance e.g. CARE, Concern Worldwide.

#### Investors include

- Development Finance Institutions (DFIs), the private sector branches of government-owned bilateral and multilateral development agencies e.g. KfW (Germany), International Finance Corporation (IFC),
- Individual Investors who provide their capital through organizations like Oikocredit, a Dutch cooperative society, investment funds, and online, peer-to-peer platforms like Kiva.org,
- Institutional Investors: international retail banks, investment banks, pension funds, and private equity funds that channel capital into microfinance,
- Microfinance Investment Vehicles (MIVs): investment entities that have microfinance as a core investment objective and mandate. e.g. European Fund for South East Europe (EFSE), BlueOrchard[20].

CGAP surveyed the most significant microfinance funders from April to August 2008. The 54 funders included in the survey committed US$ 11.7 billion (EUR 9.0 billion) in close to 3,000 active investments and projects. Out of US$ 11.7 billion committed as of December 2007, CGAP estimates that no less than US$ 2.5 billion (EUR 1.9 billion) was disbursed in 2007. Microfinance investment vehicles (MIVs) provide wholesale funding for microfinance: in 2007, 90 MIVs channeled around US$ 5.4 billion (EUR 4.15 billion) to microfinance[21].

### 2.3.6. Government and local authorities

Governments and local authorities are involved in the development of microfinance, through the definition of relevant legal frameworks and national sustainable development strategies with a microfinance section, and through the support of central banks, government departments and local authorities[22].

### 2.3.7. Technology providers

Several companies specialize in financial platforms to operate micro finance systems.

FINO in India, positions itself as a business and banking technology platform and a delivery channel for extensive services. The company offers solutions for customer enrollment and day-to-day operations, based on Ingenico POS terminals.

Craft Silicon, a company headquartered in Nairobi, Kenya, has developed Bankers Realm Core Microfinance Solution (BR MFS) and worked at its further development as an answer to the anticipated future needs. Craft Silicon software allows centralized operations on very low bandwidth lines, handling of huge transaction volumes, interfacing with third party channels like ATM, POS etc., and database security. Bankers Realm.NET is also offered under the SaaS model.

Branchless banking is a specific implementation of well known financial technologies. For instance, one of the most common ways to deliver financial services to the unbanked and under-banked population is to use a POS terminal, such as the ones in the Ingenico range. The POS terminal is equipped with a fingerprint reader as micro finance programs generally use biometrics for customer identification. And as in many cases transactions are conducted online, or are at least collected over the air, the terminal is equipped with a GPRS connection.

Micro finance customers are generally given a smart card as the means to access their financial services.

## 2.4. MFI TECHNOLOGY NEEDS

Micro finance institutions need new management information systems (MIS) solutions to ensure:

- Risk control,
- Cost effective expanded services outreach,
- Security and confidentiality,
- More clients,
- Availability,
- Real time control and reporting.

## 2.5. MOBILITY ASPECTS OF THE SOLUTIONS

As micro finance services are generally delivered though Agent networks, proximity is a central aspect. For this reason, in many cases, Agents travel to their customers in villages and remote rural areas, rather than asking customers to go to a bank branch. Mobile Agents lead to a demand in mobile communication services.

Branchless banking solutions need telecommunications as transactions are mostly performed online. At least, there is the need to collect transactions over a telecom network every day or every few days to process them.

Available landlines can obviously be used but in many emerging economies mobile communications are more prevalent. To deliver financial services to a spread out population, branchless banking generally relies on mobile network technologies.

Depending on the application, there may be a need for a permanently available connection. For instance, for many micro finance applications, transactions are checked online in real time and need a mobile connection.

Mobile connection enabled POS terminals, such as those supporting GPRS are thus preferred for branchless banking.

## 2.6. BIOMETRICS IN MICRO CREDIT/MICRO FINANCE SYSTEMS

Emerging economies often lack a reliable government-run ID system able to provide proof of identity for the financial transactions operator. Micro finance institutions have to deal with all classes in society, which means that currently many of their customers are illiterate.

Fingerprint technology is the most commonly accepted means of biometric authentication. Fingerprints have advantages over other biometric technologies:

- Easy to collect at enrollment stage, as only a fingerprint sensor is required,
- Easy to control, as POS terminals are able to integrate a fingerprint sensor,
- Matching a fingerprint presented at transaction time with the one on record (on the customer's card, or in a centralized database) is a well-mastered technology that requires limited computing power,
- As fingerprint sensors are widely used, their cost has considerably reduced
- Fingerprints help to increase end user confidence,
- Fingerprints are felt as non-intrusive by the end user, especially compared to iris, hand shape or finger vein.

In a typical branchless banking implementation, all terminals are equipped with fingerprint readers, and fingerprints are the prime means of customer authentication.

The need for biometric authentication of both the agent and the customer often drives the choice of the transaction terminal towards POS terminals rather than mobile phones.

In the FINO application in India, POS terminals are equipped with two smart card readers. To start the terminal, the Agent has to insert his card in a specific card slot. He is then authorized from both his PIN and his fingerprint. Fingerprint data is stored in the Agent's card, and the match is carried out on the terminal.

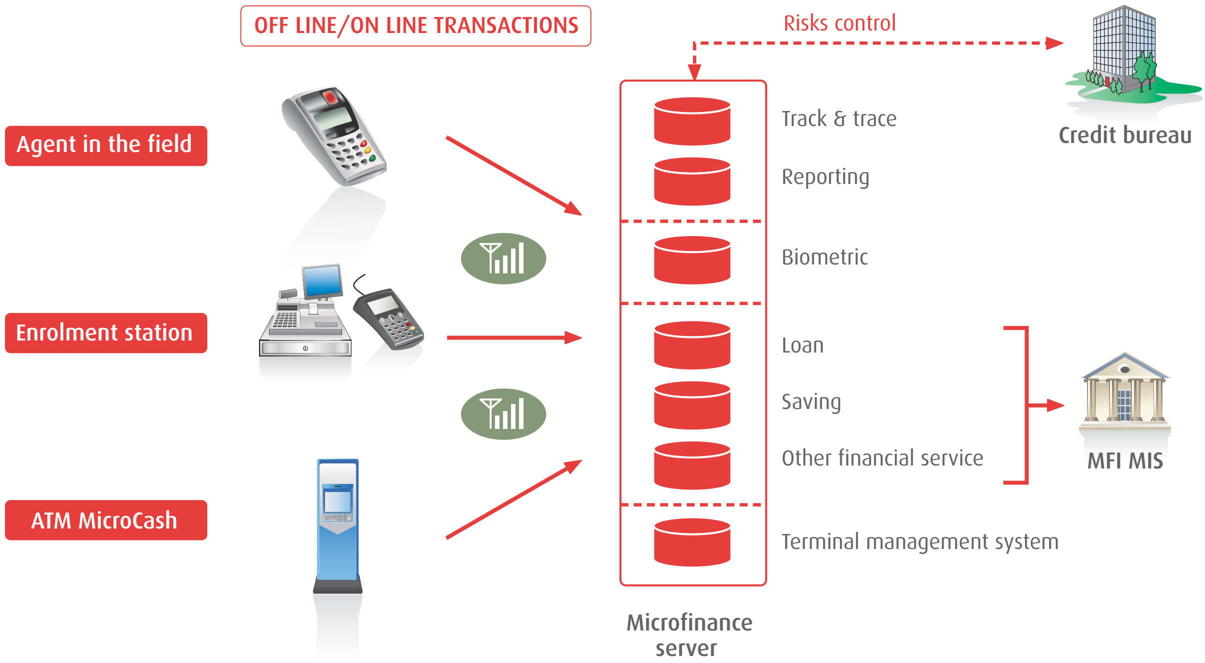
When the agent carries out a transaction with a customer, the customer card is inserted into the terminal, and the customer has to place his finger on the fingerprint sensor to be authorized. Again, the fingerprint data is stored in the customer card, and matched on the terminal with the data acquired from the fingerprint sensor.

Opportunity International Bank Malawi (OIBM) is the largest microfinance institution in Malawi. It was one of the first institutions worldwide to reach its remote clients by means of a mobile branch – a bus. Furthermore, OIBM uses fingerprint recognition to identify its clients, as Malawi has no system for proving one's identity. The institution is active in providing loans to small farmers and stimulates agricultural diversification[23].

By the end of 2010, Opportunity International Bank Malawi achieved:

- Number of loan clients: 51,152
- Percentage female clients: 60%
- Percentage rural clients: 65%
- Average loan amount: EUR 467
- Number of savings clients: 323,206

## 2.7. SYSTEMS ARCHITECTURE FOR FINANCIAL INCLUSION AND MICROFINANCE SYSTEMS




Points of service enable:

- New customer accounts to be opened (using a mobile phone camera to capture and transmit the customer's photograph),
- Loan applications,
- Customer authentication using his signature/photograph,
- Savings deposits,
- Savings withdrawals
- Loan repayments,
- Loan disbursements,
- Balance enquiries and account statements,
- Group transactions,
- Mobile top-ups,
- Utility payments,
- Money transfers (accounts/non-accounts),
- Reports.

## 2.8. REGULATORY ASPECTS

"Know Your Customer" (KYC) rules refer to the international bank regulations which drive customer due diligence that financial institutions must perform to identify their clients and ascertain relevant information pertinent to doing financial business with them. The objective is to prevent identity theft, financial fraud, money laundering and terrorist financing[24].

As Micro Finance is based on the proximity between the Agent and the end customer, KYC controls are generally performed by the Agent, at the customer enrollment stage. Where ID documents and databases are available, they are used to ascertain customer identity. As biometry is used as the primary means of customer authentication, the system ensures that the customer is properly identified.

Micro Finance Institutions also enforce control and monitoring of their agents, in order to ensure the proper functioning of the system. A Micro Finance Institution driving a branchless banking project will, at first conduct background checks on the Agents before accepting them in the network. Then, Agents' activities are closely monitored to prevent any fraud attempt.

# 3. Implementation of solutions to deliver financial services

## 3.1. BRANCHLESS BANKING

Branchless banking, or the principle of operating financial services dedicated to the population in rural areas not out of bank branches, but through a network of agents, is the most commonly adopted solution to support financial inclusion.

Branchless banking comprises:
- The use of agents to enable customers to perform financial services,
- The use of technology to reach customers and to record transactions electronically,
- The offer of cash deposits/withdrawals along with transactional services.

Branchless banking delivers financial services without relying on traditional bank branches. It gives unbanked and under-banked customers access to financial services.

## 3.2. TYPICAL APPLICATIONS

Branchless banking allows agents to deliver all types of financial services in locations not served by bank branches. Branchless banking is the preferred means for financial inclusion, as it allows unbanked and under-banked populations to be reached where they are, and costs are adapted to the amounts under management.

In many cases, the first request from customers of branchless banking is credit, often managed through micro credit organizations.

Also, in Malawi, for instance, branchless banking started with savings deposits. Once customers were used to deposits, and when a sizeable float had been established, branchless banking organizations started to offer credit.

Globally, branchless banking is a means to deliver all types of financial services:

- Deposit accounts,
- Savings accounts,
- Bill payments,
- Wages payments,
- Social benefits distribution,
- Credit, including micro-credit,
- Money transfer,
- Airtime transfer.

As an extension, some agents also distribute insurance products.

Depending on the project, the focus is set on different services. For instance, FINO in India, focuses on money deposits and withdrawals, transfers between accounts, and loan reimbursements to microfinance operators. Their services are also used by governmental authorities to deliver wages to the population such as NREGA (the National Rural Employment Guarantee Act) subsidies. Forty five million people received a payment under NREGA in 2008 (cf. §1.5).

Net One, in South Africa, originally deployed branchless banking as a means to distribute government subsidies and pensions. In order to ensure distribution to the right person, Net One implemented biometric verification, using POS terminals.

Net One's offer has evolved, and the company now proposes a full array of financial services in numerous emerging economies.

Bolsa Familia (Family Allowance) is a social welfare program run by the Brazilian government. It provides financial aid to poor Brazilian families; families with children must ensure that the infants attend school and are vaccinated. The program attempts to both reduce short-term poverty by direct cash transfers and fight long-term poverty by increasing human capital among the poor through conditional cash transfers. It also works to give free education to children who cannot afford to go to school.

Bolsa Família currently gives a monthly stipend of BRL 22 (EUR 11.75) per child attending school, to a maximum of three children, to all families with per-capita income below BRL 140 (EUR 75) a month.

This money is given preferentially to a female head of household, through "Citizen Cards" which are mailed to the family[25]. Aid delivered through the Bolsa Familia program is dedicated to certain types of goods and services and can only be used at pre-determined types of retailers.

Bolsa Familia reaches 11 million families, more than 46 million people, i.e. a major portion of the country's low-income population. It is among the world's best targeted programs, since it reaches those who really need it. 94% of the funds reach the poorest 40% of the population. Studies prove that most of the money is used to buy food, school supplies, and clothes for the children[26].

In Malawi, the government is now relying on the financial system to pay its civil servants in a struggle against ghost workers. Most of the civil servants, who on average earn US$ 100 (EUR 77), were paid cash for their wages, a situation that provided a fertile ground for senior officials to create ghost workers. In early 2011, 169,000 civil servants were ordered to open bank accounts and register for electronic paycheck deposits.

The government of Malawi spends MWK 4.5 billion (EUR 20.7 million) every month in salaries. Since the eradication of cash payment, the government has saved MWK 300 million (EUR 1.4 million) every month. "Contrary to the norm in the past, the payrolls of the five ministries have not fluctuated in the past three months resulting in the savings. The payroll has come down immediately. People not employed by the ministries are no longer coming forward to claim salaries which they don't deserve", said Joseph Mwanamveka, secretary to the Treasury[27].

## 3.3. GEOGRAPHICAL EXPANSION

Branchless banking as a means for financial inclusion started in South Asia, and has already expanded in many countries.

Examples of successful implementation abound:

- Ghana: The e-zwich electronic clearing system set up by GHIPSS (Ghana Interbank Payment and Settlement Systems), a subsidiary of the Bank of Ghana, is providing Financial services to the whole population, with a mission to migrate Ghana to an electronic payment society. It is expected that by 2015, seven million people in the country would be using the e-Zwich device with about three million of this figure representing people from the rural areas[28].

- Kenya: M-PESA service is used by over 10 million people.

- Pakistan: 17,448 branchless banking agents throughout the country made 15.867 million transactions in the quarter ending on September 30, 2011. These transactions from July to September 2011 were averaged at PKR 3,700 (EUR 31.50) per transfer, with a total of 176,296 transactions per day, while the value of transactions totaled PKR 58.711 billion (EUR 500 million)[29].

## 3.4. TECHNOLOGIES

The POS terminal is at the core of branchless banking. Nowadays POS terminals are easy to carry around, and provide a convenient easy-to-use customer interface for both the customer and the agent.

Thanks to their secure architecture, and cryptographic capabilities, POS terminals bring security to the whole micro finance system.

To perform efficiently in a branchless banking environment, POS terminals must include the following features:

- Lightweight, as the Agent has to carry it around in order to meet customers,
- Resistant, as it will be carried around on foot, on a bicycle, or on a motorbike. In many situations, the terminal will have to demonstrate its functionality in a dusty environment, and will have to resist to extreme temperature variations,
- Equipped with a printer, in order for each party to be able to keep track of transactions,
- Equipped with a fingerprint sensor, as biometry is used as the primary means of authentication,
- Able to communicate over mobile networks, in other words, it has to include GPRS and SMS communication capabilities,
- Able to perform traditional payment transactions, to deliver benefits and pensions recipients, and to propose additional applications such as airtime transfer. Of course, these applications are to be run in a secure manner, and should not interfere with each other,
- Able to read both the agent and the customer cards at once.

These technologies are well mastered by major payment terminal vendors such as Ingenico, which proposes an extensive range of terminals adapted to micro finance and branchless banking environment and application constraints.

## 3.5. POTENTIAL TECHNOLOGY EVOLUTIONS

Future evolutions in terms of POS terminal capabilities are already identified, and will allow further adaptation to customer demand and the more global evolution of technologies.

Identity projects are developing in India, under the supervision of UIDAI (Unique Identification Authority of India) and NPR (National Population Register). The objective is to build a database of the population's fingerprints. Indian residents are in the process of being allocated an identification number, and an ID card. UIDAI proposes, as a service, to verify fingerprints through POS terminals against their database; thus providing a national Identity verification service. The architecture of branchless banking systems in India will be adapted to benefit from this government-managed service. Already POS terminals are able to exchange with UIDAI servers.

In order to deal better with illiterate populations and to protect them against potential scams there is a need to be able to provide audio messages to the user. The POS terminal delivers an audio confirmation of the transaction type and of the amount to the customer.

Ongoing evolutions may also include geo localization, in order to ensure a better control of transactions, agents and customers by the micro finance institutions.

## 3.6. EVOLUTIONS: NEW SERVICES

Micro insurance is a part of financial inclusion policies that has been neglected so far. Insurance is a form of risk management, helping ease the impact of significant unexpected events, like death, illness, or natural disaster. It is especially important to low-income people for whom the unexpected can have dire financial consequences[30].

Insurance education should help customers understand the difference between the variety of risk management tools they can find on the market and help them choose what suits them best.

Bradesco Seguros is the first insurance company in Brazil to offer products with the philosophy and concepts of traditional micro insurance products. Currently, Bradesco has two products on the market:

- The First Protection Bradesco, a personal accident insurance, with US$ 11,000 (EUR 8,450) coverage for a monthly premium payment of USD 1.89 (EUR 1.45).
- Residential Bradesco Ticket, a home insurance product that covers damages caused by lightning, fire, explosion and flood, with a USD 5,500 (EUR 4,230) coverage, in exchange of a single premium payment of USD 5.35 (EUR 4.11).

## 3.7. EVOLUTION OF SYSTEM PROVIDERS

Starting with micro finance projects, governmental institutions may want to deliver financial inclusion services to the whole population.

The Indian government, through the Reserve Bank of India, has defined provisions for "no-frills" accounts that should be accessible to the whole population.

The Reserve Bank of India (RBI) prescribes at least four products: a basic bank account with no requirement for a minimum balance and overdraft facility; a remittance product for electronic benefit transfer, and some other remittances; a pure savings product; and entrepreneurial credit, including credit cards. Recently, the RBI directed banks to open 25 per cent of new branches in unbanked rural centers and simplified know-your-customer (KYC) norms. Besides providing all rural banks with the core-banking solution, a multichannel approach is encouraged, facilitating the use of handheld devices, mobiles, cards, micro-ATMs, branches, kiosks and mobile-wallets, integrating the front-end devices' transactions with the banks' core-banking solution[31].

## 3.8. EVOLUTION OF USERS

In line with financial inclusion objectives, micro finance institutions cover an ever-growing share of the population.

In some cases, entrepreneurs have been able to start a business, and to grow it thanks to micro finance. When their business grows, some of them are in a position to become customers of regular financial institutions.

## 3.9. EXPORT OF MICRO FINANCE CONCEPTS

Solutions originally developed for emerging economies are gradually being adopted in the context of some programs in developed economies. As micro finance solutions allow a less costly delivery of financial services, they turn into a model that can be adopted by financial institutions wishing to increase their population coverage while keeping costs under control.

Concepts of financial inclusion also play a role in developed economies in bringing loans, in order to help financial initiates from people who are not in a position to obtain loans from traditional financial institutions. For instance, in France, ADIE (Association pour le Droit à l'Initiative Economique – Association for Economic Initiative Rights) is supporting enterprise development for those who are refused credit by regular financial institutions. ADIE has already financed over 100,000 micro credits.

Bolsa Familia, from Brazil, has sparked adaptations in almost 20 countries – including Chile, Mexico and other countries around the world such as Indonesia, South Africa, Turkey, and Morocco. More recently, New York City announced its "Opportunity NYC" conditional transfer of income program, modeled on Bolsa Família and its Mexican equivalent. This is an example of a developed country adopting and learning from the experiences in the so-called developing world[22].

# CONCLUSION

Financial inclusion programs are succeeding in delivering financial services to the low-income segment of the population.

They deliver financial education, along with financial services that support people in getting out of poverty through education, business development, and better healthcare.

As of today, the world's 10,000 micro finance institutions provide funding to 190 million active clients; 500 million potential microfinance clients have yet to be reached. 128 million microfinance clients are among the poorest people on the planet, living on less than US$ 1.25 (EUR 0.96) per day. The active loan portfolio of microfinance institutions is estimated at US$ 65 billion (EUR 50 billion). In December 2009, total investments in the microfinance sector reached US$ 21.3 billion (EUR 16.4 billion)[33].

Financial inclusion is an essential part of government policies to ensure the benefits of economic growth are shared by a larger part of the population. Thanks to financial inclusion, people can achieve better nutrition, education and health in a more secure environment favoring trade.

Financial inclusion can only be developed with an integrated approach, providing a secure system for all its stakeholders. Micro finance platform developers provide centralized systems to run the operations. In the field, POS terminals deliver a cost-efficient and easy way to integrate solution to deliver services to the customers, independently from their social level, while ensuring all operations are conducted in a secure manner. Moreover, thanks to mobile communications, POS terminals can ensure the security and control of the whole system, including micro finance institutions, agents and end-customers.

## Sources

1. Planet Finance; 2. Barclays report; 3. 4. Wikipedia; 5. CGAP; 6. Wikipedia;
7. Bill & Melinda Gates Foundation; 8. CIA World Factbook;
9. Gallup Mobile Phone Access Varies Widely in Sub-Saharan Africa – September 16, 2011;
10. http://www.digitalcommunities.com/articles/Mobile-Phone-Payment-System-Blossoms-in.html;
11. www.felaban.com; 12. www.felaban.com; 13. CIA World Factbook;
14. OECD-IGFE: International Gateway for Financial Education; 15. OECD; 16. Hivos; 17. 18. CGAP;
19. http://www.planetfinancegroup.org/; 20. 21. CGAP; 22. Planet Finance;
23. http://www.triodos.com/; 24. 25. Wikipedia; 26. World Bank; 27. The Maravi Post;
28. http://www.ghana.gov.gh/; 29. http://freepaisa.com/; 30. CGAP; 31. The Hindu Business Line;
32. World Bank; 33. Planet Finance

# Glossary

**BRIC** Brazil Russia India China

**CGAP** Consultative Group to Assist the Poor
Housed at the World Bank, CGAP is an independent policy and research center dedicated to advancing financial access for the world's poor. It is supported by over 30 development agencies and private foundations who share a common mission to alleviate poverty.

**CSP** Customer Service Provider
Agent working with FINO, a specialist in microfinance in India.

**DFI** Development Finance Institution
Generic term including microfinance institutions, community development financial institution and revolving loan funds.

**EFSE** European Fund for South East Europe
Fund providing finance to micro and small enterprises helping them to grow, generate additional income and to create employment, in South East Europe.

**EMV** Europay MasterCard Visa
Standard for smart cards in a payment environment.

**FINCA** Foundation for International Community Assistance
A charitable microfinance organization, based in Washington DC, USA.

**FINO** Financial Inclusion Network & Operations
A company specializing in branchless banking in India.

**GPRS** General Packet Radio Service
Mobile data service on 3G and 3G mobile communication networks.

**IFAD** International Fund for Agricultural Development
A specialized agency of the United Nations, IFAD focuses on country-specific solutions, which can involve increasing rural poor peoples' access to financial services, markets, technology, land and other natural resources.

**IFC** International Finance Corporation
The largest global development institution focused on the private sector in developing countries. Member of the World Bank Group.

**IGFE** International Gateway for Financial Education
OECD program.

**KfW** Kreditanstalt für Wiederaufbau - Reconstruction Credit Institute
German government-owned development bank, with a special involvement in the sustainable improvement of the economic, social and ecological living conditions.

**KYC** Know Your Customer
International bank regulations driving customer due diligence.

**MFI** Micro Finance Institution

**MIS** Management Information System

**MIV** Microfinance Investment Vehicle
Investment entity that has microfinance as a core investment objective and mandate.

**NGO** Non Governmental Organization

**NPR** National Population Register
In India, population database, built as a result of the national census. The NPR contains only identity data.

**NREGA** National Rural Employment Guarantee Act
Indian job guarantee scheme that a minimal employment guarantee to rural households.

**OECD** Organization for Economic Co-operation and Development

**OIBM** Opportunity International Bank Malawi
The largest microfinance institution in Malawi.

**PCI-SSC** Payment Card Industry Security Standards Council
Forum founded by American Express, Discover Financial Services, JCB International, MasterCard Worldwide, and Visa Inc., that establishes payment security standards.

**PCI-PTS** PCI PIN Transaction Security
Standard on PIN acquisition and management on POS terminals.

**PIN** Personal Identification Number
Secret code associated with a payment card.

**POS** Point of Sale
Payment terminal

**SaaS** Software as a Service

**SME** Small and Medium Enterprise

**SMS** Short Message Service

**UID** Unique Identification
In India, 12-digit unique identification number, delivered to all registered Indians by the UIDAI.

**UIDAI** Unique Identification Authority of India
Authority in charge of UID number generation, management and verification. UIDAI owns a biometric database of the population.

**UNCDF** United Nations Capital Development Fund
UN fund contributing to the achievement of the Millennium Development Goals in Least Developed Countries through a variety of innovative approaches in both local development and microfinance.

**USAID** U.S. Agency for International Development
Independent agency that provides economic, development and humanitarian assistance around the world in support of the foreign policy goals of the United States.

www.ingenico.com

beyond
payment

192, avenue Charles de Gaulle
92200 Neuilly-sur-Seine
Tél. +33(0)1 46 25 82 00
Fax +33(0)1 47 72 56 95