

ROLE OF TECHNOLOGY IN ENSURING HIGH SUCCESS RATE OF FINANCIAL INCLUSION IN INDIA

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ABSTRACT

Worldwide, approximately three billion people – half the planet – survive on \$2 a day. More than one billion of them survive on half that amount or less, the World Bank's definition of the severest poverty.

Financial inclusion involves the challenge of reaching out to the un-reached with banking facilities. In a country like India, how do we do it in the wake of inadequate roads to the rural interiors, no electricity and telecommunication facilities, low literacy levels where an account holder may be able to give a fingerprint because he/she is uneducated?

One of the options is to implement massive usage of technological services. However, before this paper embarks upon the various technologies that can augment financial inclusion, it must be remembered that infrastructure holds a priority to technology implementation.

In this backdrop, RBI's move to implement financial inclusion on a country-wide scale hinges on the successful interfacing of banking services with technological services. By technological service, I am referring to IT services and telecom services. For the information technology sector, rural India seldom kindled interest. Companies like IBM, HP and i-flex have realized the "golden goose" and have started pilot projects in some areas.

In the wake of discovering how IT and telecom services have a major role to play in the domain of financial inclusion, this research paper will refer to case studies from across the globe to give an insight of how financial inclusion is being given an impetus by technology.

The methodology of research is based purely on secondary sources. The key words used are: technology, financial inclusion, information technology, telecommunications.

INTRODUCTION

In February 2007, the Economist published a special report, detailing how cash transactions are being replaced by cheaper and more convenient electronic payments in many parts of the world.

Over the next 15 years, the Economist argued, cash may be used only by those without a bank account or a mobile phone.

Mobile phones are already being widely used to send money home by migrants, and in countries such as Kenya and the Philippines mobile phone banking projects have been set up to allow those without bank accounts to access financial services and payment systems. Worldwide payments using mobile phones are projected to reach \$37 billion by 2008.

In a recent CGAP (consultative Group to assist the Poor) survey, 62 financial institutions in 32 countries report using technology channels to handle transactions for poor people. (These technologies include ATMs, POS devices, and mobile phones) Nearly 75 percent of the respondents (46) were banks¹⁰ that operate in both large markets (e.g., India, Brazil, and South Africa) and small markets (e.g., Malawi, Namibia, and Guatemala).

To handle a cash transaction outside of a bank branch, banks have at least two ICT (Information and Communications Technology) options. They may use an ATM that can accept, store, and dispense cash, or they can use a POS (Point-of-sale) device placed at an outlet where cash is kept on hand.

VISA International has developed a battery-powered wireless POS device suitable for rural areas. The device costs US\$ 125; most POS devices in developed countries cost about US\$ 700.

Mobile phone operators, such as Vodafone's Safaricom (in Kenya), MTN (in South Africa), and Globe Telecom (in the Philippines), are also beginning to offer banking services, usually in partnership with banks or MFIs, mainly to increase the volume of their text message traffic and reduce customer turnover. Mobile phone payments may help countries with underdeveloped payment systems leapfrog traditional paper-based ways of making payments.

Financial institutions such as Banco Ademi in the Dominican Republic and ProCredit Bank in Kosovo typically place ATMs in or near branches, where they can process routine deposit, withdrawal, and balance inquiry transactions at a far lower cost than the cost of using a teller, freeing staff to sell products or give customers personalized attention. ATMs also save customers from having to wait in line to get to a teller.

LITERATURE SURVEY

In a study conducted by Valerie W. Rozycki, Dec 2005 in her report titled "credit information systems for microfinance and the potential for innovative solutions in India" she has conducted a primary research on 25 participants of whom 12 were local level MFI administrators and 13 were National level administrators. In response to her question "What are the biggest challenges in the movement to expand the provision of MF in India", the two factors which received the highest rankings were:

- Need for regulatory reforms
- Lack of technology infrastructure

CASE STUDIES

1. FINANCIAL INCLUSION IN AFRICA

From 1999 to 2004, the number of mobile subscribers in Africa grew from 7.5 million to 76.8 million, an average annual increase of 58 percent. There are more users than mobile phone owners: entrepreneurial mobile subscribers in rural South Africa receive text messages and deliver them verbally to those who are illiterate.

1.1 KENYA

Faulu, an MFI in Kenya, recently began a pilot project, called M-Pesa that allows customers to receive or repay loans through a mobile phone. In partnership with Safaricom, an affiliate of Vodafone, the MFI credits loans to the borrower's mobile M-Pesa bank account; the borrower can then exchange the credit for cash at a Safaricom dealer. Similarly, the client can repay a loan by giving cash to a dealer, who sends instructions to Faulu via a mobile phone text message, to credit the customer's loan account.

Kenya's Equity Bank has introduced a mobile banking unit. The mobile vans have laptops with telecom links to a fixed branch. These mobile vans can provide a wide range of banking services to each location once a week at a preset time.

1.2 SOUTH AFRICA

In South Africa, an estimated 16 million people, or 48 percent of the adult population, are "unbanked" or underbanked and lack access to formal financial services. There are also 20 million mobile phone subscribers, nearly 80 percent of whom are prepaid customers. Many of these subscribers are in the low-income segment. Mobile phone operators and banks are aggressively seeking ways to deliver financial services using the rapidly growing mobile phone network.

South Africa has launched a low cost national bank account called "Mzansi" in October 2004 through its 4 major retail banks – Absa, First National Bank, Nedbank, Standard Bank and Post Bank. The country has taken the help of The Post Bank, a separate division of the post office to issue this basic debit card account to reach out to the rural population. In a research by World Bank study carried out by ING Bank in 2004 it was observed that postal networks have a widespread coverage in both rural areas where formal banking has not reached. In developing countries this is one of the modes where banks can have a tie-up and increase accessibility. Also the sunk cost nature of postal network infrastructure will enable other additional transactions (banking products) to be priced on marginal cost basis and ensure that the service can be affordable to low income customers.

As per the Banking Association of South Africa, 13 million South Africans were “unbanked” at the time of Mzansi launch in October 2004. By May 2005, an additional 4% of the population were banked. 1.5 million Mzansi accounts have opened by the end of August 2005. Most of the accounts are female holders and 90% of account holders are new to the institution with which they have opened their account. The total number of Mzansi bank accounts stands at 3.3 million as on September 2006.

Mzansi - a colloquial South African expression meaning "south" - is a basic, standardised, debit card-based transactional and savings account. All that is required to open the account is a valid ID document. To keep costs as low as possible and to ensure that the account is easy to use, transactions are limited to deposits, withdrawals and debit card payments - the account includes a debit card that can be used at retail outlets. No management fees are charged on Mzansi accounts, and one free cash deposit per month is allowed. Mzansi customers are thus able to save without having their capital eroded by bank charges, with the only charge being for transactions made - and with ATM transactions costing the same regardless of which bank's ATM is used.

Some of the other technological innovations introduced in the African market include mobile phones, satellite phones, portable computers and smart cards which are low cost-processing ways for deposits and payments and also overcome the barriers of remoteness.

Many banking systems exist today that allow transaction management and switching and to take place. They are in use all over the world by banks, financial institutions, and banking clients. However, the costs are high (software, implementation, maintenance, license fees, internal staff) and as a result electronic banking remains a benefit of larger banks. The South African Reserve Bank, for example, estimates that the implementation of an electronic banking system at a small bank will cost approximately \$7 million. This is obviously too much for microfinance institutions to afford.

In addition, most microfinance institutions do not have robust management information that can connect to existing standard-based transaction and payment systems. Nor do they have the technical expertise required to manage these types of products. Adding these complicating factors to the overall cost of ownership traditional systems require, puts electronic banking and payments systems out of reach of all but the most successful microfinance institutions and microfinance banks.

In 2000, a small team of dedicated technology and financial professionals based in South Africa started by producing a prototype solution that was demonstrated to the World Bank in December 2001. This led to a DFID grant in February 2002 to complete and implement the solution. By January 2004, the technology had received VISA and MasterCard certification, confirming that it adhered to global financial standards and could interoperate with any VISA or MasterCard system. The product is known as FALCON and the company behind it is Cell Transact.

During a 12 month pilot test at Teba Bank in South Africa, over 8,000 cards were introduced to the market and towards the end more than \$6 million transactions were captured by the system per month. Part of what makes the FALCON system truly unusual is its low cost relative to other banking solutions and its processing speed. For example, the FALCON system can be run on a server that costs less than \$10,000, yet it can handle up to 30 million transactions accounts without a significant upgrade. It is also fast, with the ability to run up to 1,000 transactions per second on a laptop.

FALCON bridges the transaction gap between microfinance institutions and their clients and the transaction systems in the formal financial sector

The FALCON system, from Cell Transact, provides primary on-line access to banking transactions through point-of-sale (POS) devices and Automatic Teller Machines (ATMs). These devices are connected through a GSM network into a central transaction switch and card management system, both of which are part of the FALCON system. The solution is able to process any debit or credit card transaction, on-line, under 15 seconds at a merchant, in a banking branch, or at an ATM, without having to provide any other infrastructure. In addition the FALCON system can provide a personal interface to banking via a cell phone. The solution can interface with existing banking systems or 3rd party transaction switches. It can also link into a larger payment system or can even be deployed as a single transaction issuing and acquiring system for a bank without a banking system.

The Falcon system also provides a batch based electronic funds transfer capability. It has a built in capability to do bulk funds distribution on behalf of donor agencies, pension funds or other government agencies that require positive identification and in-person reporting before funds are released to beneficiaries. It has the ability to return unclaimed funds to the distributor. Upon positive identification of the beneficiary at a POS device the funds are automatically released to the beneficiary. In the case where a beneficiary has no bank account, a bank account and a debit card can be issued immediately at the POS device. A beneficiary walking in without an account can literally walk away with a valid debit card backed by a bank account with the beneficiary funds in it ready to use at any ATM or POS. This capability was successfully piloted with the South African Unemployment Insurance Fund for several months.

WIZZIT, a startup mobile banking provider, targets low-income customers with an interest-bearing bank account that customers access with their mobile phone. Customers can use their phones to make person-to-person payments, transfer money, and buy airtime for a prepaid mobile phone subscription. WIZZIT also gives customers a “Maestro” branded debit card with which they can make purchases at retail outlets and deposit or withdraw money at ATMs. WIZZIT is organized as a division of the South African Bank of Athens.

Competing with WIZZIT are the mobile banking initiatives of Standard Bank and First National Bank (FNB). Standard Bank has entered into a joint venture with MTN, a leading mobile operator in South Africa, to offer a service called MTN Banking. For Standard

Bank, the joint venture is a separately branded channel targeting low-income customers who use mobile phones but may not have access to, or comfort in, using a bank branch. MTN Banking uses MTN's dealers to distribute the special mobile phone SIM cards that are required to operate the mobile banking service. Customers who open accounts with MTN Banking, in effect, have a bank account at Standard Bank and are limited in the total monthly transaction volume and account balance they can maintain in the account. FNB offers mobile banking simply as an alternative channel for its existing customers, much as it offers customers the use of ATMs.

Each organization is optimistic about using mobile phones to increase penetration of financial services among the "unbanked", but creating a profitable business will be challenging. Because transaction fees are currently the main revenue stream, providers are seeking high volumes by looking to markets elsewhere in southern Africa, as well as trying to capture popular person-to-person transfers of airtime and money. At the same time, mobile banking providers must find ways to migrate customers from basic payment and transfer transactions to higher-value products, such as credit and savings. To achieve this, they need to build a network of service points, where customers can deposit and withdraw cash, and develop a methodology for assessing credit risk.

1.3 ZAMBIA & DEMOCRATIC REPUBLIC OF CONGO

Celpay, a mobile payments company that operates in Zambia and the Democratic Republic of Congo (DRC), issues special subscriber identity modules (SIM) cards through mobile phone companies. Customers can use SIM cards to make bill payments, store value, and transfer money. For DRC banks, which have only about 35,00021 account holders (out of a population of 56 million), tapping into the 1 million mobile phone subscribers²³ holds great potential. Because mobile phones work even in rural parts of DRC, they may be an ideal tool to quickly help the country develop a national network for retail payments. Such an approach could leapfrog check and card-based retail payment systems that most countries use.

HP has started a Mogalakwena HP i-community in Mokopane, S.A. to establish online community portals for e-learning and online education.

1.4 UGANDA

The Remote Transaction System is a 'technology-enabled' distribution channel that leverages existing third-party infrastructure (MFI back office servers and databases) to conduct rural cash transactions. Using the RTS device and the borrower's smart card, a field agent can capture loan payment and savings data electronically, storing and transmitting information that is currently tracked manually. The RTS will also make it easier to create an electronic identification system for use by microfinance institutions and credit bureaus.

Uganda Microfinance Union trains merchants who host its POS devices to help poor, illiterate clients use the devices. Over time, customers learn to use the devices on their own

.The banks equip each banking correspondent with a POS device, such as a card reader or PC. POS devices and mobile phones are less costly to install than ATMs, and running costs are limited to charges for telecommunications and transaction fees for the retail outlet. In addition, many POS devices can work without an always-on communication and electrical connection, making them ideal for rural locations. At banking correspondents, customers can open current accounts and access a variety of services, including savings, credit, insurance, money transfers, pensions, government benefits, and bill payments. Since banking correspondents first emerged in Brazil in 2000, private and public banks have opened an estimated 8 million new current accounts through this channel.

The RTS solution was developed by a consortium of public-private microfinance leaders, technology specialists and business thinkers, convened by HP. It helps increase the scale of microfinance delivery by addressing issues related to operational costs, rural outreach, and capital flow. As per World Bank, Currently 50-80 million people have access to, and take advantage of, microfinance programs. The World Bank estimates that this number could reach more than 500 million people if the microfinance industry can overcome barriers to growth, especially poor infrastructure, limited access to funding and operational inefficiencies.

In January 2006, six months after the pilot ended, work began again to take the RTS solution from pilot to scale. The Uganda-based team that is continuing the work on the RTS is scheduled to achieve the following objectives by December 2007:

- Take the RTS technology from a pilot stage to a broad rollout that would include up to 10,000 clients and a network of 10 merchants
- Facilitate the business relationships and initiate implementation plans for at least 1-2 additional microfinance institutions, banks or other service provider's usage of the RTS solution. This shared usage should increase the overall number of participating clients, ensuring both scale and sustainability in the local market.
- Further develop the RTS product to (1) function in rural areas through a blended online/offline strategy, (2) work with alternative devices, (3) run over additional communications standards such as GPRS and 802.11, and (4) enable routing for decentralized databases, all of which will improve the business financials and enable further expansion into rural areas.

2. BANGLADESH

Grameen Phone, mobile operator is creating community information centers across rural Bangladesh giving 20 million people the chance to use the Internet and email for the first time. GrameenPhone plans to team up with local entrepreneurs to set up approximately 500 centres across the country by 2006 end. Each center is run by local entrepreneurs and contains personal computers, connected to Grameen Phone's existing GSM mobile network which has been upgraded with EDGE technology to offer data transfer speeds of upto 128 KB per second. The centres will be located in each Upazilla or sub-district of Bangladesh so that they are each within reach of upto 15 villages containing upto 40,000 people.

Grameen Phone also runs an internationally acclaimed initiative called the Village Phone Programme under which Universal access to telecom services are provided to the rural people who cannot afford a regular subscription. The village phone operators usually women, have a good income-earning opportunity. At present there are 2,55,000 village phones in operation in 55,000 villages around Bangalore.

3. INDIA

BSNL on an average has one fibre connected rural exchange for every 150 sq. km. So corDECT Wireless in local loop has been developed by IIT, Madras and Midas Communication, Chennai which employs an innovative business model of n-Logue which offers various information regarding agriculture, health, multi lingual office packages, e-vet and e-governance.

ICICI recently floated a new entity called FINO (Financial Information Network and Operations Pvt Ltd) that would provide technological solutions as well as services to finance providers to reach the underserved in the country.

FINO expects to target 300-400 million people who do not have access to basic financial services. Micro-finance institutions, NBFCs, Regional Rural Banks and Co-operative Banks would directly or indirectly tie-up with FINO to use services for which it would charge Rs 25-30 per account every year.

3.1 ANDHRA PRADESH

ICICI Bank in India is pilot testing a low-cost ATM that can withstand high temperatures and handle soiled and crumpled notes. Corporation Bank in India uses ATMs to serve urban and semi-urban customers who live far from the bank branch or who cannot visit banks during normal business hours because they are at work. The bank offers payroll deposit services to factories, allowing workers to withdraw cash from their accounts anytime using an ATM at the factory. Most workers prefer this to carrying a lot of cash home on payday.

HP has started the Kuppam HP i-community in A.P. in 2002. It has a mobile information unit and delivers community portal, has information centers and the CIC Wireless network to provide healthcare, education, agricultural information and services in 3 languages. It has also started a new class of village photographers to use solar powered, portable charging system, digital camera and printer to capture key events and create photo IDs.

NABARD has also launched a pilot project on smart cards with Sri Visakha Grameena Bank, in Andhra Pradesh, which is one of the front runner banks in financing SHG (self help groups).

3.2 PITHORAGARH, UTTARANCHAL

Bharti Airtel and SBI have adopted the PPP model to enable money remittance over mobile phones.

This initiative began with GSMA conference in Barcelona, Spain on 12th February, 2007. This will help the 25 million Indians working overseas to remit money through mobile phones. India is the biggest recipient of overseas remittances in the world at \$25 billion which accounts for 10% of the world market with a growth rate of 20% every year. India is also the fastest growing mobile services market in the world.

Pithoragarh is a small village in Uttarakhand, Uttar Pradesh with Tibet in the north and Nepal on its East. It is well known for its Litchi cultivation. However, life is difficult in this small town with water available for only 15 minutes in the peak summer months of April – May. This pilot project has been initiated here in order to use it for reaching out to the “unbanked”.

4. BRAZIL

Banks in Brazil use point-of-sale (POS) terminals, such as bankcard readers, at retail and postal outlets to deliver bill payment, savings, credit, insurance, and money transfer products in nearly every municipality in the country. These terminals can be set up at a cost of less than 0.5 percent the cost of setting up a typical bank branch.

In some cases, a new account can be opened using the POS device itself. Customers of Banco Popular (a division of Banco do Brasil) in Brazil can open an account simply by keying their tax identification number and postal code into the terminal.

Private and state-owned banks in Brazil pioneered the use of POS devices at retail outlets to deliver banking services to previously “unbanked” low income and rural people. Since about 2000, two private-sector banks (Banco Bradesco and Lemon Bank) and two state-owned banks (Banco do Brasil and Caixa Economica Federal) have developed about 27,000 “banking correspondents.” These correspondents are lottery outlets, post offices, supermarkets, grocery stores, petrol stations, and other retail outlets that are present in every municipality in the country, including very rural areas where bank branches would probably be too costly to set up. In small shops, the shopkeeper handles banking services for customers, and in larger stores, a store employee is dedicated for this purpose.

After the above case studies, certain questions arise in our minds. They are listed below:

WILL TECHNOLOGY MAKE FINANCIAL INCLUSION SUCCESSFUL IN INDIA ?

In general terms, a technology channel that replaces a bank branch will be successful only if it serves a critical mass of customers at each outlet and delivers a wide range of services to those customers. Building strong relationships with clients through the channel will help build customers’ confidence in the bank, make it more difficult for customers to switch to another provider, and encourage customers to purchase a wider range of financial services. Will staff of a retail outlet, or a postal clerk, be able to build this relationship on behalf of the bank or sell a wide range of banking services to customers? Recent information from Brazil suggests that this may be difficult. Thirty percent of the accounts opened at banking

correspondents of Banco Popular do Brasil (a division of Banco do Brasil) never become active. After opening for business in June 2004 and attracting 1.05 million customers after six months, the division now maintains only about 771,000 active accounts and is closing unprofitable banking correspondents.

Caixa Economica, the state-owned bank of Brazil, that manages the country's lottery network and distributes government benefits, manages about 14,000 banking correspondents. It uses POS devices (a card reader, barcode scanner, and/or PC) with dialup or high-speed connectivity to process transactions at lottery houses and other retail outlets.

ARE POOR PEOPLE GAINING ACCESS TO FINANCIAL SERVICES THROUGH TECHNOLOGY?

With technology channels, such as POS devices and mobile phones, banks in South Africa and Brazil are rapidly opening basic accounts for customers who previously were excluded from the formal financial system. Although many of these new accountholders are likely to be poor, we do not know this for sure. We also do not know the characteristics of low-income people who have chosen not to use these delivery channels.

WHAT LESSONS HAVE EMERGED FROM EARLY EXPERIMENTS WITH TECHNOLOGY CHANNELS?

The most powerful lesson learned from these initiatives is that government encouragement and supportive policy are important determinants of success. In addition, certain aspects of the financial sector infrastructure can improve the chances that banks will be able to use technology profitably to reach "unbanked" people.

Some suggestions that arise out of this research can be assimilated as below:

SUPPORTIVE REGULATION

Governments have considerable power in creating an environment that enables financial institutions to use technology delivery channels. The precondition for this type of channel is a broad regulatory environment that supports the use of electronic payments. Financial contracts should be enforceable, telecommunications policy should foster widespread access, and privacy and data security must be ensured. In addition, rules in three areas can thwart or promote the extension of electronic payments:

RULES DETERMINING ACCOUNT OPENING REQUIREMENTS

To help banks attract low-income customers, regulators in South Africa and Brazil relaxed norms on the identification requirements to open bank accounts with limited maximum balances. In South Africa, regulators waived provisions of the Financial Intelligence Centre Act, which requires proof of identification and address for all accountholders.

Customers opening a new Mzansi account need show identification only. Brazil's banks can open basic transaction accounts for poor people with no proof of address or income.

REGULATION GOVERNING AGENCY RELATIONSHIPS

For banks that wish to deliver financial services through retail outlets, these bank agents must be allowed to conduct a wide range of services for customers using POS devices or other technology, while mitigating risks of fraud, theft, and money laundering. The Reserve Bank of India disallows this: only bank employees or ATMs may handle savings deposit and withdrawal transactions. In contrast, Brazil's legislation governing the use of banking correspondents has evolved since the early 1970s, and today banking correspondents can perform many of the same functions of tellers at bank branches.

Governments can also create a conducive environment for technology delivery channels by instituting national identification systems. When each citizen has a government-issued identification, it is relatively easy for banks to open savings accounts for customers, identify individual borrowers, and build a payment history based on transactions with a variety of payers and lenders. Opportunity Bank in Malawi accepts fingerprint biometrics stored on a smart card in lieu of the driver's license or passport that all individuals must present when opening a bank account. For the poor or illiterate, these documents are difficult, and often costly, to obtain.

National identification also lays the foundation for a credit bureau, which reduces banks' cost to appraise borrowers and increases incentives to repay.

ENSURING WIDESPREAD USAGE BY POOR PEOPLE

As banks have begun creating new technology delivery channels that serve low-income people, they have begun to realize that understanding this new client segment is essential for success. The following issues are particularly important:

- **Perceived value addition.** How do clients perceive the incremental value of using a technology enabled network rather than a teller or other alternatives? Some clients in the Philippines prefer to travel to the bank or MFI branch and stand in line rather than pay a nominal fee to make a loan repayment through a mobile phone.
- **Consumer education.** Experiments in which debit cards are offered to the employed poor in India have shown that, unless clients are specifically told not to reveal their PINs to others, they often will write these numbers on the debit card itself, rendering account security useless.
- **Usability.** Depending on the type of clients targeted, the technology device, customer interface, and usage process should be designed to make the system easy to use and to learn. To reach indigenous and illiterate customers, Prodem (Bolivia) designed ATMs with color coded touch screens and audio instructions available in Spanish, Quechua, and Aymara.

CONCLUSION

The research paper clearly indicates the need for technology with low-cost solutions in India. Improved technology can definitely increase the rate of success for financial inclusion across India. There is also a direct relationship on improving the credit information system (CIS) in the Indian micro finance sector. Sharing of information at the institutional and borrower levels will improve the MFI performance and help to solve its challenges. At the same time leaving financial inclusion only in the hands of technological development and machines is not enough; it has to be augmented with the human touch to improve collections and educating the “unbanked” about financial services.

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