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Market-led solutions for financial services

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Virtual Conference on Electronic Banking for the Poor

Conference held 16-27 February 2004

Final Report

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Virtual Conference on Electronic Banking for the Poor

General Summary

Between 16th and 27th of February, 2004 ***MicroSave*** hosted and Charles Waterfield moderated a virtual conference on electronic banking for the poor. Electronic banking includes delivering financial services using palm pilots, ATMs, debit cards, point of sale devices and cell phones.

Delivering financial services to the poor has long been dogged by high costs and poor quality of information. Technology offers the potential to dramatically decrease operational costs, improve the quality of financial information and make banking for the poor more profitable and less risky for mainstream financial institutions.

Indications from users in Asia and Latin America are that palm pilots can reduce costs and increase the number of clients per loan officer. However, early attempts to develop more comprehensive e-banking solutions for low-income clients have been less successful for example, pilot tests for smart card banking in India were cancelled. South Africa is developing electronic banking solutions, which offer clients a wide choice of services.

The challenge is that developing a successful e-banking initiative for poorer people entails managing of a host of inter-related issues, technology, pricing, financial literacy, functionality, partnerships, delivery channels, POS distribution, regulation etc.

Over the course of two weeks, the following fourteen topics were deliberated.

1. Which e-banking initiatives have been successful and why?
2. What are the key constraints in developing successful e-banking products?
3. What are the key advantages and disadvantages to different approaches to electronic banking for the poor?
4. Which product features are essential to create a value proposition to customers that works?
5. What strategies have been adopted to encourage usage of the e-banking solution in a semi literate market?
6. What are typical costs of developing successful e-banking solutions, in time, money and human resources?
7. What level of infrastructure is necessary to support electronic banking?
8. Partnership strategies - which partnerships are necessary to create viable electronic banking initiatives?
9. Pricing strategies - what issues are important to consider when developing pricing strategies for electronic banking for the poor?
10. Which elements of electronic banking can micro-finance institutions successfully adopt?
11. What are the regulatory issues surrounding electronic banking for poor?
12. Is there a role for subsidy in creating e-banking solutions?
13. What opportunities for additional products can be developed using an e-banking infrastructure?
14. How can the challenge posed in developing a suitable distribution infrastructure be met?

Separate ListServe with a total of more than 500 participants were maintained in English, Spanish and French. The English listServes attracted the greatest attention, with a total of 383 participants from all corners of the microfinance and banking world. Almost 400 postings were made. It is almost impossible to summarise so many diverse postings in a few paragraphs. But the following points can be extracted.

- E-banking for the poor depends on technologically driven delivery channels, but many of the issues related to commercialising solutions, rely on other skills. These include, managing relationships with multiple implementing partners, careful training of issuers and merchants, ensuring the financial literacy of clients, and carefully designing marketing and distribution strategies appropriate to clients.

- Investing in financial literacy will be important as electronic banking solutions roll out to the illiterate and semi literate market. However, how this can be done cost effectively remains a significant challenge.

- It is possible to build huge functionality onto an e-banking infrastructure. This includes deposit taking, withdrawals, bill payments, internet access, money transfers, air time top up, pension payments etc.

- It is important to create an appropriate enabling environment within which e banking can flourish. However, the complexity and potential of e-banking solutions will challenge legislators and regulators, with the creation of new intermediation channels such as internet kiosks and merchants and potentially the revitalization of post offices as financial service providers.

- Building an appropriate electronic infrastructure is a momentous challenge, encouraging standardization and the development of interoperability between networks of ATMs or point of sale devices will be important. Fortunately technology costs are falling at the same time.

- Any solution to mass scale electronic banking is likely to be through a series of partnerships, banks, IT solution providers, merchants, government departments, microfinance programmes, equipment suppliers etc.

- Security within the electronic infrastructure was a recurrent theme with electronic theft and money laundering significant potential risks. The merits and demerits of smart cards verses mag-stripe cards producing one of the more heated debates during the conference.

- Pricing proved another thorny issue, for low prices to be offered, transactions volumes need to be maintained. This may necessitate linkages into the government payment systems, payment of pensions for example. A degree of cross subsidy between different market segments may be necessary to provide basic transactions at low cost.

- Several roles for donors were highlighted. These included creating an enabling environment or pump priming the development of an appropriate infrastructure... some contributors argued that donors should take care not to invest in small-scale proprietary solutions.

Organization of this Conference Report

This report summarizes the discussions, by each of the fourteen topics listed above. There is a final section presenting overarching "Conference Summary" discussions, followed by a summary of the conference evaluations.

It is also possible to download the email discussion in its entirety. In preparation for the e-banking conference a page of resources on electronic banking was created which was expanded during the conference. This resource should further assist the uninitiated in understanding the complexities of e-banking. The daily summaries, the email discussions, and the e-banking resources can be accessed via www.***MicroSave***.net.

Topic 1: Which e-banking initiatives have been successful and why?

Summary of Discussion

On this first day of discussion:

- Participants shared information on various e-banking initiatives. For the most part this was done with concise lists, but in a few cases, participants provided more background and got into discussions of key principles behind their success.

- There was a thorough discussion of the use of PDAs to collect information from clients, with detailed descriptions of SafeSafe's experience, including issues with synchronization speed and the importance of benefits accruing to both the institution and the client in order to have success.

- There was a very active discussion of cashless societies. While seen as an ideal solution for expanding e-banking to the poor, most participants argued that such a system would be impossible to implement. Additionally there was a discussion on the concern that movements to electronic cash could leave the poor behind, further increasing the gap between rich and poor.

A listing of known ebanking initiatives

Participants shared information on various e-banking initiatives. For the most part this was done with concise lists, but in a few cases, participants provided more background and got into discussions of key principles behind their success.

David Cracknell: Listed ebanking initiatives documented in the 2001 MFN publication on "Automating Microfinance":

- SKS - India: Smart card largely replicating existing operations
- Banco Ademi - Dominican Republic: Debit Card
- Financiera Trisan - Costa Rica : Debit card with payments to certain vendors
- PRODEM - Bolivia: Low cost ATM with additional functionalities
- Teba Bank - South Africa: Debit card with enhanced functionality
- Compartamos - Mexico: Palm pilots
- Safesave - Bangladesh: Palm Pilots
- CRDB - Tanzania : Debit card with gradually extending functionality

He also mentioned two other efforts not in the MFN publication:

- ICICI in India designing a low cost cash dispenser
- BASIX in India.

Nigel Morris-Cotterill: Added the following:

- Mondex in Ghana
- MEPS in Malaysia
- SSB's in Ghana had an unsuccessful trial of a Modex-like system

Ron Webb: Added the following:

- ValueCard Nigeria - Smart card (e-Wallet) initiative providing both merchant and ATM cash dispense services. This project now has some 375,000 cards in issue with 16 participating financial institutions.
- Mpoweni/Namitech Benefit Payout Service - Operating in Mpumalanga province in South Africa and providing state benefit payout to approx. 1.7m beneficiaries monthly.
- Zimbabwe's Central Africa Building Society (CABS) provides debit card services to hundreds of thousands of workers. CABS replaced a pass-book and labour/teller intensive service with debit cards in the middle to late 80's and now operate one of the richest ebanking services in Africa.

Roland Pearson: One of my current clients is the South African Department of Social Development, and my explicit mandate is to assist the Department to implement a much more efficient and effective national grants payment system. There are 3 cash contractors' currently paying out social grants to pensioners, child care givers, disabled people, etc. The one in Mpumalanga pointed out by Ron is the smallest of the 3. In total, the 3 disburse about $400 million per month to about 5 million beneficiaries (approximately 80% of the total monthly figures).

David Cracknell: Added:

- Malswitch in Malawi: the Central bank established a smart card infrastructure with a few biometric enabled ATMs. Most of the small to medium sized financial institutions are using Malswitch. Targeted to middle and low income Malawians. Currently rolling out slowly.
- Celpay in Zambia: offering mobile phone based banking facilities targeted on the high end market. Currently in rollout phase.

Nigel Morris-Cotterill: In Ghana, ATMs / cash deposits machines in the back of radio equipped Ford Transits are bringing services to some remote communities but only where there is line of sight for comms. I can't remember which bank has this service but the ATMs are from NCR.

David Cracknell: As far as I know the Malswitch example uses fixed ATMs.

Sean Kline: FOCCAS, FINCA, and UMU in Uganda along with their affiliate institutions (Freedom from Hunger, FINCA, and ACCION, respectively) and Hewlett Packard are currently pilot testing a remote transaction system (RTS) using handheld devices, which capture transaction data and use a GSM network to transmit this back to a head office server and, in turn, MIS.

Jonathan Campaigne: PRIDE AFRICA is currently working on a credit card system in Kenya to create a model for providing farm input credit and marketing services to small holder farmers. The concept is to develop the system to link up with a participating financial institution, in this case Equity Building Society. PRIDE AFRICA is also working with Hewlett Packard in Uganda on a Remote Transaction System.

Ron Webb: I am particularly keen to see how Visa are able to provide a fee and process model that makes sense for the low-end customer. As things stand, they do not seem to have a product that makes sense for Africa. Their Copac initiative in Ukraine seems to have come to a halt and their focus on EMV is very "first-world" centric with a high reliance on online connectivity.

Ajay Kumar: BASIX in India, for over a year now, is using hand-helds in the field to conduct transactions. This solution helps BASIX in conducting transactions in more efficient manner, maintain the portfolio better apart from reducing transaction costs and increasing the reach of the field staff. Also, the field staff can transfer the transaction details onto the server and to the MIS directly from the field. The solution has been tested for over 2 years and now is being rolled out across the organization, in phases.

Brian Richardson: In BASIX, would cell phones not be a more appropriate device?

Ajay Kumar: The application that BASIX is using is a comprehensive one covering not just receipts, but also hierarchal user logins, portfolio analysis using various reports and graphs, the receipts are acknowledged in the field using a mobile printer, communication module for data transfer from the field itself, help etc. There is also a prospect of including insurance, savings, disbursements and other modules that facilitate the field staff offer comprehensive services at the borrowers door step, with out losing the control on the transaction. In this regard, the PDA (hand-Held computer) and a mobile printer along with the data back-up memory form the hardware.

Hence just the cell phone may not be sufficient. Also, in plain vanilla cell pones, data storage capacity is very less. If there is no requirement of acknowledging the receipt at the field, then we may consider using high-end cell phones like Nokia 9210i, Sony-Erickson P800 or P900 etc which are essentially a PDA cum cell phone. The type of hardware is organization specific and depends on how much control is required at the field. If the data is less and the application is very small, then we can consider the cell phones.

Mikhail Doroshevich VELCOM is providing SMS banking service for holders of Belarusbank plastic cards MAESTRO/CIRRUS and VISA/ELECTRON

David Cracknell: A list of interesting smart card / e finance projects in Emerging and Developing Countries can be found in "E-finance in Emerging Markets: Is leapfrogging possible?" by Stijn Claessens, Thomas Glaessner and Daniela Klingebiel (pages 65 - 77). The article can be downloaded from www1.worldbank.org/finance/assets/images/E-Finance_II.pdf

Hugo Engelbrecht: I would like to mention our Payment Solution for micro-transactions and mobile transacting called Tel-e-Pay, planned and patented in South Africa . www.tel-e-pay.co.za The Idea is to do all micro transactions at all hours at any time. This will mostly be done through mobile phones and will make access to Financial Services very easy for the poor and unbanked who earns informal income.

Armenian online payment system

Mikhail Doroshevich: This online payment system by ArCa cards is created by the Armenian Card Unified Payment System with the support of the United Nations Development Programme.

The system is designed on the principles of transaction security and user convenience, adopted from the best international practices. The long-term goal of the system is to expand Armenia's infrastructure for non-cash transactions and create a user-friendly environment for bank customers.

Through the system it is possible to make online payments for public utilities, such as telephone (local, international, cellular, advance payments, Easy Card top-ups), electricity, gas, water, and internet connection cards. The system will be further developed to incorporate additional features that would allow ArCa card holders to shop online and benefit from various other paid services and receive information. Please visit the News section to learn about the coming features of the system. http://www.arca.am/

PDA technology

A thorough discussion of the use of PDAs to collect information from clients, with detailed descriptions of SafeSafe's experience, including issues with synchronization speed and the importance of benefits accruing to both the institution and the client in order to have success.

Mark Staehle: SafeSave (Dhaka, Bangladesh) has had the following experience with PDAs:

- SafeSave is experimenting with Palm Pilot handhelds for field-level transaction entry. The handhelds are hot-synced to the branch office database (MS Access) by USB connection, which takes no more than a few seconds. The experiment has been running for 12 months.
- The handheld in use is the Palm "Zire," which is inexpensive (about $100) and seemingly durable. The handhelds simply act as a collection sheet in the field, and hot-syncing replaces the need to type transactions into the MIS manually.
- The direct expense for a two-year experiment involving two branches and ~3,000 clients will come to $15,000. Paper and manual data entry are comparatively cheaper, but the handhelds provide for better internal control and a more professional image. The system is so far proving popular with both staff and clients.
- Fieldworkers with a primary level education are proving quite capable of operating the handhelds in the field.

Synchronization issues

Chuck Waterfield: I found Marc's posting very informative and interesting. Last year, I wrote a paper for CGAP summarizing the experiences of a number of MFIs in which I surveyed the following organizations:

- BanGente (Venezuela)
- Banco Solididario (Ecuador)
- ADOPEM (Dominican Republic)
- Compartamos (Mexico)
- FinComun (Mexico)
- SKS Microfinance (India)

The conclusions in my paper match quite closely with the experiences you mention with one exception. You say the synchronization time is only a few seconds. Synchronization has been an issue for a number of implementers.

Mark Staele: SafeSave is using Satellite Forms 4.0. To minimize the synchronization time we break the fieldwork into 'sessions,' and mark the transaction data as verified accurate when it is in agreement with the bulk amounts collected by the cashier. Once the data is marked, it is no longer passed back and forth between the database and the handheld.

Ajay Kumar: I agree with Mark. An USB connection will not take more than few seconds if we use USB cable directly to the PC. Otherwise, a remote login and data transfer will take about 2-3 minutes (For data to be sent, processed at the database and retrieved back into the hand-held)

Slow acceptance rate of PDA technology

Chuck Waterfield: I do think that PDAs hold great promise for microfinance, despite the slow acceptance thus far (I did my first implementations over five years ago!). I'd appreciate hearing from others about why they think this technology has been relatively slow to catch on.

Mark Staele: Slow technology uptake may in part be due to the lack of impact on direct operating expenses (paper and data entry are cheap in our operating context). For SafeSave, using Palm Pilots looks expensive until we take indirect expenses and indirect benefits into account. These variables are hard to quantify, and doing so requires a strong understanding of activity costs, internal control needs and service issues, along with the ability to articulate these things to MFI management. Without this, it may prove difficult to convince management to take and incur the heavy startup costs.

Nigel Morris-Cotterill: Good point. That is a basic truth which afflicts many aspects of dealing with financial services businesses across the developing world: people are cheap and technology is expensive.

Benefits for both institution and client

Mark Staehle: For SafeSave having our door-to-door collectors use Palm Pilots for transaction recording provides benefits to both clients and the MFI:

- (SafeSave) **better use of staff time**: eliminating 3-4 hours per day of data processing gives branch managers more time in the field to spot check accounts and promote our services
- (Clients) **faster loan processing**: in paper branches can only guarantee loans within 2 working days, because we need a day for data entry. In the Palm Pilot branches we can guarantee loans by the next working day.
- (SafeSave) **better adherence to product rules**: the Palm Pilot double checks minimum savings requirements and ensures that loan interests are paid before savings withdrawals and loan repayments occur.
- (Both) **better account accuracy**: the Palm Pilot requires the correct passbook balances before allowing transactions, so passbooks that don't reconcile with the database get fixed quickly.

Cost savings is not really the big driver - direct expense per transaction is likely to be at least as much as paper and manual data entry. But internal control and service gains will likely make Palm Pilots worthwhile.

Ajay Kumar: Mark has made an interesting point. It is important to clearly understand and account the tangible and intangible benefits from the palm pilots at the field. Giving on-the-spot information to the customer about the loan status may not be a tangible benefit, but it will result in enormous customer satisfaction and result in his loyalty. These are hard to quantify. Also as he said, the cost benefit analysis has to be presented to the top management in convincing manner. Finally, we have seen during our implementation that palm pilots help in expanding the operations faster than the manual system.

Peru experience

Jacques Pelletier: We work with MFIs in Lima Peru using Palm Pilots to collect daily payments on micro entrepreneurs' loans. Every morning, the collector checks his daily route on his PALM with his own objectives. He can visit his clients at their shop, providing them with up-to-date information on their loans and saving accounts. He can collect any payment the client is ready to make, on the spot. Daily payments are accumulated in the saving accounts. At the end of the month, the loan payment is made out of the saving account. Since the Palm implementation (2001), the delinquency rate has dropped and the MFI loan portfolio has increased.

A Cashless Society

While seen as an ideal solution for expanding e-banking to the poor, most participants argued that such a system would be impossible to implement. Additionally there was a discussion on the concern that movements to electronic cash could leave the poor behind, further increasing the gap between rich and poor.

Krishnan: Today with the advantage of e-Banking even in the remotest corner of the world, why cash banking at all? Why not a single bank account for every individual (above 18 years) linked to his / her social security card or citizen card with biometric?

Experiences in various countries

Nigel Morris-Cotterill: The UK tried to convert its pensions/ benefits system to require recipients to have bank accounts. There was considerable resistance and so far as I recall the process has not been completed.

Aaron Oxley: For an in-depth discussion of the American Government's experience in using electronic benefit payments to provide banking services with the poor, I highly recommend: "Savings for the Poor - The Hidden Benefits of Electronic Banking" by Michael A Stegman. It has good statistics about the unbanked poor in America and talks a lot about the challenges faced in bringing electronic banking and savings to that market. These challenges include legislation, profitability (for the banks involved), and probably most importantly, customer objections and resistance to change. All are thoroughly analysed with real numbers (like: exactly how much does it cost to process a paper cheque in the USA versus processing an electronic payment?), customer behaviour surveys ("Why don't you have a bank account?"), and provides a good framework for discussing issues raised in this forum.

[Editor's Note: a press release on this book is included on our Ebanking resources page and can be found at: http://www.unc.edu/news/newsserv/archives/apr00/stegman041800.htm]

How feasible is this?

Ron Webb: Logically you are correct; with the available technology, why use cash at all? The solution lies not with technology itself but in creating viable and sustainable business models that make sense for the target users. Here in Africa, we are still a cash based society. Cash is king and as you look below the most privileged level of society the thought of a virtual alternative is extremely difficult.

Miguel Angel Niño Zarazua: The idea of a cashless society is very interesting, but most developing countries have a low percentage of coverage. For example, in Mexico City, just 25% of households have a bank account. Also, most people do not have any sort of social security. I could also say that there are people (even living in the most developed countries such as the UK and the US) who prefer to be paid in cash rather than in debit cards. We must pay attention on these issues if we do believe in the freedom of choice, a fundamental principle of market economy.

David Cracknell: It will be some time before we have moved towards a truly cashless society. Government policy can be an important factor. An interesting example is from Malaysia where the Government required retailers of a certain size to accept debit and credit cards.

Krishnan: Very interesting and thought provoking. However, my point is simple and straight. No monetary currency / coin circulation is necessary. Let all dealings be linked to an individual's citizen card. Instead of the unpleasant task of putting your money in bank and going and standing in long queues, let the bank come to your doorstep through the card. Let self help groups handle banking transactions linked to a central bank. E-Banking is the ideal tool to do away with the costly currency which generates black money and encourages corruption. But no one in power would like to give it up. And it is those in power who call the shots. Let right thinking people use technology to the core to change society and not try to attack the tip of the iceberg for their own benefits.

Nigel Morris-Cotterill: This thread is of special interest to me as, at its core, it is all about audit trails and tracing the flow of money. The concept of a truly central bank is an ideal but one which is impossible. People will always find a way to operate outside the regulated sector. We have to realise that money is not notes and coin nor even balances in a bank account: it is anything that has a value that two people agree upon. So they will barter or they will find another medium of exchange that is not regulated.

I think, too, that Krishnan's argument omits the fact that people do not trust governments - in many cases with good cause. Corrupt governments have a tendency to take people's money. If they had the degree of control over it that Krishnan's model would require, then there is no doubt that abuse would be widespread. Under Krishnan's model, there would be a dramatic increase in parallel banking (or, at least, in the money

transfer aspects of such banking) with expatriation of wealth which never touches the national economy. This capital flight would handicap national development.

In principle, Krishnan's model is very attractive but the practical realities are that there are too many obstacles to its effective adoption.

The poor and cashless societies

Graham Wright: I do believe that (if we can get the value proposition for both provider and client right) e-banking will play a particularly valuable role in extending the reach of financial services for the low-income market. However, I can also see it excluding the very poor: the road side stalls run by the poor are unlikely to be able to afford to buy or maintain a POS device and the day labourers are unlikely to be able to use card-based "cash" - they need the notes!

Extending this scenario, in an increasingly e-banked, cashless society, one could envisage:

1. significant consolidation of retail and service outlets round POS devices and the further decline of the small cash-based outlets that are currently run by and serve the poor
2. an increasingly divided society with the poorer cash-based market largely excluded from transacting with the rest of the more affluent, ebanked society.

This is not, for one moment, to suggest that we should not be looking for ebanking solutions but simply to propose that we also pause to think what the likely big picture ramifications might be and how we might start to respond to them.

Jennifer Isern: I'm also concerned that e-banking will first reach only high-income people, and poorer clients will be even more marginalized than in the past. The challenge for MFIs and banks is to see how appropriate levels of technology can be used to bring their clients into the mainstream. One approach may be to encourage links between banks and MFIs, especially for MFIs that do not have the capacity to manage the necessary back office or who don't have access to the national payments system.

Krishnan: Your fears are well founded. It's true, if the benefit of e-Banking cannot have the last mile reach to the lower strata of society, the e-banking divide will only widen. But if all are made to adopt e-banking and the cost made nominal and distributed to all users, proportionate to the value / volume of transactions, then surely the venture will be a success.

Possibility of "leapfrogging"

Nigel Morris-Cotterill: The leapfrogging argument mentioned in another thread is relevant: by missing out the stage of paper cheques, banking systems in developing countries can benefit from up-to-date tech without suffering the legacy of paper based systems. The costs of cash delivery and collection are huge, especially in a rural environment of sparse population yet the amounts involved are frequently tiny. Therefore banking at this level is a social service. I don't see a "cashless society" as a viable end, but surely a reduction of dependence on cash as the primary medium of exchange is, long term, desirable.

There are, I think, "leapfrogging" approaches to this:

1. Electronic ATMs for loading and unloading cash cards. These may also include the card to card transfer service so as to avoid the need for provision of wallets or other devices in very small communities or in widespread communities where people meet, say, once a week for market or other purpose. I would caution against being too ambitious and taking such a system to everyone at once. Real cash ATMs, by the way, left for general use and even deposit would require a) more servicing and b) more security.

2. Access to internet banking with real time transfers between customers of multiple banks. My feeling is that this should be attached to some form of card reader bearing account details and biometric data so that transactions can be verified.

Topic 2: What are the key constraints in developing electronic banking products for the low-income market?

Summary of Discussion

- Paynet provided a good summary of the key constraints in Africa for ebanking
- Participants discussed the importance of having a solid MIS in place before undertaking ebanking initiatives
- Offering a low cost product to poor clients can create problems for institutions that offer close to the same product at a higher cost to existing clients, potentially cannibalizing their existing client base
- Importance of scale: Most forms of ebanking are extremely expensive to implement and require achieving a scale beyond that achievable by most MFI's. Therefore, implementation will likely require partnership with other major FIs and/or government initiatives and working toward shared development costs.

Key constraints in Africa for Ebanking

Summary of key constraints in Africa as experienced by Paynet.

Ron Webb: My company, Paynet, has been operating ebanking services in Zimbabwe and Kenya since 1997 and currently carry over half a million transactions monthly between customers and FI's and also across ATM and POS devices. These are the key constraints as we see them regarding ebanking in Africa:

1. Vision / Inertia

Many FI's are not able to overcome the inertia of an existing operation to break into something new. I frequently have difficulty getting acceptance for the vision which most attendees here seem to share. This is very country dependant from my experience and is starting to change slowly. I found Kenya a much tougher, more conservative market that Zimbabwe.

2. Affordability

This is the first half of a workable Business Model. Many services are simply too expensive for the lower end consumer - nothing new here I know. Why though? In dealing with FI's, there is a common trend to want to scale-up service offerings rather than scale-down. Can an FI do both – offer up-scale and low-scale services? I am not yet convinced. In offering high-end services, an FI gathers an increasing amount of operational baggage which costs more and more money. If you cost individual transactions, the FI cannot then offer affordable services without breaking the next half of the needed Business Model -Profitability.

3. Profitabilty/Sustainability

Alongside affordability is the equal requirement for profitability and a reasonable return on shareholder investment. Without scale - often big scale, this cannot be achieved without compromising on affordability. Getting up the curve to scale and profitability cycles back into the first constraint - vision.

4. Appropriateness/Ease of use

Many solutions look great to the technologists (Confession: I am one) but do not translate into an appropriate solution. Much is said of the challenge cause by illiteracy & skills. Good beneficial solutions that make sense and meet a *real* need win through.

5. Infrastructure

Yes, lack of reliable, affordable data communications and power is a common constraint. Also there is lack of business premises/retail space to house growing branch networks. A large part of recent ATM

projects we have performed was spent in locating/negotiating for scarce locations. Various technology alternative exists that can assist to overcome this constraint but, again, only with a workable and sustainable business model.

What do I see as the bottom line? Too many approaches I see look at technology as the panacea solution. Undoubtedly technology has a critical part to play in providing viable solutions. More important in my mind is getting the shape of the organisation right to provide affordable & profitable MF solutions. Looking at the larger FI's; they are weighed down with a cost base that does not permit them to be "foxy" enough to provide sustainable MF solutions. I sense I am painting a target on my back here but I am interested to see the feedback!

MFIs need IT capacity before taking on ebanking

Many smaller organizations are still struggling with basic MIS issues and will need to solve this before considering ebanking.

Geraldine O'Keefe: In discussing various initiatives for e-banking it seems that in many cases we are getting ahead of the game. I question if there are really that many MFIs that are in a position to take them on at their current level of development. The majority of providers are still struggling with just implementing the basics of a computerised MIS and other developments such as transformation.

I see the initial challenges of using any IT as being:

- **Capacity** - building up both users understanding of IT and a robust in-house IT department capable of supporting users cannot be underestimated in terms of investment. Particularly where markets are such that it is difficult to recruit experienced IT workers in house training becomes a full time job in itself.
- **Software availability and support** - software support issues require considerable effort and investment. Additionally providing a help desk support function to the business is incredibly time consuming and when dealing with rural branches requires that support staff can travel and address issues in person. It also seems that in certain markets there is a lack of suppliers who can offer a product at a reasonable price resulting in almost a one supplier monopoly.
- **Infrastructure** - Issues with reliable and stable power, communications links between branches, appropriate housing for IT equipment in rural branches.

I am concerned that we are trying to run before the majority can walk! Shouldn't we first be working to support the bulk of MFIs reach a certain level of computerisation before we start talking about some of these exciting initiatives?

Ajay Kumar: I agree that the smart card, hand-held computers, ATM's etc are a bit futuristic, if not much. And also considering that large number of organizations are at the base level of implementing IT solutions, these solutions are ahead. But are we forgetting that IT is part of development of any organization? IT plays a very critical role in ensuring efficiencies. I also feel that other organizations can learn from the experiments that these big MFI's are taking up. It saves reinventing of wheel again. The successful technologies can be replicated and the failures can be analyzed as case studies. Also forums like these will help us to evaluate what kind of technologies will suit an organization, who has implemented it, the pros and cons etc.

Regarding the software availability and support, it depends on the vendor you chose to work with and the leverage that you have with the vendor. Of course I do agree that in few parts of Africa, there are support problems for software. This needs to be addressed.

With regards to the infrastructure issues in the rural sector, there are technologies that can be used to overcome those difficulties. Technological solutions are available. It depends on what and how we choose.

Start with a sound back-office system

Murray Gardiner: There are two main approaches to e-banking:

> **Proprietary:** Proprietary e-banking solutions connect the customer to the institution as opposed to the branch. Smart cards, mag stripe cards and other POS devices are useful tools to extend services outside the branch in discrete delivery channels. In this closed loop delivery there can be many innovations extending outreach.
>
> **Payments System:** To have interoperability of the client card or POS device with other financial institutions requires standardisation on the lowest common denominator of the national payments system network, just to have the card/device read in other peoples POS or ATM terminals.

To connect your back office MIS to the payment system requires certain standards as well, especially if you wish to become involved in real time settlement. Technology costs are much higher, fiduciary requirements are onerous, and the transaction costs are no longer in your control.

Personally, I believe the starting point is a sound enterprise-level back office production system. Then outreach can be extended with some of the innovations presented in this discussion.

Access to the payments system will be determined by the banks that own the switch - and if you are fortunate your regulator will compel the banks that own the switch to give you a chance at access on commercially viable terms.

Dirk Bruynse: Murry, I could not agree with you more. First develop the ability to process transactions efficiently on a backend (this is simpler than most people think), and then rollout a shared infrastructure between all parties. The interoperability of these devices needs to be a given in such a system and no payment instrument can be excluded. This includes Magstripe as well as smart card EFT transactions and others.

A solid and efficient backend (with the emphasis on efficiency) is the key. The payment instrument is less important if the Acquiring infrastructure is available and shared.

The danger of cannibalizing existing clients

> *Offering a low cost product to poor clients can create problems for institutions that offer close to the same product at a higher cost to existing clients.*

Brian Richardson: One of the key constraints, according to common perception is that the revenue model does not work for the major banks in addressing the unbanked. Major banks, in bringing an affordable service to the market run a very real risk of cannibalising their existing business. It becomes very difficult to prevent high net worth customers from utilising a low cost product.

Murray Gardiner: Brian brings up an important point. The commercial banks cannot cross-subsidise their products to extend their electronic banking to the unbanked. But then to pass on the fully loaded transaction costs to the end user kills the viability of the service. Even if e-banking were able to bring the masses into the payments system with smart cards to pay for bus fares and food, this is still less efficient (albeit more secure) than cash for the consumer. It is a lot more convenient for the payer and the payee. But then the (literally) poor client pays the costs in transaction fees.

Getting Sufficient Scale to Reduce Costs

Most forms of ebanking are extremely expensive to implement and require achieving a scale beyond that achievable by most MFI's. Therefore, implementation will likely require partnership with other major FIs and/or government initiatives and working toward shared development costs.

Murray Gardiner: Mass payment systems require achieving a critical mass in order to work, and typically it takes a public sector investor to push the envelope. My question: Has there been much work done on the financial sustainability of e-banking alternatives in micro finance?

David Cracknell: Many of the microfinance based e-banking initiatives have been of low cost, e.g., Safesave, PRODEM, and SKS. The issue is that for the most part, the solutions have been and will remain of limited scale and functionality.

Larger scale solutions can cost many millions of dollars, not only in developing the technical solution but in rolling out the infrastructure to support the solution. In Malawi the Reserve Bank established the Malswitch infrastructure using its own funds at a cost of USD 10m.

In a larger scale solution you may have to recover costs by developing business models based on working in different segments with differential pricing. Hence a bank can move from its existing market into the unbanked market using lower cost infrastructure (as Standard Bank did with E-Plan). Microfinance solutions are likely to build in part on existing infrastructure. However, in some cases lateral thinking will be required to develop an infrastructure that is more appropriate to the needs of poor people.

Partnership to share development costs

Michiel le Roux: Micro bankers of all countries, unite! What we need is volume. We have nothing to lose but high costs per transaction.

At Capitec Bank in South Africa we are building a mass market, low-cost, retail bank. We have been driven by a simple logic: electronic banking, participation with other banks, a serious investment in systems. big volumes, low charges. We need millions of clients who must come to us because we offer them what they need at prices they can afford. Without them, the initiative will fail.

Nigel Morris-Cotterill: We are looking at tech and comms infrastructure without considering the regulatory framework and the viability of banks. There are 900 banks in Nigeria, some of which are so small as to find regulatory and legal compliance is now becoming a significant drain on resources. If we are to add the cost of developing or installing tech to this burden, then it is difficult to see how many of them will remain viable.

For this reason, shared development and systems are essential, as well as effective inter-bank transactions which are both inexpensive and prompt, are necessary before we will see (a) any pan-industry move away from cash as a primary settlement mechanism, and (b) customer acceptance of alternatives to cash.

Ron Webb: I agree Nigel. If we accept that scale is a necessity of offering affordable services then a majority of the 900 banks won't make it. Shared development and systems? I often come across the "not invented here" mentality and the desire for exclusivity not collaboration.

Ayubu Kamti: When MFIs can share the costs of new development; they can provide to their members or customers an e-banking service at a lower cost."

Cost sharing is a good idea for MFIs. It is true we don't have to put four ATMs at a village with say a population of 3000 for four different MFIs. However, my concern is what formula should be applied and through what business model. MFIs coming together and forming an independent company that would be responsible for running of these service delivery channels looks to be a good idea. Alternatively, a private

entrepreneur establishing service delivery channels that would be hired to MFIs through built operate and transfer model. The only problem that I can foresee with this arrangement is the charges that a private investor can be ready to accept, taking into consideration that this service is geared to service poor people.

Be sure to design pilots for scaleability

Ramesh Arunachalam: The key focus in India needs to be on scaleable models - successful pilots that can be scaled up. That has clearly not happened. Instead, pilots have been designed that work well at small scale but once they achieve larger scale.

Topic 3: What are the key advantages and disadvantages of different approaches to electronic banking for the poor?

Summary of Discussion

Discussion on this day was limited with respect to the daily topic. There were three main threads: (1) a brief thread on concern about how ebanking will ever reach the poor (a topic that arose frequently in the conference), (2) a short thread on how to reach the rural poor through relatively low-tech approaches, and (3) an extremely long and complex thread on the relative merits of magnetic stripe cars versus smart cards.

Banking the Poor

Participants discussed a recurring theme of the conference: the economic feasibility of electronic banking ever reaching the truly poor.

Murray Gardiner: None of this e-banking discussion deals with the real requirement of BANKING the poor. How does this really contribute to intermediation at the bottom of the economic ladder if there is no institutional relationship with the end user?

The issue of high transaction fees

Ron Webb: Murray raises an interesting question. What does banking the poor mean? Does it **have** to involve intermediation? Specifically intermediation by the traditional players who have a cost base that insists that they charge $5.00 for an ATM transaction? I suggest not.

We are actively targeting traditional pay-packet wage operations to replace them with on-site ATM services. The financial model shows that this can be achieved in a cost effective manner where both employee and employer wins. The employer by reducing administrative overhead and cash risk and the employee by providing an electronic "banking" service where the employee decides when and how much cash to draw. The employee benefits by not having to take a day's/week's/month's wages home at not insignificant risk. The mag-card card based service acts as a seed point for additional services - loan application (perhaps alongside an employer scheme), money transfer, bill payments (embryonic yet) and mobile recharge. It is also has great status value.

While this service is partnered with a bank, the employee does not receive a traditional (read costly) product. Does this matter? I do not believe so.

Hugo Engelbrecht: Murray and Brian are correct to say that the cost of these services should be viable, but in Africa the cost of such transactions could be approx. 10-15%. Still, in the right circumstances, even that high of a commission can be worth the benefit of the service to the poor.

True meaning of banking the poor

Murray Gardiner: I think the whole point is efficient allocation of assets - being able to offer the poor a safe place to save their tangible assets in a liquid form and being able to responsibly manage these assets and then ration them to successful borrowers who can employ these same assets to create wealth.

With healthy intermediation at the lower level of the economic ladder, funds can be channelled from surplus to deficit regions to be employed efficiently. Effective payments systems are part of this. But so is good affordable information, simple efficient administration, responsible management, good supervision, and

perhaps most importantly, cost effective ways of establishing and maintaining a *real* business relationship with the client.

The Palm Pilot type innovation is powerful because it puts a lot of information in human hands, people who can interact more efficiently with the end user. Or smart cards loaded and managed by loan officers. Yes, electronic payments are critical, but to me BANKING THE POOR means being able to offer savings and loans products to the poor through institutions they understand, receive value for, and institutions with which they share a common interest.

Low-tech innovations for Rural Banking

A brief discussion of possibilities of lower-tech ebanking helping deliver financial services to the rural poor.

Calvin Miller: What are lower-tech innovations to address simplified ways of automating cash flow "line of credit" lending such as agriculture? Open-access credit and payment is a product feature in high demand.

Most of the microfinance loan products are built around neat little pre-defined products with similar terms or cycles, etc. with even payments, etc. This is most often due to ease of loan management but often don't fit the true needs of the clients. Credit, debit and smart cards can easily handle pre-approved "lines" that allow easy access to receive and repay loan funds accordingly, but in the majority of the world they are not likely to be available for some time. Therefore, what innovations using lower-tech "not quite so smart" product technologies or approaches are available? Alternatively, how can we use the more sophisticated e-banking and use input suppliers and traders as the conduits to reach into the poor communities?

David Cracknell: You raise an interesting point. Clearly, the information revolution that is impacting on banking is gradually extending to microfinance programmes. One element, that is currently extending into micro-lending is credit scoring. It's not a perfect solution but it helps to automate pre approval of credit lines for the best clients.

You may be familiar with Nabard's Kisan "Credit Card" in India. 25 million people have a line of credit which they can then use at agricultural suppliers throughout the country. It is not a typical credit card... but a system that works manually. This is a clearly established user group who can migrate to a smart card based solution at some point in the future. Some brief details of the Kisan card are available in ICICI's study www.microfin.com/ebankingresources.htm

Mag Stripe Cards

The first of two lengthy discussions on magnetic stripe cards versus smartcards, touching on security issues and interesting explanations of how smartcards can work off-line. The end of the discussion deals with highly technical issues of card security.

Jonathan Campaign: Reaching the poor with ICT solutions, especially in Africa, is particularly challenging where infrastructure, access and cost are major hurdles. Our approach has typically been to adapt western models such as VISA where Banks and clients are linked virtually. Obviously where there is an electronic obstacle, local substitutes must be devised. For example where VISA relies on electronic credit references we have used the solidarity group methodology enhanced through our software with a credit reference module which can be shared with third parties, ideally through a credit reference bureau. Manual processes and procedures are enhanced as local technology becomes available. All our systems are initially designed for manual operation and gradually upgraded and streamlined.

In our DrumNet model which is designed for Smallholder farmers we use embossed credit cards and the old style embossing machines to create a transaction trail. The magnetic stripe will be used at appropriate transaction points where the IT and manual system can be reliably linked. In this case we hope to work with our partner bank, Equity Building Society to develop an ATM interface. This means that all transactions can be cashless up to the bank where the DrumNet client maintains an account. In the past we designed another model called SunLink where the cash point was a HTM or Human Teller Machine staffed by our MFI staff and linked to a Bank via Securicor, a cash-in-transit service.

Every time we tried to short circuit the transaction chain with fancier internet and web based applications in the present Kenyan environment we were defeated by poor service and high cost. We are now looking at the mobile phone and GMS which is now widely used in the region, more affordable and readily understood by the local population.

We have been very impressed with what has been accomplished in India over the past 5-10 years in this area where the collaboration and facilitation between Government, private sector and the bottom of the pyramid have yielded terrific results. The E Choupal model, NABARD facilitation and such banks as ICICI in tandem with a more development focused, forward thinking government, oftentimes lacking in Africa, are models for us to emulate where wealth creation from the bottom up facilitated by ICT is proof positive.

Self-help groups rather than multinationals

Krishnan: To my mind instead of multinationals putting up huge facility at high cost which the customer has to bear, a low cost self help group network for microcredit and collection on a door-to-door basis is the best. This is being followed effectively by local money lenders with the street vendors in India.

However what is lacking is a proper system and avoiding possible cheating from both sides. This can be avoided if some form of regulation or control is brought in.

Security issues of Mag-stripe cards

Nigel Morris-Cotterill: Jonathan, The problem as I see it is that swipe cards are old technology that has been "broken" for fraud reasons so widely that investing in that as a primary technology is inviting trouble.

Any card based product should be introduced with the latest anti-fraud technology, not one we know to be inherently insecure: a failure to do this will mean that even if domestic criminals don't know how to break the card (which they already do), then foreign criminals will. And then the losses to the bank will be substantial and the credibility of the system (i.e., client trust) will be severely compromised.

Jonathan Campaign: Nigel, everywhere I have been in Africa the mag card is still king. In many respects we are latecomers or even a dumping ground for old tech from the north.

Nigel: Indeed it is. But it's such a high security risk that the opportunity to update to chips should not be missed.

Moses Muiruri: I fully agree with Nigel. In Africa we continue to suffer due to our sluggish way of adopting new technology even as we adopt a wait and see attitude. Being a card issuer, I note all too often how fraudsters continue to skim cards.

We need the fraud protection and data collection as well as the Credit Reference Bureau information access, but not the expensive online landline POS and Smartcard readers which our infrastructure can not support. Cell phone technology POS, and even battery coded downloadable POS can and would work for remote parts of Africa.

Ramesh: I agree with the fact that using technology for technology's sake may not be appropriate. What we need is technology that is practical, can be scaled and is suited to the context and one that is affordable in the long run. It is imperative that MFIs really stabilize their MIS before attempting to introduce e banking products; otherwise, much of the benefits (efficiencies) that can be gained will be rather limited to being transactional

No system is totally secure

Nigel: The work of Professor Michael Levi at Cardiff University in the late 1980s is a lesson in the lack of security on cards. He explained how the French system of chip cards could be compromised. It was mindbogglingly simple. No system is secure - we are only looking at what makes it more difficult for criminals so that, following the line of least resistance, they are displaced to become someone else's problem!

Can PINs provide security for magstripe cards?

Dirk Bruynse: The magnetic stripe card with Pin verification at the backend is an online transaction and is secure. Only the compromise of the PIN can cause skimming of the card.

In order for the Smartcard to be able to send the transaction to the bank, the information (Other than the PIN) can easily be read off the smartcard. I agree that smartcards are more secure for offline transactions, but can someone please explain how they are more secure for online transactions?

Ron Webb: Simply put, a smartcard adds security by having a cryptographic exchange with the acquiring device - online or offline. So the card is far harder to counterfeit. The ATM or POS device must have keys permitting them to accept the smartcard.

How smart-cards work offline

Jim Wells: In the most simplistic terms, smart cards contain information in a more sophisticated and tamper-resistant environment than magnetic stripes. This protects the cards from being cloned and used illicitly. Smart cards also offer the ability for higher levels of authentication of "good" cards thru a dialogue between the intelligence in the chip in the card and the intelligence in the chip in the terminal. Properly configured networks can use this capability to process transactions even when power and/or communications networks are down. These terminals would authorize transactions based on pre-established rules and remember the transaction details. As soon as communications is re-established with the host processor, transaction details are uploaded and the system balances. Extending this functionality allows for a range of card-based electronic transactions to occur in even the remotest of areas.

Technical debate on the encryption of keys

Dirk Bruynse: Some points for debate: The Keys for an online transaction on a triple des hardware encrypted keypad have the same security as long as the PIN is not in any way a derivative of the numbers on the Mag stripe IE user selected as in a smart card.

If transactions are online, the security of the two products is the same. The information that determines the transaction on a Smartcard other than the PIN needs to be able to be read by the device and therefore can be copied. This is no different to a debit card.

Smart cards, in my opinion, solve only two problems. They have the ability to transact offline in a secure manner and to limit the number of transactions on a live system but currently at a significant cost. I believe that the solution is to solve the inherent problems in the transacting environment IE communications using either GSM or satellite so that all transactions are online. The second is to build switching capacity to handle

the increased volume. The two options are not as expensive as might be anticipated and Teba Bank has gone a significant way in addressing these.

Ron Webb: Some responses and amplifications regarding encryption - DES vs 3-DES and Encrypting PIN Pads. The move from DES to 3-DES has been an evolutionary change matching the advance of crypto-math and processor power that has made single DES relatively easy to crack. Acquiring devices (POS & ATM) use a number of different encryption keys and zones to protect the transaction.

Firstly: a Terminal Master Key (TMK) protects the communications channel between the device and the acquiring switch. This inhibits anyone looking at and perhaps changing data on the fly. For example someone taps into a connection and then does an auth request to withdraw $200, the auth response then gets amended to allow the ATM to dispense $2000. This is an extreme example and other techniques in the ATM software can help preclude this - just an example.

Secondly: The Pin Verification Key - this encrypts and creates a PVV (Pin Verification Value). Only the PVV is transported in the clear. You cannot normally derive the PIN from the PVV (except where decimalization tables are used in some Pin Block formats - see research by J. Clulow et al)

The Encrypting PIN Pad encrypts the PIN as near as possible to the PIN entering keypad. Why? Attacks have been made that capture the PIN between the keypad and the processor inside the ATM (or more easily, the POS) device. For this reason, the EPP is a single, tamper proof module. Some POS manufacturers are now tamper-proofing the entire enclosure - open the POS terminal and you need to re-inject keys!

You are correct that the major advantage of the smartcard is offline functionality (yes, at a cost, though this cost is dropping). When you need to do PIN verification or biometric authentication locally/offline then it is about the only option. However, it is interesting that the offline functionality is *not* the biggest driver of smartcard uptake. GSM SIM cards and EMV are. GSM need it for secure, online authentication as does EMV. This is about reducing the risk by using cryptographically secure authentication – "Is this card the card it says it is?"

In a debit card environment, PIN technology properly deployed can provide a similar level of risk elimination.

Smart Cards: On-line or Off-line? Purses or Wallets?

> *The second of two discussions on smart cards, this discussion explains the difference between e-purses and e-wallets, how account balances are stored, what happens if cards are lost or stolen, and ways that smartcard security can be violated.*

Ted Baumann: I have a (possibly stupid) question about 'smart cards'. People always talk about the security of the smart card relative to the magstripe, and the fact that it permits offline transactions. I've always understood that a smart card stores information, such as a user's 'cash' balance or credit line, etc. on the chip itself, and that during a transaction the balance is changed, i.e. if a purchase is made the amount is deducted from the chip.

This may be secure relative to the magstripe, and much more secure for the financial institution, but what if the user loses his/her card or it's stolen? If the user has a credit facility on a card, losing it is no problem, but if there's a positive 'cash' balance on a card, what happens to it if the card is gone?

Different ways smartcards work

Jim Wells: Ted, your question is far from stupid. It simply points to the number of alternatives for smart card deployment, all using the same term. [Editor's note: this point of (at least) two different deployments of smart-card technology seems to be behind the seeming contradictions in the posts in this thread.]

First, there is a difference between cards that maintain all balance information on the card and those that are networked, i.e, the information is maintained on a host computer. Further, these aspects can be combined so that each on-line transaction updates a running balance written to the chip on the card. This permits use of the card at a terminal that has lost its connection with a hosting computer, allowing authentication (of the card) and authorization (of the transaction) to be accomplished offline according to pre-established rules, based on the intelligence in both the chip in the terminal and the chip in the card. The terminal "remembers" the details of these off-line transactions and then up-loads them when the communications link is re-established. The cards can also be enabled to "remember" off-line transaction details which are up-loaded as soon as the card is used at an on-line terminal.

Although some chips have been "broken" by technically proficient individuals, this task is sufficiently difficult that cloning mag stripe cards is more attractive to most fraudsters. Another benefit of smart cards is the increased data storage capacity, enabling more robust security – hardware versus software security and the use of biometrics in place of or in conjunction with PINs to identify cardholders.

If a networked smart card is lost or stolen, it can be easily replaced with its value, based on the data contained on the network. Issuers would wait a certain period of time to ensure they had received data from terminals that might still be holding details of off-line transactions. If the card is the sole repository of all details, then losing the card is equivalent to losing cash.

Smart cards certainly could offer many advantages over mag stripe cards in terms of security, functionality, fraud control and reliability, particularly in environments where power and telecommunications may be intermittent, literacy may be low, security may be critical, and processing cost is a consideration.

Updating of off-line transactions

David Cracknell: Smart cards (in most implementations) are *not* permanently offline. They allow offline transactions, but the POS / ATM device has to communicate on a regular basis with the Smart Card infrastructure. In that way information on the Smart Card is mirrored, subject to a time lag. In the case of card loss the only information that (should be) lost is half a day. Ensuring that Smart Card transactions are regularly updated is a major concern to Smart Card providers.

Whilst an on-line mag stripe card can be cancelled quickly, a Smart Card will have a waiting period before the card can be reissued to ensure that all transactions are logged. So while both Smart Cards and Mag Stripe are tied to communications infrastructure, the smart card solution does not have to be online for a transaction to occur. In one respect Smart Cards are losing an advantage gradually as the cost of comms infrastructure is rapidly falling and network coverage increasing.

At the risk of being wrong or offending proponents of Smart Cards or Mag Stripe... I suspect that the two solutions will in fact merge at some point in the future, that chips will be used for security and identification purposes, but that solutions will be online.

Can smartcards be permanently offline?

Ron Webb: David, smart card acquiring *can* be permanently offline. Some solutions rely on a transport card to act as the "connectivity" between merchant and institution.

Eddy Thomas: Smart cards can *not* be permanently offline, and if so, you are defeating the purpose of your system. Smart card transactions (data) have to be uploaded to the central server to have up-to-date info at

all/most of the times. The time lag between live transactions and updating could cause serious constraints and may even amount to fraud, revenue loss to MFI or to the clients. It also depends on the infrastructure available in the country in which the solution is implemented.

To overcome these problems, I would like to have two technologies built together. We can combine smart card with mobile (wireless) banking technology. This is exactly the solution which we at FINCA are planning to implement through HP's RTS (Remote Transactioning System) solution. In this solution the transaction can be captured either "online" or "offline with uploading to the centralized Server when wireless link is available". In this solution we use a Mobile device with a SIM card and Smart card for clients. So whenever the transaction is done, the smart card is updated immediately and if there is wireless link available, the data is uploaded to the server immediately, and the updated information is available to all at any point of time.

When these transactions are done offline, i.e. when there is no wireless link available, the officer with the mobile device has to upload the data to the central server ASAP or as soon as the link is available. If we have a substantial time gap between these two processes, it could result in manipulation and fraud. I therefore feel, especially in MFIs, that there is a need for online transactions and the solution could be combination of technologies.

Ron Webb: Smartcard acquiring *can* be entirely offline from a data-comms perspective. Look at Valuecard Nigeria where transport cards provide the data movement. No need for comms.

Eddy Thomas: Thanks Ron for the info, which I was not aware of. But the solution depends on the usage. [Editor's note: It seems the key is if transport cards are used in the implementation.]

Dirk Bruynse: If smartcards need to be online to get the correct information then the ultimate solution is a permanently online system. This is the Holy Grail that needs to be achieved to bring banking to the mass market.

Eddy Thomas: I agree with you. My preference for the ultimate solution will be the "online" solution, in which both magstripe cards and smart cards merge with the same degree, except for cost considerations.

Jim Wells: However, since in our lifetimes we are unlikely to see poor neighborhoods in the developing world with uninterrupted power and comms, we need to deploy smart cards to deliver much-needed financial services, in a secure and flexible environment.

What happens if a smartcard is lost?

Ted Baumann: I understand the part about smart card transactions being updated at intervals. My concern remains the security of 'cash' balances on the card. If a user has no bank account per se, but only a smart card with a 'cash' balance on it, what happens if the card is lost, destroyed, or stolen? As I said, perhaps a stupid question with an easy answer, but potentially important if the user is carrying a wad of economic value around on a piece of plastic and silicon.

Nigel Morris-Cotterill: Check out Mondex. If a card has a cash balance and the user loses it, it's just the same as losing cash. The system is no different to a pre-paid tube card, for example.

Electronic Purses and Electronic Wallets

Ron Webb: Two different forms of stored value have emerged: **Electronic Purses** and **Electronic Wallets**. (How these terms evolved confuses the heck out of me!) The industry mean E-Purse as an entirely local value product, i.e. lose it and you money is gone. Geldkaart in Denmark is like this. An E-Wallet is supported by some method of back-end value or transaction trail. If the lose an e-wallet it is possible to

restore it given the settlement lag of transactions that are not yet presented. This duration could be very short or unacceptably long depending on the infrastructure deployed. Without a method of value recovery, I do not see the success of stored value in my markets.

Ted Baumann: I mentioned in my first post that I'd been asked by a client to assess a smart-card approach to disbursing our housing subsidies here in South Africa. A lot depends on whether the approach is 'purse' or 'wallet'. In this country, neither poor consumers nor government grant-making agencies would be interested in a 'purse' product because of the risk factor.

So the question is, how much more does it cost to deliver a multipurpose, replaceable, low-risk 'wallet' compared to an irreplaceable, high-risk 'purse'? How difficult would it be to replace a 'purse' in a rural area, for e.g., with crappy commercial and government infrastructure and lots of households without ID documents etc.? Most importantly, is there a commercial attraction for service providers to supply 'purses' rather than 'wallets'?

Jim Wells: Jim, You are asking just the right questions. Too many so-called solutions for the poor have been one-offs. Their isolation from other "solutions" makes it necessary for beneficiaries to run around and collect bits here and there. They quickly tire of this exercise, despite the potential benefits.

A unified approach to providing financial aid to the poor begins with a platform that can handle the various types of assistance available to poor people, as well as the uses they may wish to make of the platform. My experience has shown that starting with a card-based, networked virtual bank account is a good start. It provides a single point at which a person can begin to aggregate their financial assets, salary, public assistance, housing subsidies, and the like.

Any networked card will allow you to replace cards with value, while acting as highly-secure/low-risk financial vehicles. To my way of thinking, whether this happens on a mag stripe card or a smart card would be driven by the applications for the card, the processing, comms and power networks, the literacy of the target population, and the like. In the end, factors like convenience, ease-of-use, and functionality will drive consumer adoption.

Adding biometrics for security

Ted Chanza: Smartcards are more secure because the chip is able to store lots of information including biometrics which include finger prints, the eye iris, and according to the latest developments in Japan even the distribution of vein networks in your hand, (check http://www.news24.com/technology/news/0,,2-13-1443_1486940,00.html)

This then means that the morphosmart (fingerprint scanner / or iris scanner) is able to match the biometric provided for scanning with what is on memory. All ten digit finger prints are registered and the system chooses any finger it prefers for matching and verification. If you lose your smartcard, you have not lost the electronic value as practically no one can transact as they cannot be verified as the bonafide owners of the card. So the smartcard is useless to anybody who picks it.

When value is loaded on the card either by use of an ATM or an Electronic Point of Sale device through the process of money transfer or urgent load, the information of the transaction is sent to the switch and the system is able to recognise that card. In other word the switch has some sort of an account that keeps records of all transactions be it cash loads, withdrawals, fees etc that are debited or credited to the card. A special account called a holding Account is created to reflect all sums of money that have been loaded onto smartcards. In other words, for you to know the total amount of money on all cards, you need to look at the balance of the holding account.

In an online transaction, the switch is updated immediately once the dial up has been made on the EPOS device or the ATM. On the other hand, if it is an off line transaction, the switch is updated at the end of the business day.

Once-off use issues

Grant Duff: You shouldn't use a smart card for a once-off payment or pre-paid debit solution. In my opinion, Smart Cards are only really suitable for use in closed campuses where one needs to trade very cheaply between members of an off-line campus. Magstripe on-line remains the cheapest option for disbursements, especially once-off disbursements.

Theoretically you could even downgrade the magstripe card quality to a paper card for a once-off use in a closed on-us environment, where card association accreditation is not a feature and one is only disbursing funds. In the interbank space, the cards would need to be card association standard compliant, especially if they are designed for multiple use. We are currently piloting disbursement systems of precisely this nature at the moment for a South African NGO. This would make disbursement very cheap.

Topic 4: Which product features are essential to create a value proposition to customers that works?

Summary of Discussion

Participants drew out the importance of creating a real reason for clients to make the shift to electronic currency, emphasizing the importance of trust. They also talked about the major task in getting small merchants to also agree to participate.

Added Value: The customer case and the merchant case

Wide-ranging discussion of the various aspects that considered important for wide-spread acceptance of ebanking among the poor, including: cost, ease of use, availability of transaction points, clear advantages over cash, "touch and feel" aspects, and the importance of establishing trust. Also raised the issues that stand in the way of merchant willingness to accept ebanking alternatives.

David Cracknell: Studies must have been performed looking at customer motivations for carrying a card. Some of these motivations doubtless relate to functionality of the e-banking solution, some to the status of carrying a card etc. For the merchants there are additional sales and several sundry income streams to set against the cost of the point of sale device and the inclusion into the tax net.

What elements of customer functionality matter, what elements of the merchant case matter, what elements are missing?

Customer Functionality

- Utility payments
- Balance enquiries
- ATM encashment
- Salary payments
- Air time top up
- Money transfer
- Multiple paying in locations
- Visa and Maestro branded
- Loyalty programmes and discount schemes

Customer motivation

- High status of carrying a card

versus

- Low actual usage

Merchant Case

- Additional sales in merchants business
- Fee income stream from offering encashments
- Air time top up income stream
- Visa and Maestro branded

versus

- Point of Sale rental expenses
- Formalising the informal economy thereby bringing transactions into the tax net

Cost, ease of use, and availability of transaction points

Ron Webb: From the point of view transactional services to the currently un-banked client, I see essential product features to be:

1) Cost - Affordability

Start-up and transactional costs need to be as low as possible for both the end user and the merchants these users frequent. Business models where these costs are subsidised down to a near zero are the most likely to succeed. Why? Cash, the incumbent form of value transfer is inherently "frictionless" i.e. there is no charge that gets levied each time value is transferred. Solutions that skim a percentage off of every transaction are not attractive to the very low income earner.

2) Ease of Use - Convenience

This does not only mean simple to use but also fast, ubiquitous and user friendly. I do not subscribe to the school of thought that low value users are ignorant. Early predictions were that mobile phones could only work for a first world environment. All the mobile industry needed was a workable business model - pre-paid - and the market took off. (I see a definite correlation between Cost and Convenience. Wealthier individuals put higher value on time and are prepared to accept a fee for convenience. Lower down the income scale, cost is critical and users will accept inconvenience to save money. Get both cost and convenience right and you are on the right track.)

3) Scale/Distribution

Limited distribution of transaction points strongly reduces the value proposition to the customer. Walking many kilometres to be able to access the service is inconvenient and costly. Saturation of an area with the service is preferable to a wider, thinner distribution.

Advantages over cash

David Cracknell: I would like to add that the product being offered should have features that add additional value to the client over cash. After all why should customers hold an electronic solution when in fact cash meets all their current needs?

Here I am thinking of money transfer from account holder to account holder as the obvious added value prospect. In this way a son in the city sends money immediately and at low cost to his mother in the country.

Touch and Feel aspects for clients

Sonal Rishma: The question of “touch and feel” factor becomes very important. Attitudes of real low income clients will have to be changed if we are to influence their behaviours. From a client’s perspective, there are many things that they do which gives them pleasure like “touch and feel” of real money. It is imperative that any e banking solution deal with this aspect of “touch and feel” which is a form of real security (the real money is really there), especially with low income clients.

The costs associated with influencing attitudes to shape appropriate behaviours can also be enormous. Who foots the bill and how long will such subsidies be required?

The importance of a face-to-face relationship for instilling customer confidence.

Chantal Storbeck: E-banking will have many access points that are removed from the financial institution. However, we cannot discount the importance of face-to-face interaction with a banking/MFI official. As we are discovering in our debit card pilot, customers demand access to a person from the institution with whom their account is housed even when there is an Agency relationship (between the Bank and their point of access).

There is, and most likely always will be, a trust relationship required between a financial institution and their client relying on some face-to-face contact. If anything, this is even more important in a low income rural segment where education is an important part of the service demanded. Trying to force customers to accept an arms-length/electronic relationship with their financial institution is unlikely to succeed, and innovative ways of satisfying their need for face-to-face contact and meeting cost efficiency objectives will need to be sought. I think the success of e-banking relies on finding the balance between a face-to-face relationship and the use of electronic or even agency points of access.

Our research amongst the rural and small town market in South Africa points out that while a few years ago the demand for book-based accounts was very high and card-based accounts relatively small, this has turned around completely. This is encouraging as a major obstacle to banking this market electronically has been the rejection of card based accounts in favour of books.

Brian Richardson: Chantal is right in many respects. Speak to anybody who is banked and the first aspect they will bring up is Trust. What is fascinating is that when you research the unbanked there is general distrust of the banking system. They put $50 into an account and after a few months, they find less than the $50 because of bank charges. Research conducted and reported by FinMark Trust shows that the unbanked would trust a new banking initiative more than they would trust the existing big banks.

What I find very interesting is that this same market that Chantal refers to does not insist on/demand face to face contact with their cell phone service provider or any other prepaid service provider for that matter. Past experience and again research from FinMark Trust states as a major perceived barrier to the unbanked is that the financial institutions do not "talk their language".

Will small merchants adopt ebanking?

Sonal Mishra: Low income clients could be persuaded to use an e banking solution if it can be demonstrated to them that there is real value and additionality in using the solution. Let us take an example of a multi-purpose card which can be used with banks, merchants, traders and others. Questions that come to my mind on possible obstacles are:

How many merchants will agree to use such solutions as many of their “off-the-record” transactions will now be recorded? There are issues of taxation, black money and other related aspects here. Getting them to accept such E Commerce solutions would be a very hard task as it affects them personally and also their profitability. That is why you still see people reluctant to adopt e-commerce/banking solutions that will make every thing “transparent” as they would perceive it as landing them in trouble

Ramesh Arunachalam: In addition to tax concerns, merchants and traders (like fertilizer shops etc), who are already low on working capital may perceive that their cash flow would get affected in a negative sense by using eclectic solutions.

Topic 5: What strategies have been adopted to encourage usage of the e-banking solution in a semi- literate market?

Summary of Discussion

Participants discussed the critical role of developing functional financial literacy among the poor before they will find ebanking attractive. Clients need to trust ebanking, and if the transition from traditional services to ebanking services is too great then clients may be reluctant to make the switch. Additional aspects of financial literacy, ie, the high cost of developing literacy and the potential role for governments in subsidizing this cost, are discussed in other topics.

Financial Literacy

Ramesh Arunachalam: Any e banking solution for low income clients must take into account financial literacy. Low income clients need to have a certain minimum financial literacy level and in a large populous country like India, when we are scaling-up, this is going to be hard to come by. The solution to this clearly does not lie in the e banking solution provider (themselves) attempting to enhance the financial literacy of clients. That would be impossible and definitely affect the viability of product.

If e banking solutions are to be really scaled-up, there is a policy aspect as well, where the Governments must demonstrate the political and administrative WILL to create an enabling environment for building up the minimum financial literacy level of low income clients – until that happens, e banking solutions for low income people will just reach a few and leave many others untouched.

Recognizing clients' need for trust

Murray Gardiner: So true; I was involved in a project to try to get rural customers to accept and trust statements - they were used to savings passbooks. In the end we had to build a passbook printer interface because the customer wanted to see their money in a book. S/he did not trust a computer generated statement.

In any mass market roll out of new technology the investor needs to account for the human factor - just because it makes sense to you does not mean it will make sense to the prospective customer.

Ron Webb: CABS Zimbabwe dealt with this in an innovative way using convenience as the hook. They were moving off passbooks to a mag-card solution and also had initial resistance from customers. Their banking halls were typified by long queues of customers waiting to transact on the passbook. CABS introduced new teller counters that only services mag-card users. These had short, quick queues. The customer base voted with its feet and they eliminated passbooks in another 9 months. This for circa 400,000 customers. A year later they did not even see it as an issue.

Ayubu Kamti: We should not underestimate the value that customers put on the passbooks. Like CABS, at Tanzania Postal Bank we are also running two different systems. The Passbook Product is characterized by long queues. The Quick Account uses ID cards, and the customer takes less than five minutes to get the same service. Despite this fact customers have been reluctant to move from passbook product to quick account.

It appears that the main problem is trust. Customers trust passbooks as they can always see their balances something that give them security of mind. Therefore it is important to try to educate customers that even with e banking their money is still safe and can be accessed at anytime.

Ramesh Arunachalam: This is very true in India too where people (especially, low income people) need to see (constantly and regularly) what they have in their account. Trust plays a very crucial role. Some efforts in low income e banking in India failed precisely because they did not prepare their clients to use the solution - there was nothing wrong with the solution per say but the customers' lack of understanding finally resulted in the solution being withdrawn.

Understanding clients

Monique Cohen: I believe that poor people can adopt e-banking but we need to educate them well on what are the benefits, how to use the services effectively and to trust the 'big black hole'.

With ATMs, customers are often permitted no more than two free withdrawals a month. Among the poor there is always a demand for cash for endless emergencies. Cash is handled on a daily or weekly basis. They simply can't afford to hold money in the account because the cost of withdrawal is too high. If this is to work we need to try and match the number of monthly withdrawals with the cash flow requirements of the clients.

Another factor that seems to me important is fear of using ebanking in case something goes wrong, the card is swallowed up, the money fails to emerge. Our market research has suggested that this together with safety is a major concern for poor clients.

We are involved in an extensive financial education program for the poor in 6 countries. One component deals with e-banking. For more information go to www.microfinanceopportunities.org

Being forced to open an account is not the same as actively participating

Brian Richardson: What we have found is that you cannot fall into the trap of confusing "financial illiteracy" with lack of "street smartness". The unbanked are very aware of what bank charges are whilst the so called educated and financially literate segment of the population are generally unaware as to specific banking costs.

Being forced by employers to have a bank account simply because it is more convenient for the employer in paying salaries is not the answer to the unbanked. This is certainly not bringing financial services to the poor. The average use of a debit card in South Africa is 0,3 transactions per card issued per annum! Is this purely a function of low levels of financial literacy or are there other factors?

Aspects to be included in financial literacy

Monique Cohen: Most MFI customers are in the informal sector and do not benefit from direct salary deposits. The convenience for them will be in depositing any surplus (probably small) in a safe place and being able to access loans and make repayments through ebanking. I keep wondering how and whether they can really be enticed into ebanking, using ATMs and debit cards. Most MFI customers have very little interaction with Banks, and since ATMs are associated with Banks, getting the poor engaged in using ATMs will present challenges on several issues. Some might include:

1) helping them to understand basic Bank services, the costs and benefits (many don't)
2) understanding how to use the cards;
3) trusting the ATM black box,
4) understanding how the ATM will help them with money management;
5) recognizing that the 'black box' is a place where you can safely save;
6) managing the threat of theft and other dangers associated with using an ATM.

All this points to a need for financial education that will enable the customers to make effective use of ebanking. However, financial education also has its limits in terms of the time and cost both financial

institutions and their clients will be willing to spend on this. We also need to keep in mind that financial education can take many forms: campaigns, street theatre, classroom teaching and individual financial counselling.

Topic 6: What are typical costs of developing successful e-banking solutions, in time, money and human resources?

Summary of Discussion

Participants discussed the wide range of costs that need to be considered, recognizing that many of those costs are quite considerable, such as infrastructure development. They discussed the role of large institutions in absorbing those costs and the possible role for government in supporting infrastructure development. There was additional discussion of the cost of ebanking relative to manual systems, considering whether ebanking needs to be less expensive in the long-run in order to be successful. Finally, participants discussed the falling prices of ATMs and the implications this has on the potential to expand ebanking.

Listing of costs to consider

Participants list the costs to be considered in developing an ebanking solution.

David Cracknell: Every e-banking project will build projections based on key assumptions. These assumptions include

a) Type and frequency of usage both on our network and off our network
b) A detailed pricing schedule (this could differ in distinct market segments)
c) Take up of the e-banking solution
d) Average balances held (for treasury projections)
e) Point of Sale / ATM network strategy
f) Segmentations by type of customers
g) Levels of dormancy
h) Ongoing support costs ... software, hardware and technical
i) Disaster recovery
j) Communications costs
k) Licenses

However, a financial projection fails to recognise the sometimes Herculean tasks necessitated to activate an electronic banking solution these include

l) Obtaining appropriate licences (as Teba Bank and Capitec in South Africa can testify)
m) Interoperability... ensuring that the e-banking solution interfaces with other banking systems to enable off us transactions
n) Visa and Maestro approvals and functionality... essential in the South African context
o) Risk management
p) Compliance with legal requirements
q) Pilot Testing ... particularly important for issues around financial literacy, marketing, design of POS roll out strategies
r) Technical design ... ensuring gradual increases in functionality keeps a technical team extremely busy
s) Interfacing with existing in house banking systems

Graham A. N. Wright: I think David's cost list is only a beginning I am sad to say. There will also be significant additional "soft side" costs to:

1. Research and develop appropriate customer communication and training materials
2. Implement customer training on the functionality/use of the banking solution

3. Research and develop appropriate card issuer/merchants communication and training materials
4. Implement card issuer/merchants training on the functionality/use of the banking solution

The above costs are significantly affected by the remoteness/variability of these target audiences.

Can major costs, such as infrastructure, be incorporated into the pricing of a product?

Sonal Mishra: What costs should we actually include in the pricing of an e banking product? If the vendor develops the infrastructure, including clients' abilities to use the solution, should these be included as well? If so, can the product be viable? Should one amortize the infrastructure costs over multiple solutions, in case they are being shared?

David Cracknell: Creating a business model that works for the cost of infrastructure is particularly challenging and why bigger players like ICICI, UTI and Indian Bank will be important in pushing solutions out in the Indian financial market place. Fortunately the cost of infrastructure is falling fast with ATMs now costing USD 10,000. This makes a huge difference to the breakeven position and, in the longer term, should reduce fees.

In India, the role of the Government is especially important. This is for several reasons.

1. Taxation of ATMs - the import duties on ATMs and cash machines are extremely heavy.
2. Establishing a Point of Sale device in Post Offices could provide a significant rural infrastructure. This could be combined with airtime top up functionality to improve the business case for the post offices.
3. The significant coverage of State Banks.

Ajay Kumar: There are various costs, both obvious and not so obvious, that come into picture. The obvious costs include Hardware, Software, Communication network, Time spent by the people etc. Not so obvious costs include (as already mentioned in earlier postings) convincing the customers, marketing the new system, test runs, parallel run of manual and automated system, regulatory compliance etc.

Costs of ebanking relative to manual systems

Participants discuss whether or not an ebanking system needs to be cheaper than the manual system it replaces in order to be successful.

Ramesh Arunachalam: A crucial lesson from the Indian experience is the e banking solution must be priced such that it costs lesser than the (previous) manual mode of doing the same. In a country like India, with the availability of very cheap labour, it is very important that vendors take into account this factor and try to maximize efficiencies and resource sharing to bring down the cost of the solution and its ultimate price to the end user.

Ajay Kumar: In my opinion, the pricing of an IT solution can't be straight away compared to the existing manual system. Cheap labour doesn't necessarily translate into cheaper costs. If we consider the costs involved in the inefficiencies, then the costs would shoot up drastically. I know of organizations which find it difficult to increase their reach or introduce new products because of the constraints of the manual system. Are we taking into consideration the loss of business or in ability to expand into consideration?

The cost of the automation has to be looked from the point of cost of non-automation. What is the cost involved if we continue to operate the manual way? Does it limit our growth? Does it hamper the customer service? Does it limit our reach? Do we spend too much time on audit trials? And lot more questions to be answered. Of course, the cost of implementing new technology will not be less. But if it less than the cost of non-implementation, then the organization should go for it.

Sonal Mishra: Ajay, your point is well-taken but there are real life instances of organizations having abandoned their pilot implementation of e banking solutions because these were found to be much, much more costly than their parallel-run manual systems. And one of them is growing at a very fast pace, already exceeding over 200,000 clients

The point that I am making is simple - merely implementing e banking solutions may not bring about the desired cost reduction. Here too, care has to be taken to ensure that the most optimal solution is implemented so that organizations benefit from them and the clients find them attractive in price terms.

Nigel Morris-Cotterill: I believe Sonal is right because in developing countries people are cheap and tech is expensive. In the developed world, the savings of moving away to a non-face to face environment (including telephone banking) have been in significant measure:

a) reduction in expensive premises
b) a reduction in mid level management
c) relocation of functions to call centres and processing centres where salaries and accommodation are cheaper (including, ironically, the trend to offshoring).

However, where banks do not already have these expenses, the question is which is less expensive to develop the bank's business: the traditional bank on every street corner model or remote access banking.

The irony is that, as the banks in poorer countries develop their back office function using modern systems, the branches they open and the staff they recruit because they are cheap result in being little more than clerical agents - keying in the information that the customer could either key in or enter from a card.

As lending decisions become more centralised (an inevitable function of bank regulation in the next three to five years as some of the provisions of the Basle II review come to fruition) the branch manager will be reduced to a salesman - and one who has limited decision making power. The branches will, therefore, become expensive homes to what amount to data terminals with minders.

Costs of ATM access points

Participants discuss the falling price of ATMs, and the comms and switching costs associated with ATM-based systems.

David Cracknell: An issue that has been quoted in the literature has been the expense of establishing an appropriate network of access points. ATMs have traditionally been very expensive USD 35,000 has been quoted. These prices led Prodem to introduce their own cash machine at a price tag of approximately USD 20,000 and ICICI to investigate a low cost alternative.

Ron Webb: Interesting note on ATM pricing. I am actively deploying ATM's for a number of FI customers. The prices have dropped dramatically! Where US$35k was the norm, entry level ATM's can be had for less than US$10k. These are new devices, not the poor quality "reconditioned" second hand devices I have started to see in the market. Comms prices can be a factor, but there are a number of ways to address this. Cheaper comms options, on the ATM authorisation, on the card authorisation etc.

David Cracknell: Thanks Ron, this significant change in costs is a very important dynamic as it begins to bring ATMs into the price range of many MFIs, and will allow banks to develop realistic networks.

It should be mentioned that a network of ATMs can build very quickly in a country with the right competitive dynamic. Uganda is a case in point, as shown in a recent ***MicroSave*** study, “The Competitive

Environment in Uganda: Implications for Microfinance Institutions and their Clients." This study can be downloaded from the ***MicroSave*** website.

Interestingly, as the ATM network has expanded, so has the desirability and acceptability of holding a card. Some 68% of survey respondents who did not have a card expressed a desire to hold one.

Also, one of the studies on the resource page of PRODEM says that each of their ATMs costs about USD 18,000. By the end of 2003 some 27 ATMs should have been installed. For Banco Ademi and their smart card project reported in Anita Campion's study the total cost at the time of the study was reported to be USD 67,393, which appears very cheap. The study refers to 11 Junior ATMs which cost in total USD 35,000.

Jeremy Leach: To add to David's list re ATMs there is also the issue of the cost and access to an electronic banking switch which may add considerable cost to the proposition.

Whilst the cost of routing an inter-bank switch may be negligible when economies of scale are obtained (e.g., it is a volume business) the high pricing may be detrimental to extending access to low income individuals. For example, in South Africa a SASwitch withdrawal (off us) adds R3 - R6 to the cost of an ATM withdrawal – put another way approx 70% of the cost of an ATM (off us) withdrawal is due to SASwitch. This is not reflected in the underlying costs, which is allegedly in the cents rather than the rands.

In other developing countries which do not have the volume of transactions or the banking infrastructure that South Africa has, I would be interested in hearing how a cost effective switch can be provided. I understand that Opportunity International is partnering with Mastercard for an Opportunity Card and would be interested in hearing how Mastercard is offering a cost effective service where they are often more expensive as mostly located offshore.

Topic 7: What level of infrastructure is necessary to support electronic banking?

Summary of Discussion

Continuing on the issue of the high cost of infrastructure raised in Topic 6, participants discussed how evolving tech and comms issues are gradually reducing the infrastructure bottleneck. They discussed how the largest providers are often interested in developing closed systems to protect their investment and their comparative advantage, making it difficult for small institutions to get started in ebanking. Participants also discussed issues of physical security related to ATMs and cash movement. Finally, participants discussed whether there are alternatives to using ATMs, such as internet-based initiatives.

Infrastructure

Evolving tech and comms issues are gradually reducing the infrastructure bottleneck

David Cracknell: Several factors appear to be driving a significant expansion in the ATM infrastructure:

1. The significant fall in the price of ATMs
2. The improving communications infrastructure.
3. As ATMs become more common, having an ATM network will become expected by customers. Instead of an ATM network attracting customers, not having one will drive customers away.

Scale is needed to drive expansion, for several reasons:

1. When there are a large number of card (or other solution) users in a population the financial literacy problem is significantly reduced ... children teach their relatives how to use the card, etc.

2. If we are to present an attractive case for merchants to have Point of Sale devices (that are in more remote areas than ATMs.) then there has to be a reasonable volume

3. Scale increases the business case for interoperability, the connection through switch mechanisms of different card bases. This can be particularly important in developing markets, as the business models of the larger international banks Barclays, Standard Chartered etc., are such that in the early days of ATM introduction the temptation will be to protect their own much larger ATM networks and resist interoperability.

This posting suggests that there is an evolutionary path for e-banking which affects which strategies are best used in which circumstances...

Relationship of regulation to infrastructure

Ramesh Arunachalam: Regulation also has an impact relative to infrastructure. In India, while it is not a limiting factor, it is certainly an impediment to e banking solutions which tend to coalesce boundaries between areas (service areas), states etc

Take the service area approach and lead bank approaches prevalent in India. While they may not be limiting in terms of ultimately preventing specific e banking solutions from reaching clients in an area, the fact is they exist and hence, a “no objection” must be obtained from the service area bank that has been allotted that specific area

Resistance of largest banks to integrated systems

The largest providers are often interested in developing closed systems to protect their investment and their comparative advantage, making it difficult for small institutions to get started in ebanking.

Jenny Hoffmann: What David said regarding the protective tendencies of the banks with the bigger networks of ATMs struck a cord with what is happening here in South Africa.

Due to government pressure, the big banks are working on a special product called the National Bank account. One of the key features is that it will be accessed through a card which can be used on any of the ATMs of any of the participating banks, using the same pricing, i.e., no additional switching costs. This is a product that is being carefully designed to ensure that it does not cannibalise the bank's existing low income market products and will therefore have very limited functionality and a low maximum balance. The assumption of the big banks is that one cannot profitably provide a cheap product with high functionality to the low income market.

The objective of all parties is to bank the low income market beyond the level that banks currently reach. The costs of the 'off-us' infrastructure are prohibitive. Is the switching infrastructure a utility or a competitive advantage?

Nigel Morris-Cotterill: In the UK, we used to have two main networks for ATM and using any ATM within your "home" network incurred no user charge; using the "other" network attracted a fairly hefty charge. Then there was some sort of revolution between the operators and the charging structure became complicated with banks charging each other. But one provider broke ranks and decided not to charge anyone. I don't know if they have found that the no-charging policy has benefited their business. However, the debate we are now having has already been had and someone, somewhere, knows the answers.

Brian Richardson: It will be more than interesting to see how the participating banks in the National Bank Account "loop" will react and treat new entrants into the unbanked segment and whether they will offer the same "no additional switching cost" philosophy. I think that with sufficient lobbying by the players outside of the loop (comes down to critical mass) the Competitions Board would have more than just a passing interest!

Physical security of ATMs and moving cash

Security issues are a significant issue, especially in rural areas.

Sonal Mishra: Infrastructure also would need to focus on those mechanisms absolutely necessary for the safe and secure physical movement of cash, so that cash is really available as and when clients need it. Added to this is the safety aspect of physically keeping the cash safe (wherever it is). This is particularly relevant in rural areas, which can be a tough terrain to operate it.

Rangarajan: Security measures of ATMs merit attention. Security lapses based on fraud are found in metropolitan cities with literate ATM clients, thus what could be the scenario in the country side when microfinance is conduited through ATM with low-profile customers? Does the installation of video surveillance and other security measures for protecting ATM operation not enhance the cost?

Sonal Mishra: When such e banking solutions are taken to rural areas in India, which are characterized by geographic dispersion and a tough terrain, appropriate security mechanisms become quite important. Approaches to security will have to be thought through, pilot tested in different contexts and then rolled out.

Krishnan: My views are:

1. The best way to ensure security is to issue cards with the account holder’s photo.

2. A single machine catering to various banks as in other countries is better than individual bank ATMs.
3. Alternatively a pool of ATMs coming together at the same location. For this the banks have to come together.
4. Multiple security in a single location is better than individual security in multiple locations.
5. Proliferation of ATMs without future planning, just to show supremacy of the branch mainly for newspaper and TV coverage cannot take us far.

Ebanking requires threshold level of basic infrastructure

The level of basic infrastructure required for ebanking simply is not present in all areas, especially the rural areas of many countries. This will be an impediment to delivering ebanking to the poor.

Sonal Mishra: The basic infrastructure (electricity, communication, transportation etc), in a country needs to be at a minimum level for any electronic banking solution to succeed. That, in turn, depends on the level of development within the country.

I come from Madhya Pradesh in India, where even today the basic infrastructure of electricity, communication, and transportation is very poor. Here the potential for e banking solutions to succeed is rather low, although I would say that they are ironically needed the most here

N.jeyaseelan: I wish to share my views on the required infrastructure:

1. As the power is a problem in rural and remote areas and it involves a recurring expenses on MFIs, setting up a Solar powered computer peripheral will be a good option. Even though the capital cost may be higher, the MFI may find some grant funds for this.

2. The software package is in English, which restricts the free use of the e-banking solutions by the lower level staff of MFIs and clients. If these are developed in local vernacular languages, the use can be enlarged.

3. When the branch faces operational problems in running the systems, they should not look for help from the Head office units. Instead, the MFIs should have an arrangement in place with the vendors, so that the service personnel are available close to the branch to attend to the problems.

Ramesh: Because of increased population density, urban metros in India seem more suitable than rural areas for provision of e banking services to low income clients. However, there is a key issue that arises because the FFIs may already have e banking solutions/outlets for other segments in the market – higher or middle income groups. So, the question is whether, these FFIs would be able to share facilities/resources/outlets and serve all clients simultaneously through same outlets or will they have to have some infrastructure at least separate for the different segments. Take the case of ATMs. An FFI tried to service low, middle and higher income segments through the same ATM and found out to its dismay that it started loosing its higher end customers.

Ebanking needs more access points than just ATMs

Participants discuss if the internet can provide an alternative to ATMs as access points.

Ajay Kumar: We seem to be heading to the understanding that Ebanking is ATM with access cards given to the borrowers. Is it possible to place ATM's in every nook and corner of the country? What about the security of the cash posted there? If the ATM runs out of cash, how do we replenish it? If there is any

connectivity problem, how do we tackle it? There are lot more complications than what meet the eye, not to mention the acceptability factor by the customers.

The Internet can also be a medium to make the banking e-enabled, especially in rural areas. Consider the case of MFI's which can do both Savings and Loans or a full fledged micro finance bank, can they afford to put ATM's in off-site locations? Instead, they *can* afford to give an internet account to each borrower and have the web site developed in the local language.

In most of the cases the field staff is in constant interaction with the borrowers on a regular basis, in many cases on a weekly basis. If they use the internet, the borrowers post a request for savings withdrawals and this is linked to their banking account. The back end process is automatically taken care of. The agent who meets the borrower on regular basis will honour the transaction when he visits the field on the specified duration. In my experience, this gap of week is fine with most of the customers, unless of course, there is emergency. I've also read a suggestion of mobile ATM in one of the postings. This can be something similar.

As we have seen in India, the internet kiosks are expanding fast in the rural areas, with the Government and companies like ITC taking active interest. The MFI's and the banks can tie up with these kiosks and this will be a revenue proposition for the kiosks too.

I believe this is a less costly way to reach the mass market as this uses already existing set up. Another solution can be that the agents use PDA (Personal Digital Assistants) or hand-held computers to conduct the transaction. These are simpler and easy to understand and operate.

David Cracknell: An e-banking solution can – indeed, in my opinion – should have many access points. These will include internet, POS devices and ATMs. They can all run off the same back office architecture through an appropriate interface. This is one of the beauties of electronic banking.

Indirectly Ajay's posting raises some important legal and regulatory issues (I could use help here) which will differ slightly from country to country. In India at least, deposits can only be made in bank premises. On one regulatory extreme, the kiosk owner is seen as a deposit taker and therefore subject to regulation. Similarly, as in India, there are sometimes rules governing the withdrawal or deposit of cash through a Point of Sale device.

If the banking system is to extend banking to the rural poor it must be able to do so cost effectively. This requires an appropriate regulatory environment. I would be very grateful to any bank regulators in the e-banking conference to provide further comment.

Ajay Kumar: The kiosk owner is just a facilitator who provides the internet connection. The borrower uses the kiosks infrastructure to access the bank account. If the regulations permit, he can also act as the agent of the bank. I agree with you that the regulations differ from country to country.

David Cracknell: This is precisely why we need input from regulators. The question appears to revolve around whether it is a cash-based transaction.

> "*The current RBI guidelines, via circular no. SD (PCB) CIR.19/13.01.00/2000, do not permit use of any individual, firm, company, association, institution or any other person for collection of deposit or selling of deposit linked products on remuneration or commission basis.*"
> (Extending Banking to the Poor in India, Singhal and Duggal)

Ramesh Arunachalam: I've had informal discussions with current and ex-regulators in which they raise the aspect of internal controls. These become very, very crucial and the regulatory bodies are not sure of how to

deal with this if, for example, kiosks in rural areas are to be used as agents or deposit takers. This problem is also exacerbated by the perceived lack of internal control systems in the m-f sector in India.

Topic 8: Partnership strategies - which partnerships are necessary to create viable electronic banking initiatives?

Summary of Discussion

There are a vast number of potential partnerships that need to be arranged among various actors in ebanking initiatives. "Lo-tech" approaches to ebanking many benefit from involving self-help groups in service delivery.

Partnerships

David Cracknell: One of the most fascinating elements in the electronic banking debate is that with few exceptions (some of the largest banks) banks can not go it alone. It is a partnership game.

To give you an idea, all of the following may be involved in a e-banking solution that goes to scale. Each of these partners will be driven by a different business case which must work for them.

- Technology solution provider:
- Banks: Required for outreach, licenses, human contact points.
- Communications providers: To provide interconnectivity (even off line Smart Card solutions need to go online sometimes)
- Suppliers of ATMS, Cards, POS devices
- Service agents: To maintain the network
- Security companies: To keep cash on the move and machines filled
- Merchants: To have POS devices
- Government departments: To provide bulk
- Post Office: To provide the widespread distribution network
- Issuers: To increase the circulation of cards
- Marketing and media specialists: Who have a gold mine of communications opportunities
- Risk and fraud specialists: e-fraud must be guarded against and is significant specialist field in its own right.
- Visa and MasterCard (in more developed markets like South Africa, Visa and MasterCard are important, because being Visa / Maestro branded increases the number of access points, and for banks with acquiring rights this can improve the business case for infrastructure development.)
- Loyalty programmes: Another way to increase card usage and to begin to segment the market is through loyalty programmes.
- Large employers: Who can eliminate cash handling by giving workers cards.
- Microfinance programmes: To reach into the unbanked / underbanked market
- Trainers & bank & MFI staff for improving financial literacy:
- Regulators: To ensure systemic safety
- Legislators: To ensure the enabling environment

It is easy to see why for many smaller MFIs it may be easier to migrate through Palm pilots first and then to become a partner in a wider initiative.

Partnerships with police for fraud prevention and detection

Ramesh Arunachalam: Partnerships are very crucial and I would like to emphasize one of them - fraud prevention and detection. We had some problems with an e banking product in Chennai and when the cops

were called to unearth the fraud, which being fairly technical, they had absolutely no clue about what were investigating. Thus, the same fraud occurred again in a couple of places.

It is crucial to develop the capacity of the police/law enforcement/regulators to prevent, detect and control e banking crimes as once they occur and multiply and are not solved/prevented, clients trust will go down.

Lower-tech solutions and Partnerships

Calvin Miller: ATMs have a definite place in MF and I am glad to see them rapidly expanding in developing countries. A couple of days ago I challenged this group to look not only at the higher tech market but also the lower tech markets.

I think that this ties very well with today's two themes of basic infrastructure and partnerships. In the "old days" in "developed countries" we hear how people used to depend upon each other more -- phones and phone lines were shared, machinery was shared and even money was pulled to buy it. In much of the world, that is still the case, which is why we have community/solidarity groups in MF, why the Grameen Phone service was a success, etc. Of course, we must push to improve infrastructure -- electricity, roads, etc. Yet, to me the challenge is how to best partner to overcome poor infrastructure with strong and innovative partnerships.

In Zimbabwe for example, CARE has set up an almost nation-wide system of rural "Agents" that sell input supplies (agr. and non-agricultural) to surrounding communities. Can they be linked with a debit card system? In Niger and other places, CARE has helped set up hundreds of women's savings groups. How can these "partners" become conduits in the technology chain? In India, there are many Self-help groups, often linked with banks. What can we adapt from the high-tech regions, such as Bangalore or Hyderabad in India, to use high and low tech electronic technologies to give savings groups easy access to bank services?

On another needed partnership level, how can International NGOs in these countries band together, such as the example of FINCA and others in Uganda to develop and or build the synergies needed to attract the private investment needed. When working among the poor, partnership is not an alternative, it is a necessity.

Topic 9: Pricing strategies - what issues are important to consider when developing pricing strategies for electronic banking for the poor?

Summary of Discussion

Participants discussed pricing issues at various points throughout the conference, as finding a price that the poor can and will pay that will also cover the costs of ebanking is a significant challenge. Participants discussed the basic theory of how prices are set in a marketplace, and the limitations of that theory with respect to ebanking. There was debate over whether the best product for the poor is a "no frills" product at very low cost, or an expanded product that provided adequate incentive for the poor to make the shift to ebanking. Participants also discussed cross-subsidizing their product targeted to the low-income market, though the dangers of "cannibalization" of their existing clients has been raised during Topic 2 and is also discussed in the Conference Summary.

Pricing Strategies

Sonal Mishra: In terms of generic business strategy, what strategy has worked in pricing of e banking products, based on global experiences? From Mike Porter's seminal work on competition, pricing based on business strategy could either be cost leadership (multiple products with a low unit price) or differentiated pricing (value added products at premium price). Which is more appropriate for the low income financial services sector?

Pricing theory and implications for ebanking

David Cracknell: Pricing is a very interesting issue and also incredibly complex... or simple depending on how you look at it. The simple view is that prices should be low as we are dealing with a low income group. I sympathise with this view, though realise it may be somewhat simplistic... why?

Complication 1: Marget Segmentation
It is often possible to have several segments use the same banking infrastructure. Different segments have different abilities to pay. This implies differentiated pricing and this may be necessary to fund the infrastructure.

Complication 2: On-us vs. Off-us
Some transactions are on-us, some transactions are off-us. Off-us transactions incur additional fees.

Complication 3: Loyalty programmes
Again it is possible to develop loyalty programmes that utilise the same infrastructure. These tend to be premium services and attract higher fees.

Complication 4: Volume drivers
To get low fees you need volume drivers, the state is frequently a source of these volume drivers through pensions, salaries, money transfers etc.

Complication 5: Uncertainty
Pricing decisions are taken in the face of huge uncertainty. Costing and pricing models are built on estimates of uncertainty. Over time, usage patterns by different segments will be built that will allow very accurate estimation of costs and much more appropriate pricing.

Pricing needs to be looked at in three steps

1. **Cost:** What is the cost of providing the service - we need to price above cost
2. **Competition:** What is the competition charging - we can not charge significantly more than the competition unless we add value
3. **Value:** What is the added value of this particular service

Sonal Mishra: I agree that the pricing of an e banking solution is slightly tricky as one has an on-going relationship with the end-user. It is one thing to initially sell the solution but an entirely different matter to keep the client as a real user. Again, lessons from India show that pricing is a very crucial aspect that affects usage and as the market here has shown us, incentives and discount pricing have proved extremely crucial in sustaining usage and building customer loyalty.

Client willingness to pay higher price in return for convenience and time-savings

Ramesh Arunachalam: On the issue of pricing, I was personally involved in facilitating the installation of a semi-e banking solution in a very large India FI for low income people, catering to over 300,000 clients.

In this case, the clients were willing to pay a marginally higher price because the solution really reduced the transaction time for low income clients in an urban metro. While loan disbursement used to take one whole day as did repayment, post implementation of the solution, clients could get a loan in 20 minutes and also make repayments in less than half the time. This meant that they did not loose their day at work. The additionality was measured by the institution as the client gaining a back day's wages minus paying for the transactions and related costs.

This information was used to later price the fees to be charged to the clients for their usage of the e banking solution and after several iterations, a balance was achieved where by the pricing was seen as sustainable for the institution and affordable for the client and also providing the client with reduced transactions costs and other benefits like "not losing a day's wages"

The poor need low rates, but who subsidizes them, and how do we keep costs low?

Nigel Morris-Cotterill: It's not the absolute price that is relevant: it's the relative price. Flat rates are regressive and therefore fall more heavily on the poor.

Governments around the world are trying to move populations towards full banking: the incentives for governments are the simplification of benefits payments, a reduction of cash in the economy, and improving audit trails [David Cracknell added: and expanding the tax net]. However, these accounts often perform inadequate due diligence on customers. The UK, as an example, has produced a weaker identification regime for certain types of account.

The accounts are designed to be "basic" and as a result have limited fee income. Yet these accounts are no cheaper to run than any other account, and may even be more expensive. Therefore, what governments are in effect doing, is shifting the burden of social banking onto the banks.

If we extend this out to e-banking at the user end, then what we are saying is

a) an electronic passbook
b) no account charges until an account reaches a specified level of activity.

David Cracknell: Nigel raises some interesting points. However, there should be no problem charging a transaction based fee to the customer as the cost of electronic transactions is falling rapidly. Effective segmentation of the market is also important strategy with respect to transactions. This can be achieved through multi branding cards or other e-banking services so different groups of customers are distinguished.

Nigel Morris-Cotterill: There is no such thing as "free" banking and I don't want to give the impression that there is. It's either paid for by the user or by the customer base as a whole. I'm not certain, however, that new customers will be attracted to the banking system where using a bank will increase their expenses.

If we are to wean them off cash and informal money transfer systems, we have to create a very simple system which does not add to their costs.

My feeling is that value is relevant only when people can afford to make a choice. In Ghana a short while ago, I offered to buy a soft drink for a young man. Tears welled up: the equivalent of about 20p was something he could not afford, and the drink was a luxury to him. If a bottle of Fanta can move someone to tears, then we are not going to get them to pay for banking - not because they don't want to, but because they cannot.

Or are we hoping to provide banking only to those who have already found some way of getting themselves onto an entrepreneurial ladder and can consider banking fees as a necessary business expense? This is why I suggest a no frills (effectively an e-passbook) account with no charges for small value and small transaction volume.

Creating real value with ebanking will create demand despite higher price

Ramesh: Creating value for the customer including the low income clients is becoming very important. At the beginning stages, access to financial services is very crucial, but after a while, people want choices and providing value is part of offering choices

I did mention an example of an FI which introduced a quasi e banking product, which clients had to pay for. Initially, the FI was worried about pricing this alternative product but much to its surprise, the value addition of this alternative product was that it significantly reduced transactions cost for the client (i.e., significantly less time spent standing in line) and they willingly paid.

Also, I would guess that e banking solutions for low income clients will involve cross-subsidization across segments of clients.

Would "no frills" products provide adequate incentive for the poor to switch to ebanking?

David Cracknell: I think Ramesh makes an important point. Many of the costs experienced by the poor in interfacing with financial institutions are transaction costs which are rarely fully considered by bankers – the time it takes for them to stand in a queue at a postbank is time lost from the informal business. Limited accessibility means travelling time.

At the same time, if you offer a service that has no frills (as Nigel suggests) this risks value to the customer being low and if this is the case what is the incentive for them to move away from cash? This is a very tricky question to answer.

I am not convinced that people should be offered a cut down ebanking product as the marginal cost for provision of additional services is small on a transaction basis, that is precisely the advantage of an e-banking product and it should not be lost.

Nigel Morris-Cotterill: I wonder if we are considering "value" in our terms rather than those of the target market. There are many very good reasons for trying to move populations to banking and away from cash and barter and we have to demonstrate an imperative. My feeling is that, for many coming to banking for the first time, any charge will be a great disincentive.

I agree with David that the marginal cost of additional services is slight: I would suggest, therefore that the price charged for additional services be increased a little to make up for an uncharged basic account.

Over the past week, we've had a number of suggestions which are pragmatic and look to address the fundamental issue: that of delivering banking services (deposit, payment systems and loans) to the poor. I don't look at the basic banking service as "cut down" - I look to take banking to its basics and then ask what enhancements / options can be offered at what price. But remember that not every country has the population of Nigeria, the communications of South Africa and the progressive approach of Ghana. I suspect that the realities on the ground mean:

a) focus on urban areas because infrastructure and economies of scale work in the bank's favour
b) little appetite to physically service remote areas, so leaving hawala systems to operate a "hump" to get over in relation to acceptance of technology.

It is, I believe, important not to overwhelm people with anything any more complicated than they need. There is a tendency to sell things to people who may not necessarily need them. And from my point of view, it's a lot easier to regulate a simple product than a complex suite.

Spreading out costs and cross-subsidizing to make ebanking affordable for the poor

Roland Pearson: It would appear highly unlikely that an e-banking service initially and solely focused on the poor will be viable. However, a strategy that somehow spread the costs of development and early deployment over a wider base, including middle and upper echelons of society might yield a financially acceptable model - both to the clients and the financial service provider. In effect, you would look to the larger scale of poorer clients to contribute to marginal profitability, while the richer clients paid for the heavy fixed costs.

Thus, the issue might not be pricing (marginal costs, affordability, and value propositions are all low, so there really is little latitude in setting prices per se for the low income market), but rather an institutional, systemic, and / or partnership model that can accommodate richer and poorer clients (this would also be a great leverage point for donor or government funds, properly applied - and thus the interest of Finmark Trust in trying to get 1 million+ social grant beneficiaries into the banking sector in SA). We know the service has to be priced at rock bottom - the question is how you provide that price to the poor, and still run a viable financial institution.

Topic 10: Which elements of electronic banking can micro-finance institutions successfully adopt?

Summary of Discussion

This was a recurring theme throughout the conference as many of the registered participants work with microfinance and were keenly interested in how they could incorporate ebanking into their current financial services for the poor. After an initial discussion of the critical importance of a solid MIS, there is a long discussion of how MFIs can get started with ebanking. Finally, there is a detailed discussion of credit scoring and the appropriateness of its application with the poor.

Get your MIS in place before tackling ebanking

Though strictly a capacity issue, this discussion was specific to small MFIs and therefore we have included it in this topic. It comes first in the presentation because it does much to explain why smaller MFIs have not yet had much success with ebanking.

Aaron Oxley: While big picture solutions like large, capital intensive projects such as ATM networks or partnership with mobile phone operators have the potential for massive impact, the reality is that they are out of reach of many smaller MFI's. It's quite overwhelming. Many of us are just not there yet.

So, as a way of looking at this from the bottom up rather than the top down, here are my suggestions on where to start.

I know it's obvious, but getting a solid MIS in place, backed by solid operations, is absolutely the first step. If you don't have that, you can't play with anyone else in the technology arena and you're continually going to be struggling with paper, with control, with fraud detection, with transaction volumes, and so on. Not that all this goes away with technology, just that it gets easier to scale up and maintain control.

You will find that installing or upgrading an MIS is incredibly traumatic for an organisation. Having the right people is so very important.

Building a team of technologists within your organisation that can accomplish three main tasks is critical. These tasks are:

1) Someone to make the system run. This is systems administration, and what most people think of when they think of "the MIS Guy".

2) Someone to make the system run *for the business*. Without a person whose focus is on continually improving the MIS system to better fit the business, your MIS can become a hindrance rather than a help, locking in bad business practices.

3) Someone to make the system run *for the users*. This is very often simply not done after an initial week or two of training. If you're not continually training and re-training your staff on how to make the most of your system, then you are missing a huge opportunity to add value.

Can anyone share experiences where having these people in place have really helped them?

Ajay Kumar: Aaron was right on the spot. Ebanking won't work if there is no strong back-end MIS application. But I believe two more roles are required (at least at the start of the process):

1) A person who can articulate the requirements of the organization. A person who clearly understands what technology can do and map it with the organizational problems. He should see the larger picture and align the IT goals with the business goals. I would call this person an Architect, who can lay the foundation. He need not be a techie, but understand technology and business alike.

2) A person who can coordinate with the IT vendors and the internal management team. The person should speak the language of management as well as that of the external IT vendor.

Sonal Mishra: The real key or core to the ebanking solution is a proper MIS that can use the data captured and analyze it and provide various reports for various stakeholders concerned.

Unless there is a strong MIS that can perform this function, any e banking solution would remain a transactional rather than an analytical, problem solving management tool, which is very crucial for development of any organization including an MFI

Ramesh Arunachalam: A proper MIS is very, very crucial. Otherwise, we will have just data on transactions available but the key is that any FI (financial institution) needs to analyze the available data for several aspects including new product design, delinquency management and the like.

So, unless the captured data is capable of being worked on in a systematic manner through a proper back-end MIS, the e banking solution will merely be a reactive one and not a proactive one.

This aspect of having a good and STABLE MIS backend has often been undervalued while implementing (some) e banking solutions in India - the net result is that such e banking solutions have resulted in mere automation of some processes rather than serving as analytical tools for management decision making.

Where to Start? Models for Microfinance

Many participants from microfinance had asked throughout the conference the question of where they might start. In this thread, they discussed a range of possibilities, including transition strategies, viability of various technology options, and even whether ebanking is appropriate for MFIs.

David Cracknell: Where to start is an important issue... the discussion to date may well have overwhelmed anyone interested in the microfinance end of the debate. The complexities of electronic banking still baffle me and I have been immersed in it for some time.

So what are the ways forward for microfinance programmes?

1) One model would be for MFIs to become issuers of their own cards through a wider initiative. Opportunity in Malawi (OIBM) issues cards under the Malswitch scheme. Malswitch is a USD 10m initiative of the Reserve Bank of Malawi. OIBM clients are then issued with a Malswitch card that can be used by OIBM and also in other infrastructure like point of sale devices and ATMs.

2) A second model (still to be tested) is for groups of MFIs to come together (see Sean Kline's posting), to implement a system with goals that were more narrowly focused to begin with.

3) A third model which may be cost effective now that cash machine prices are coming down is for those institutions to go for a low-end closed loop ATM solution. There are companies such as ATM solutions in South Africa and Ron Webb's Paynet which can provide advice on this. This is likely to restrict functionality.

4) There are some stand-alone solutions, but in many cases having operations networked makes operationalising an e-banking solution easier.

5) Palm Pilots: Not only as a step in computerisation of systems, but also in computerisation of back office processes.

6) POS Devices: Point of sale devices are becoming much, much cheaper starting at around USD 350. According to Ron Webb, where CABS in Zimbabwe did not have ATMs, it installed Point of Sale Devices within branches. This is a much cheaper alternative.

7) Cellphone banking: If issues related to usability can be addressed ... use of menus for a semi and illiterate market. Again MFIs could partner an existing technological solution.

Of course, MFIs need to think this issue through carefully, if for no other reason than the falling cost of providing services may bring new entrants, such as banks into the traditional territory of MFIs, especially when banks start to aggressively adapt other approaches such as credit scoring.

Chuck Waterfield: This is a great thread, and hope that those in the microfinance field will start to come in a bit more vocally. On David's Point (g), Cellphone banking, don't miss the article on our resources website called "Interactive Voice Response Technology". This is part of a series of brief articles done for CGAP about 6 months ago. They have gotten limited circulation thus far, so you may not have yet seen them. There are articles on ATMs, Biometrics, Telephony, Smart Cards, PDAs, and Credit Scoring.

You can download them from www.microfin.com/ebankingresources.htm

Evolutionary incorporation of ebanking services

Mark Staele: One of the key constraints to mobilizing savings from the poor, alongside the MFI's own battle with high transaction costs, is the client's aversion to illiquidity. If a client cannot access savings readily, he or she may be reluctant to deposit, or may deposit only a fraction of what is actually flowing through the household. It would follow that for e-banking to be relevant to the poor, a sufficient number of relevant access points must exist before the savings of the poor will be attracted to it.

This is how I imagine a small MFI like SafeSave might enter the e-banking arena. The first step would be for an MFI that uses a handheld device (or one like a postbank that takes walk-ins) to substitute debit cards for the client passbook. Convincing clients to accept the debit card technology should be easy if the MFI offers convenient access to the savings, and the client gets a chance to 'test' the system a couple of times before taking a lot of risk. If the cards offer security features, such as the client's picture, a personal identification number, and a chance to verify balances (that could occur through the handheld device), it should be an easy sell. However at this early stage the debit cards are still just a 'passbook' - the client uses them to deposit and withdraw money from the MFI itself. This idea is important - in a context where ATM and POS access points are limited, clients' savings will be relatively illiquid if the MFI fails to offer a high quality, plain vanilla deposit/withdrawal service upon which the whole system is anchored.

Once sufficient clients are drawn into the system, the MFI would take the second step by looking for ways to partner with bigger players to use established infrastructure. I can imagine an MFI gaining access to established ATM networks, and perhaps acting as an agent for the proliferation of POS devices. Clients would not view transaction costs associated with these new e-banking options as a negative, as long as they were optional additions to convenient cash withdrawals from the MFI, rather than a substitute for them.

Following this conservative approach would keep the MFI on solid ground with its clients, whether or not the debit cards ever resulted in significant access to e-banking solutions. In other words, the MFI does not bet the farm on e-banking, it simply invests early in the technology of debit cards to be able to tap into

convenient e-banking options as they move downmarket. In the meantime the MFI enjoys a convenient and secure means to disburse loans to its clients, and an opportunity to familiarize itself with new technology through the internal use of the cards. In the long run, there is good potential for clients to be able to travel about with a card, rather than a lot of cash in their pockets - a major reason to be banked.

Something like the 'Malswitch' card, if it exists in the MFI's area, would be a big leap in the right direction because the debit card functions equally well within and outside the MFI's own infrastructure. But the MFI still has to ensure that it provides adequate access to savings through its own means.

I can also imagine self help and solidarity groups operating a joint debit account, especially if access points required simultaneous PIN numbers that could be held in secret by multiple people.

Technology options for MFIs doing Ebanking

Laura Frederick: Technology choices should be used to solve business problems or further business objectives. An MFI must be able to clearly articulate the goal that they are trying to achieve using technology. From there, research and selection can identify the most appropriate technology to use. Which technologies can they most successfully adopt? In theory, all, as long as the financial and human resources are sufficient, the deployment strategy is appropriate and sustainable, and the technology is appropriate for the requirements. Since the capabilities, needs, regulatory environments and ICT infrastructure are vary for MFIs, so to shall the technology options.

In my opinion:

- **PDAs:** PDAs are best used for "information at the finger tip" when field officers need to know addresses, phone numbers, balances, schedule appointments etc. They are also valuable for capturing limited amounts of data.

- **Paper and scanners:** For capturing lots of data, using paper forms together with scanners is both cheaper and faster way.

- **Laptops:** Low-end laptops can be useful, but you still have the security and power issues. Alternatively, terminal devices for low cost fixed points, e.g. satellite branches, or community computer centres, where loan applications could be filled out.

- **Telephony/IVR:** This technology is great if you are trying to provide access to consistent information, or enable off-hour personal banking transactions.

- **Magstripe cards:** Cards can provide better data quality and faster service, either self or with an agent/teller.

- **PoS/Hand helds:** These are better for transactions than ATMs, but require an operator, which has its advantages and challenges.

Connectivity options are quite varied, so depends on pricing and availability

Example of CRS/Turkey partnering with commercial bank

Elissa McCarter: I'd like to share the following example from Turkey: Catholic Relief Services' partner organization in Turkey has been able to utilize a number of e-banking advantages through a commercial banking partner. This situation is relatively unique given the highly advanced internet banking infrastructure in the country. The MFI negotiated with one of the top private banks in the country and established a partner relationship that offers these advantages:

- Use of the bank's secure e-banking system for all loan disbursements, repayments, and reporting on-line.
- All transactions if via internet are at no cost, substantially reducing time and cost for the MFI.
- Loan officers serve as intermediary and help clients fill out the forms necessary to establish their first checking account, savings account, and ATM card from the bank.
- If clients agree to use the automatic bill payments feature at the bank, the bank waives all monthly ATM fees.
- Clients are more willing to open bank accounts because in the beginning, a loan officer always accompanies clients to introduce them to bank staff; and bank staff are "sensitized" – i.e. receive orientation and training about clients and its lending methodology.

One key limitation: Even in Turkey where infrastructure is pretty good, breaks in internet connection, or slow connection time, can delay or disrupt transactions, so total reliance on internet banking can be problematic.

Do MFIs need Ebanking?

Girija Srinivasan: I have a question (possibly a very stupid one). This has been bothering me for some time, and I think this ListServe can give the answers. ASA, in Bangladesh, is claimed to be the most efficient of the MFIs in the world today, and its operations at field level are not even computerised. They provide comprehensive financial services to their clients. Thus, do we really need ebanking services for microfinance? Why should donors support this imitative?

Ron Webb: Excellent comment Girija..... This e-conference continues to challenge my thinking! I would be very interested in seeing how ASA achieves this. There is an enormous body of research showing how appropriate technology, properly deployed can drive down costs. But is it a panacea? What I do see is that without scale, sometimes massive scale, some technology approaches are not financially viable.

Sean Kline: I appreciate Girija's question, as the case of ASA, Bangladesh presents a fantastic challenge to anyone who believes that IT is fundamental to efficient microfinance service operations. Yes, Bangladesh does represent a unique environment, but it would be unfair to claim that it is something in the external environment that is the source of ASA's efficiency. In fact, it is ASA's absolute focus on efficiency that has enabled such gains. Interestingly, ASA is influencing others in the region through its technical assistance relationships. One of the large MFIs it assists has taken the step of de-computerizing all of its NGO branches (though its bank branches are computerized). I wonder whether there is any technology that could help improve ASA's efficiency at this stage.

Credit Scoring for Microloans

The technology of credit scoring generated a great deal of discussion throughout the conference. As with MIS, this discussion could have been placed in another topic (Topic 13 on potential product enhancements) but because the discussion was very specific to small MFIs we have chosen to include the discussion in this topic. There was an intense and detailed discussion over whether credit scoring is an appropriate and viable means of determining the credit-worthiness of the very poor. Because of the carefully reasoned dialogue, we have chosen to leave a significant portion of this discussion in the final report.

Mark Schreiner: Can e-banking also be for microloans? It would require quick risk evaluations "from a distance". This would require credit scoring, which would in turn require credit bureaux.

In the poorest countries where microfinance is most important, there is a long way to go. Bureaux are either absent or fragmented or do not cover all lenders in the formal (not necessarily regulated) sector. Donors and governments can do a lot to help the development of credit bureaux:

1. Establish a system to uniquely identify people
2. Subsidize start-up of a single, comprehensive, national credit bureau
3. Establish the laws for using the bureau (for example, require all formal lenders to report all their loans to it)
4. Control how bureau information is used (both to allay lenders' fears of "poaching" and to ensure adequate consumer protections)

An intervention to develop a credit bureau seems unusually well-suited for what donors can do: it is largely "macro" and concentrated in the capital city, the technical requirements are serious but not cutting edge, and the benefits have many characteristics of public goods.

Ramesh: First, let me cite the importance of credit scoring. A large Indian MFI which uses a sort of e banking product in fact used credit data scoring to offer the product to its customers, when capacity was an issue (as it was being done experimentally). With a large longitudinal data base spanning several loan cycles, the MFI analyzed repayment (and deposit) patterns using a sort of a credit scoring model and offered the ebanking product first to its top of the line clients in terms of repayment and deposit performance

As David said a few days ago, this worked...clients began to look at as an incentive to have access to the ebanking product (prestige/status aspect) and this had a further impact - clients who did not have access perceivably because of not being top of the line began to try and become that exactly (top of the line client). When the transactional benefits had been demonstrated to the clients in terms of time and effort saved and also wages not lost, this happened even more and the MFI has been able to charge the clients as well on a marginal basis.

With respect to Credit Bureaus, take for example a country like Afghanistan. MISFA (The Microfinance Investment and Support Facility for Afghanistan) is facilitating the development of a nation wide credit bureau and this should serve to do all of things that you had listed. This could become an ideal launching pad for the development and roll out of e banking products once other infrastructure comes into place.

It seems particularly easy to develop credit bureaus in country like Afghanistan, where the formal financial services sector is at its nascency, as opposed to a massive country (in terms of size and population like India)

Once a credit bureau exists, the possibilities are endless. Once such data becomes available and is used within the institution, an organizational cultural change also occurs with regard to offer some alternative products like e banking products.

Credit scoring with transaction-based information

Mark Schreiner: Credit scoring can make good use of information on a client's transactions generated through e-banking. For example, when evaluating the credit risk of a potential borrower, the borrower's use of the lender's ATMs for deposits and withdrawals on a savings account says something about future repayment risk. Likewise, the number of uses of the ATM (or whatever e-banking service) indicates something about future repayment risk. For borrowers who also use some type of credit/debt/stored-value card, scoring can profit from information about where the borrower shops, what she buys, etc.

The basic lesson is that credit scoring can make good use of just about any information that the lender has about the borrower and her behaviour, and that makes the provision of saving services, insurance, remittances, ATMs, and just about any other non-credit service more valuable than they would be on their own.

Can credit scoring really work with low-income clients?

Nigel Morris-Cotterill: Credit Scoring is currently fashionable, but it's only a part of the picture. In developing countries, credit scoring and "Know Your Customer" (KYC) is very difficult: a) where there is no recorded financial history, b) where there is a high proportion of undocumented births and deaths, and c) where an address such as "the seventeenth piece of corrugated iron in the muddy lane behind the post office" isn't much use as an verifiable address.

Loic Sadoulet: I would like to raise three issues:

(1) **Data collection:** how much value in data collected? After all, we are dealing with "Extra legal" businesses, so how good is the data? Currently, loan collection reveals lots of "implicit" information, but this is hard to quantify.

(2) **Data processing:** do MFIs have the ability or capacity? Credit scoring requires complex methodologies, heavy data requirements, constant updating and performance evaluation of the methodology. That requires technical capacity.

(3) **Use of indicators:** are we excluding our core clientele? But most importantly, is credit scoring forecasting... or extrapolating? Credit scoring judges individuals on past average behaviour. Since we have no information on individual past behaviour for startup financing, credit scoring uses information on supposed correlations between observables and future behaviour based on how people with the same observables have behaved in the past. The issue is that we *know* that micro-borrowers look risky; this is why they were excluded by traditional banks in the first place. The "secret" of microfinance was to assess risk by information revelation, not screening, or in other words by judging an individuals' own past behaviour, not average past behaviour.

I am not arguing that scoring has no value. Indeed, scoring for experienced borrowers can allow the FI to use past behaviour plus concurrent info (business cycle) to offer and price new products: insurance, line of credit... But the risk is to exclude potentially good clients, just because their observable individual characteristics coincide with those of other people who have failed in the past. This would be repeating the errors of the traditional banking sector.

Mark Schreiner: Loïc raises some classic questions about scoring for microfinance.

1. Do data problems preclude using scoring for microfinance borrowers?

Data quality and quantity are key for scoring, and data for microfinance borrowers in low-income countries are indeed worse than, say, data for credit-card or home-loan borrowers in high-income countries. Not only are most microfinance borrowers self-employed with no verifiable business records, but they usually also lack repayment histories in the local credit bureau (if there is one).

Experience suggests, however, that scoring can be usefully predictive of future repayment risk even with imperfect, incomplete, unverified, noisy data for first-time borrowers who are self-employed and who lack credit-bureau records. Of course, scoring is even more predictive for repeat borrowers for whom there is a repayment history.

Scoring's predictive power can be tested with historical data, so lender can know how well scoring will work even before its first use on a "live" application. The best way to further improve scoring's predictive power is to gather better data, hence my first post on the importance of the development of credit bureaux.

2. Do microlenders have the capacity to use scoring?

Although building a scorecard usually requires outside expertise, the use of scoring is orders of magnitude less complex than running a computerized MIS. Furthermore, any decent implementation of scoring will be integrated in the MIS and will automatically compute scores and produce reports. Scoring for microfinance can work even with only the types and quality of data that most cash-flow-based individual microlenders already collect. Scorecards usually need to be refreshed every 2–4 years.

3. Does scoring exclude the poor whom microfinance attempts to target?

The main innovation in microfinance has been to evaluate risk based on data that signals the risk of low-income, self-employed borrowers better than does the "data" (often, the presence of physical collateral) used by traditional banks.

Microlenders who lend to individuals (scoring probably won't work for groups) take this information and form judgments about future repayment risk, based on their own past experience with similar borrowers, any rules the microlender has codified for applicants with certain characteristics, their own pure prejudices, and any experience/prejudice that they have absorbed from others. In this sense, individual microlenders already use scoring (they judge current borrowers by comparing them to similar past borrowers), only the process is implicit, subjective, and inconsistent across loan officers and across time. Data-based scorecards use much of the same information as loan officers, but the process is explicit, objective, consistent, free of prejudice, and based on all the experience of the lender rather than only the experience of the loan officer.

Of course, the two types of scoring – implicit and subjective by loan officers and explicit and objective by scorecards – are complementary. Loan officers know quite a bit more about an applicant than what gets quantified in the data base of the MIS, and this additional information sometimes allows them to judge risk better than the scorecard can. In many cases, however, scoring can highlight cases where the loan officer has misjudged risk. Tests with historical data show that scoring for microfinance can systematically detect high-risk cases that slipped by loan officers.

Finally, the most important issue brought up by Loïc (and others) is the risk that the use of scoring will "exclude potentially good clients, just because their observable individual characteristics coincide with those of other people who have failed in the past. This would be repeating the errors of the traditional banking sector."

This concern is valid if:

1. Microlenders currently do not base their judgments at least in part on their experience with other, apparently similar applicants. (I have argued above that microlenders do do this.)

2. Compared with explicit, objective scoring, the current system of implicit, subjective scoring does a better job of avoiding "mistaken rejects", that is, of avoiding rejecting applicants who, if approved, would have repaid as promised.

3. The scorecard predicts poorly, but such a scorecard would be used only if it were not tested. Surprisingly, failure to test scorecards before use is probably the most common mistake in scoring implementations.

The best approach to mitigate "mistaken rejects" is not to avoid data-based, explicit scoring in favour of experience-based, implicit scoring but rather (1) to test the scorecard, (2) to collect better and more-relevant data (hence the importance of the development of credit bureaux), and (3) to allow loan officers some power to "override" scoring (at least until experience convinces managers that such overrides are usually ill-advised).

Some observers may also worry that scoring will show that, given a microlending product, poorer people are worse risks. Even in this case, managers with a social mission can choose to lend to poorer/riskier people, but the improved knowledge of risk allows them to make these trade-offs more efficiently and effectively.

Overall, scoring for microfinance can help individual lenders to (1) increase profits, (2) reach poorer clients, and (3) serve more clients. Isn't this what microfinance is all about?

In high-income countries, credit cards and home mortgages are available to the masses largely through the use of credit scoring based on credit-bureau data. My vision for the development of microfinance for the masses in low-income countries in the next decade is based on commercial banks' using scoring and credit bureaux with credit cards and other similar e-lending products/technologies.

The papers below discuss how scoring has increased depth and breadth of outreach in high-income countries: [see detailed list of papers in "English Digest 24.doc" available on the ebanking website.]

Laura I Frederick: Just a few comments per your points Loic,

(1) Data collection: how much value in data collected?

There is huge potential in data collection as long as it is of good quality, hence the need to reduce or eliminate capturing data on paper and transferring it multiple times. To do credit scoring you need good electronic data. This will require MFIs to take advantage of low-end technologies to capture it, which will have the effect/requirement of creating data standards. The greatest value will come to the clients when they are truly part of the digital economy with their own digital identity.

(2) Data processing: do MFIs have the ability or capacity?

Probably not, hence the need for MFIs to create data consortiums as the Banks did in the US some 30 years ago providing the basis for all Fair Isaac's work over the last several decades. MFIs need to move in the direction of more collaboration to access technology of all sorts from PoS solutions to credit score cards and loan origination software.

(3) Use of indicators: are we excluding our core clientele?

We are excluding our core clients by NOT capturing data on them and incorporating it into the mainstream body of knowledge available for credit scoring. There are no limitations to the data points that can be modelled, only those data points that do not exist.

Topic 11: What are the regulatory and compliance issues surrounding electronic banking for poor?

Summary of Discussion

- Regulatory issues deal with both bank operations and the enabling environment, covering a quite broad range of issues. Unfortunately, there is only general agreement from country-to-country, creating complications as well as opportunities for "regulatory arbitrage".
- Regulatory issues may be so complex that some argue that MFIs and banks should segment the market rather than try to provide services to everyone
- Fraud is a critical issue in ebanking, and current regulations often do not consider the differences of ebanking and traditional banking. How do we build sufficient capacity to detect and investigate fraud?

Regulatory and Compliance Issues

Regulatory issues deal with both bank operations and the enabling environment, covering a quite broad range of issues. Unfortunately, there is only general agreement from country-to-country, creating complications as well as opportunities for "regulatory arbitrage".

David Cracknell: My question: Is there a need for study which compares the enabling environment for e-banking across countries? Some aspects of regulation and compliance relate to the **operation of e-banking**. Other aspects are essential to creating an appropriate **enabling environment**.

Operational Issues:

1. License: Does the institution have the appropriate deposit taking license?
2. License: Does the institution have the appropriate EFT license (membership of clearing organisation)?
3. Does the institution comply with Know Your Customer regulations?
4. Has the institution complied with Basle risk management principles? http://www.bis.org/publ/bcbs98.pdf
5. Compliance with Central Bank / Visa / Mastercard anti-fraud regulations

Enabling Environment:
In certain countries such as India the policy / regulatory environment for e-banking is made more difficult...

a. It is not possible to place a member of staff or an agent by an ATM to help them explain to customers how to use ATMs
b. The bank is required to know its customers for six months before it should issue a card
c. There are constraints to loading of value ... who can be an agent
d. There is a requirement for written reports and receipts
e. There are excessive excise duties that discourage the import of e-banking infrastructure (ATMs and POS devices).

Jonathan Campaign: Note that Visa and similar cards are not regulated by Central Banks as the issuing bank is the one regulated...hence the genius of the model.

Lack of international standards

Nigel Morris-Cotterill: First, a general point: despite the efforts of the Bank of International Settlements (BIS), there is only general agreement on banking regulation: detail from country to country varies far more than might be expected.

This permits "regulatory arbitrage" where financial institutions (and criminals) slalom between regulatory regimes to undertake some activities in one country that would be difficult or a breach of either or both of law and regulation in others. The work of the BIS since September 2001 has had some impact on creating standardised regimes but there remain significant differences from country to country.

Ironically, developing countries often have stronger regulation in relation to payment services and bureau de change than developed countries. Some apply an outright ban on such services being offered other than by banks (India, Malaysia in relation to money transfer) or a strict licensing service on bureau de change, managed by the Central Bank. Businesses such as Western Union often find themselves able to operate only out of bank premises, in association with the bank, and then often only to make one-way traffic - usually to receive funds.

Areas for regulation to consider

Ramesh: Drawing on the various resources, it seems like that low income e banking regulation should attempt to look (at least) at the following areas (not exhaustive):

Board and Management Oversight

- Effective management oversight of e-banking activities
- Establishment of a comprehensive security control process
- Comprehensive due diligence and management oversight process for outsourcing relationships and other third-party dependencies

Security Controls

- Authentication of e-banking customers
- Non-repudiation and accountability for e-banking transactions
- Appropriate measures to ensure segregation of duties
- Proper authorisation controls within e-banking systems, databases and applications
- Data integrity of e-banking transactions, records, and information
- Establishment of clear audit trails for e-banking transactions
- Confidentiality of key bank/client information

Legal and Reputational

Risk Management

- Appropriate disclosure for e-banking services
- Privacy of customer information
- Capacity, business continuity and contingency planning to ensure availability of e-banking systems and services
- Incident response planning

Should MFIs try to be banks? Should banks try to be MFIs?

Are regulation differences so great that MFIs and banks should segment the market?

Eddy Thomas: In my opinion, Banks can not become Micro Finance Institutions and MFIs can not become banks, especially, because the fundamental business methodology of banking differs from MF. In Micro Finance, we are trying provide some of the products/services that are offered by a Bank.

No one can enter into e-banking without being registered under proper legal licenses in each country.

1. **Deposit Taking License:**
   If you take any country, the rules and regulations governing Accepting Public Deposits will be very restrictive. This is due to the high risk involved in using Public Deposits and the chances of using those funds for wrong purposes, liquidity norms, opportunity it gives for frauds.

2. **EFT License:**
   This will come into force if an MFI is planning to offer the clearing services for its customers. If you are planning to offer this service, I think you must have a banking license.

3. **Customer Relations:**
   This is an imminent factor even for lending activities itself and when you offer more banking services, this assumes great importance.

4. **Risk Management:**
   When you start dealing with Public funds, you not only have to comply with country's liquidity, risk management, reporting norms, but you should have a strong Treasury Management team to comply with all these.

5. **Regulatory/Visa card Regulations:**
   You have to comply with Regulatory requirements but credit card compliance is subject to the products you offer and the banking norms.

In my opinion, MFIs should leave all the core banking products/services to the banks and stick to only lending and allied products/services, which are specially needed by the MF clients.

Sonal: Eddy, part of the process of scaling-up and financial services requires that the formal sector and traditional MFIs get into a pareto optimal partnership to provide a wide range of choices to the low income market. I am not sure that there is an advantage in segmenting the markets as non-mf and mf as all low income clients needs access to a wide range of financial services.

Rather than look at e banking as a product per se, I would view it also as a channel and FFIs/Banks/MFIs as part of this longish chain in the delivery of services. Once viewed this way, we can also partition the regulatory and compliance aspects accordingly - what each party needs to do and how they can be monitored etc. This will make the regulation relevant to each of the stakeholders.

A related issue is the need for a uniform regulation across states within a country. This becomes especially relevant when a multi state MFI is using the e banking as a channel for delivery of services to its low income clients in different states (geographic areas). The nature of e banking is that it transcends boundaries and how should regulation be structured - uniform across boundaries?

Regulation and Fraud Control

Fraud is a critical issue in ebanking, and current regulations often do not consider the differences of ebanking and traditional banking. How do we build sufficient capacity to detect and investigate fraud?

Ramesh: Where we need strong attention is "what you do with people who have been caught committing frauds".

In India, this process is not straight forward - we have a great many regulations but our enforcement is rather poor. Regulation requires monitoring infrastructure and hence, the regulation must say who will monitor, how, at what frequency etc and finally, HAVE the necessary mechanisms in place to achieve all of this. The place where e banking is likely to have a problem (especially when scaled up for the poor) is that we need concrete mechanisms that work as part of the minimum infrastructure for e banking

Clearly, e banking requires specialized expertise and hence, regulations must take into account what existing capacity is there to handle the regulation and provide for addressing the gaps in monitoring resources, staff understanding of e banking issues and the like. Unless that is done, regulation will not serve their ultimate purpose of being a deterrent.

Regulation must provide for action that is quick, decentralized and local. If one has to go back to The Central regulator time and again, the effectiveness of action is diminished as valuable time is lost. So, clearly regulations for specialized areas like e banking require considerable thought and a very practical approach, taking into account the strategic context.

Given the specialized nature of e banking and given the low income priority, a question is: Who should be involved in the supervisory function? While one may be tempted to say that the same supervisory authorities as for the Brick and Mortar branches should be involved, I would like to argue that supervision must be through a specialized body or unit or group or cell that really understands the technological aspects of e banking and also the various aspects/issues involved in delivering financial services through e banking channels to low income clients.

Nigel: The issue of enforcement has to be divided onto three groups:

1) where the fraud is committed *against* the institution
2) where the fraud is committed *using* the institution
3) where the fraud is committed *by* the institution.

In the first case, the law deals with the fraudster but the regulator deals with issues arising from the institution's risk management procedures and internal systems and controls vis a vis the fraudster (who may be – indeed often is - an employee).

In the second case, the law deals with the fraudster, the regulator deals with issues arising from the institution's risk management procedures and internal systems and controls vis a vis the fraudster yet the law might also deal with the institution or its employees in relation to complicity. Further, civil action by "losers" (either in civil proceedings or through compensation claims) may be brought against the institution.

In the third case, the law deals with the institution and / or its officers and / or its staff. Internal systems and controls vis a vis the officers and staff will be subject to examination by regulators. And the "loser" either by civil action or by claiming compensation in the criminal case will see reimbursement.

The question of success of prosecution is often not just to do with the technical nature of frauds but also with identifying who actually committed them. Sometimes this is easy - an electronic "fingerprint" generated by a log-on may help. Often it is difficult. And it is often impossible to say with the certainty required to secure a conviction on a "beyond reasonable doubt" basis.

The cost of mounting fraud investigations is often more than enforcement agencies can afford and unless there is a realistic chance of conviction, given the complexity of evidence, the difficulty in explaining it to a jury and the problems of meeting the evidential burden means that cases often do not get beyond the preliminary investigation stage.

This is not a problem that is specific to India - every enforcement agency everywhere in the world has this problem. It's made worse by the general attitude of judges who deliver lenient sentences to so called white collar criminals and so the desire of enforcement agencies to push for fraud investigations is diminished.

The central core of your question has to do with training and awareness programmes within banks. This is an issue that financial services businesses generally do not want to address. The experience of trainers in relation to money laundering (of which we are one) is that it is very difficult to get financial institutions to undertake effective training in anything where they do not see it feeding directly to the bottom line. Fraud has a slight advantage in that the business can see that money lost to fraud is, in effect money not earned - plus, according to some estimates, as much as ten times the same amount in dealing with the ramifications. Staff see compliance and risk management training as a waste of time: they just want to get back to their desks as soon as possible. Unfortunately, because fraud impacts on the organisation not on them personally, they have a similar attitude to risk management and fraud training.

These are just a small part of the extremely complex interface between anti fraud measures, post fraud enforcement, regulation and compensation.

Topic 12: Is there a role for subsidy in creating e-banking solutions?

Summary of Discussion

There was clear agreement among participants that there is a role for subsidy in covering the significant costs in building the infrastructure necessary for ebanking, but that the institutions are responsible for running a careful cost-benefit analysis and assuring that they will be able to cover the recurring costs of ebanking before getting involved in this technology.

Subsidies in E-Banking

David Cracknell: The complexity of ebanking makes it very difficult for donors to really know what exactly they are funding and creates challenges for donors to assimilate lessons from very diverse experience. However, here are a few foci for discussion on how donors might get involved.

1. Assist financial sectors and governments to think through issues related to the environment for e-banking both from an overview perspective but also bringing in realities from the ground. I see this very much as the sort of work that FinMark Trust is doing.

2. Document initiatives in terms of success and failure factors: This one can bring challenges because of commercial sensitivities, but it can be done if handled appropriately.

3. Encourage innovation and partnerships between banks, MFIs and others to introduce e-banking solutions to the unbanked.

4. Invest in E-Literacy, as it plays a critical role in acceptance, but banks may not be prepared to invest in fully as it has an indirect impact on the bottom line.

5. Invest selectively in infrastructure that benefits the unbanked, for example Point of Sale devices in Post Offices. The challenge for both donors and banks is that this infrastructure is incredibly expensive. All infrastructure investment should be based on a well-established business case.

6. Donors will and should consider scalability in assessing whether to support particular projects. This single factor is likely to influence how and if donors become involved.

Subsidies are justified but must be carefully channelled

Ramesh Arunachalam: I believe subsidy is required in e banking for the poor to reduce risks and enable stakeholders who would not otherwise to get into it, but subsidies must be carefully channelled. One mechanism for routing subsidies to the right (deserving) kind of experiments or pilots is the FDCF concept so well promoted by DFID. [Editor's note: Please refer to detailed overview of FDCF elsewhere in this summary.]

An important lesson from pilots is that sometimes, despite achieving success, the pilots can neither be scaled up nor continued. I know of pilots that were regularly discussed a couple of years ago but have now been discontinued. The key lesson from these pilots is that they did a great many things (on a subsidized basis) which could not be subsidized on a large scale. Donors really need to work directly (or indirectly through an advisory expert panel of mentors) with the pilots closely right from the design of the pilot through its implementation to ensure the chance of success.

Also, the implementer of subsidized pilots should provide a part of the financial investment. If all the costs are subsidized and paid for by the donor, there is little incentive to really make it a success.

Another issue is that often times the subsidized pilots have been discontinued due lack of commitment from the technology provider. So, it may be worthwhile to attempt to identify partnership projects where the financial service provider and technology provider show joint (symbiotic) commitment, invest the money and also share the subsidies.

Before starting ebanking, institutions should run a careful cost-benefit analysis

Aaron Oxley: This question of appropriate technology and subsidies is of critical importance to all MFIs who are looking to enter E-Banking or embark on large, expensive technology projects, such as implementing an MIS.

Time and again I see MFIs demonstrate an NGO mentality. When operating with donor funds we sometimes do not place the same business focused demands on ourselves that we demand of our clients. With their technology projects many MFIs fail to produce a strong business case with a real cost-benefit analysis that includes running costs.

For example, Opportunity International (OI) is currently performing a pilot project in giving PDAs to Loan Officers with the aim of removing the paper mountain and increasing efficiency. Although the pilot is donor funded, we ensured that throughout the design of the technology solution a huge amount of thought went into "What happens when we have no donor funds? Can we run and implement this in other sites with retained earnings?" This influenced every aspect of the technology and business process solution.

[Technological Aside: For the record, the hardware used is less than USD 100 per unit, essentially as commoditised a PDA as is available on the market today. The communications method utilises ubiquitous email with hard encryption, compression, and automated message handling, so that if you can get email twice a day to one PC then you can run the branch and all the PDAs. This is about as cheap as you can get in terms of running costs and still have a viable electronic system.]

OI is doing multiple ABC (Activity Based Costing) exercises before, soon after, and a few months after implementation to determine the real costs and benefits of this technology. Predicting real savings ahead of time is difficult, but knowing the real benefits of these projects is critical.

What all of this really means is that OI has taken donor funds to subsidise the creation of a tool that can be implemented and run without further donor input - adding value to the business and building a platform for future growth.

These are the kind of subsidies that the MFI industry needs. Enabling technologies that pay for themselves in terms of lower running costs are attractive to donors and enforce good business practices on us as an industry. Relying on ongoing subsidies is something no-one wants to have to do and fewer and fewer donors are prepared to fund.

Ajay Kumar: We should know what we are getting into before we begin the pilot implementation. A thorough cost-benefit analysis has to be done and the expectations have to be clearly defined before embarking on an e-banking solution. Otherwise it will result in huge wastage of monetary, people resources. For this, organizations have to work closely with the partners for successful implementation.

For costs to come down, there should be collaboration among the organizations to build the scale. Also, governments can play an important role by reducing duties to reduce the costs and also bring a common platform for all the organizations to explore the potential savings on costs by coming together.

Subsidies are legitimate for infrastructure, but the institution must cover recurrent costs

Murray Gardiner: I could not agree more. I think that using a subsidy to build infrastructure is a valid placement of donor funds as long as the recurrent costs are met by the business - including the cost of the redundancy of the original investment.

If subsidies are used for the day-to-day operating expenses of a business, bad decisions tend to be made. The wrong people end up in the wrong jobs for the wrong reasons and products are sold that create dependencies, all of which undermines the efficiency and sustainability of the business. However, if the subsidy is an investment in infrastructure, tools are provided to enable the MFI to grow and achieve its potential. And with one-off, project based subsidies it is easier to contain costs and qualify the value of the investment through a competitive bidding process.

Funding technology infrastructure for a MFI is akin to building a road. Once the road is built development happens at the end of it - and so long as it is maintained properly it is sustainable.

Donor subsidies should focus on building shared infrastructure

Xavier Rielle: In my view, donor subsidies should focus on building shared infrastructure rather than proprietary solutions. Unfortunately, this is rarely the case for microfinance – donors tend to fund proprietary IT solutions with no public-good effect.

Subsidies are important to kick off and document innovations, ensure knowledge dissemination and facilitate market building (e.g., CGAP consumer reports or information services). Any subsidy should be transparent and based on contractual targets or deliverables. They should provide an added value that goes beyond what private players could fund on their own. Finally, subsidies should seek both effectiveness (fund the best product at the lowest cost) but also fairness (ensure a level playing field).

Eddy Thomas: Subsidies are a MUST for implementing e-banking solutions in MF Industry. In my opinion no single MFI, even the largest networks, have the resources to invest in e-banking solutions. Subsidy should enable the MFI to develop an e-banking solution to its specific problems. The subsidies should be granted:

1. If the MFI is committed to implement the solution
2. If the MFI commits proper resources from its side
3. Proper Technology provider to be identified
4. The solution should have a long term impact
5. The MFI should have a strong IT department
6. The solution should be cost effective
7. The solution should bring in efficiency in operations

Above all the solution should be flexible, easy to operate, simple, usable, provide a long term perspective, and be scalable.

Topic 13: What are the potential product enhancements that can be developed using an e-banking infrastructure, credit scoring, cross-selling products etc?

Summary of Discussion

- Ebanking can serve as a logical step, or bridge, to offering other financial services, perhaps in an integrated fashion
- Participants discussed experiences with remittance services as a valuable financial service to the poor
- How and why the poor save, and how to design appropriate savings products for the poor
- The potential of smartcards in serving smaller depositors
- Participants discussed experiences with payroll cards to distribute paychecks. Unless carefully planned, such systems are a benefit to employers, but not necessarily employees who may have difficulties in accessing their pay.
- Note: a thorough discussion on credit scoring appeared in Topic 10.

Ebanking as a bridge to other financial services.

David Cracknell: Today's question relates to additional services that can build upon ebanking. I can think of several:

1. Credit scoring ... and as a consequence of that an expansion in the availability of credit
2. Data mining ... predicting additional service demands of a bank's existing clientele ...
3. Government payments
4. Payroll based services
5. Transport systems
6. Loyalty programmes
7. Airtime top-up
8. Credit Bureau: This one needs careful thought ... given the importance of the privacy of information.

There is also the potential for completely new actors to enter the financial arena as agents for banks or MFIs. (subject to an enabling regulatory environment)... On line lottery points, or cyber cafes for example.

Ebanking as service consolidation

Jim Wells: In general, I believe the greatest product enhancement to e-banking for the poor is to act as an aggregator for as many applications as possible. One of the biggest drawbacks for poor people is that each service is offered in isolation to others. Potential beneficiaries are worn out going from provider to provider trying to capitalize on all that they are entitled to. And each provider has to come up with its own delivery system. E-banking initiatives that take a holistic approach to customers could aggregate income services (salary, public benefits, home subsidies, etc.), savings services, payment services, credit services, insurance services, and investment services, along with other necessary services in such areas as health care and communications (telephone and e-mail). If a financial entity were to deploy a solar powered e-banking kiosk in a village, why shouldn't it be leveraged to provide e-mail for residents, or to disseminate transportation schedules, sell bus tickets? Why shouldn't closing the financial divide help to close the digital divide?

I urge all the thoughtful participants in this conference to think collectively not parochially in developing e-banking services for the poor.

Transactional banking serves as the backbone for other financial services

Roland Pearson: One of the big reasons that Finmark Trust in South Africa has focused a substantial amount of its resources on transactional banking is because it forms the enabling backbone for other financial services. It does not take a great leap in thinking to realise that if we can deliver effective transaction services, then we in turn also supplement and strengthen credit, insurance, and other financial services.

Also, let us bear in mind that hardly anyone disputes anywhere that micro and small enterprises start and often continue to sustain their businesses with 'money from friends and family'. In effect, facilitating transfers facilitates credit-like transactions, and potentially reduces credit risk.

Lastly, P2B transactional services, especially in the retail environment, open the possibility to transfer some, if not all, of the transaction costs to the relatively better off merchants, rather than the individual client. Of course, in an economy like South Africa's with a highly pervasive formal retail sector, this would be a little easier, but I think the principle and the possibilities would arise in most developing economies.

Should we be providing consumer credit to the poor?

Nigel Morris-Cotterill: Introducing people to credit for non-essential and non-commercial expenditure is, I think, a dangerous path to tread. We have to understand that in many areas of many countries, we are not talking about simply offering banking services - we are talking about making a fundamental change in culture.

One counter-argument to my view is plain, however - if the banks don't provide the credit, then someone else will. We are already seeing predatory lending practices in several African countries. If the relatively well educated in towns are sucked into such deals, I'm afraid that bringing substantial numbers of less aware into the position where they can be vulnerable to such tactics is a dangerous move.

If the banks really are to move into financing consumer durables in the sort of market we are talking about, I would suggest that they form their own (commonly owned) company to bring economies of scale and responsible lending to the operation.

Remittances

Discussion of experiences around the world with MFIs providing remittance services

Romi Bhatia: There has been a lot of recent research done on the economic impact of the worldwide flow of remittances especially to the LAC and South Asia. I am interested in finding out about the potential for MFIs to offer these services either directly or through alliances with Money Transfer Organizations and/or banks.

What are the perspectives of participants on this topic and the viability of MFIs offering remittances? Is there any current literature highlighting successful cases of MFIs either as direct remittance providers or in successful partnerships with MTOs/Banks? Are there opportunities to integrate the use of smart cards not only for data collection but also for transmitting remittances?

Remittances experience in India

Ramesh: I know of an MFI in India which works with men and fisherfolk that is experimenting with remittances. Fishermen migrate during the lean season to far away areas and this MFI has tried to tie up with commercial banks and facilitate transfer of the fish catch money to their families and also for loan repayments. The fisherfolk also are paying for this service. Initial days as it, it is working well but everyone is keeping fingers crossed

Remittances experience in Kenya

John Kashangaki: We at K-Rep are examining remittance services for K-Rep Bank clients in Kenya and for institutions we are setting up in Somaliland where remittances play a major part of the financial lives for the poor. Our initial research with some of our own clients shows that over 50% in densely populated urban areas send money regularly every month to rural areas using public transport. The question is whether they would switch to an alternate and how expensive it would be to provide this service. We are also challenged by the lack of an appropriate payment system in rural areas to facilitate handling of cash. We would also be very interested in identifying other MFIs that have already begun to provide this service and how it has been structured.

Summary of world experiences with remittances

Cerstin Sander: Remittances, MFIs and e-banking are tantalising links. There is scattered information to answer your question, some of which I've started to pull together in a couple of papers and articles in the context of work with DFID, ILO, Micro-Save, and World Bank. These focus mostly on Africa for a variety of reasons, including that much more is already documented for Latin America especially.

I'll summarise some really quick highlights and include below some of the references to documents that speak in parts to your questions

1) Yes, there are examples of MFIs providing money transfer services used for remittances. Examples of MFIs (including microfinance banks) in Africa already engaged in remittances and money transfer more generally include National Microfinance Bank of Tanzania (NMB) and Uganda Microfinance Union (UMU). NMB focuses almost exclusively on domestic transfer services and much of it for government transfers such as salaries, corporates who need to transfer funds, small traders, and family remittances or individual payments. UMU started with a small pilot transferring funds between Kampala and a town nearby for a small set of businesses and has since moved to become a Western Union sub-agent. Other examples are Equity Building Society in Kenya (domestic services and Western Union sub-agent), and Centenary Rural Development Bank in Uganda (domestic services and Western Union sub-agent), and Teba Bank (for mine workers in South Africa making transfers domestically and to Botswana, Lesotho, Mozambique and Swaziland). Some of the credit unions and savings and credit co-operatives in West and East Africa provide money transfer services as well.

Outside of Africa, other examples include Fonkoze in Haiti, Banco Solidario in Ecuador, PRODEM in Bolivia and Kosovo´s microfinance bank. While this is far from a comprehensive list, they are still relatively few and far between. Most of the current examples of MFIs operating in this product market display two common characteristics:

1. with few exceptions they are fully licensed banks that operate exclusively as microfinance providers or that include microfinance services or credit unions
2. most of them operate international money transfer services as an agent to an existing MTO.

The domestic vs international provision of services is an important distinction. Generally it should be easier to set up a domestic service as it does not require an international network of pay-in / pay-out points and especially also because it does not involve foreign exchange, which gets into a different ballgame of regulatory requirements. That is part of the reason why in large parts of Sub-Saharan Africa international money transfer services have to operate through commercial banks. (refer also to latest piece for ***MicroSave*** dated 2004 in references below)

2) Are MFIs the panacea to better outreach or lower cost money transfer services? Money transfer is a potentially attractive service for MFIs to offer as it's a) one that's typically much needed by their clientele and b) is a fee-based product which can be an excellent revenue generator. The conclusion I tend to draw is that

there is potential but many of the challenges that have been discussed during this conference re capacity (back office, IT and connectivity, regulatory issues, etc.) apply here as well.

3) Card-based examples exist and the immediate one I can think of is the debit card example of transfers between the US and Mexico, where for instance a debit card user in US gets issued a second card which is held and used by a family member in Mexico to withdraw funds

[Editor's note: See detailed listing of resources in "English Digest 24.doc" at the ebanking website.]

How the Poor Save

Discussion on how the poor save

Nigel Morris-Cotterill: I just came across the following.

Use and Impact of Savings Services among the Poor in Uganda
Research by Leonard Mutesasira, Henry Sempangi, David Hulme, Stuart Rutherford and Graham A.N. Wright, 21st June 1999

Background
There was a prevalent perception that "the poor cannot save", but throughout Uganda and indeed the rest of Africa, there is a vibrant and diverse informal financial sector. This report shares findings that improve knowledge and understanding of how poor people in Uganda save, how they use different savings mechanisms, the impact of those savings facilities on their household budgets/lives and suggestions on where formal and semi-formal institutions can make a contribution.

Methods
This study used qualitative research methods, in particular in-depth interviews, focus group discussions and a variety of Participatory Rapid Appraisal techniques with MFI clients and non-clients. The researchers held discussions with the management, credit officers, clients, ex-clients and non-clients of PRIDE, FINCA, Faulu, FOCCAS, and Centenary Rural Development Bank and the Cooperative Bank.

Geographic Scope
Geographic scope included a wide variety of settings, both urban (including slums) and rural in Kampala, Jinja, Mbale, Tororo.

David Cracknell: Thanks for the endorsement of one of our studies. I trust that people will forgive me for this slightly self serving posting. But there are several partially relevant studies on the ***MicroSave*** website that can be reached directly on www.***MicroSave***.net.

On understanding customers:

1. There are a series of studies on why the poor save

Understanding why and how the poor save is important in designing e-banking product features and access points. This is just the Uganda study Nigel referred to.

2. There is a useful study on the relative risks to poor people's savings

Understanding the risk to client savings is crucial to understanding client willingness to pay for services. Client savings are placed at considerable risk in informal savings mechanisms. A debit card as a store of

value could become an important and safe savings mechanism. This study shows that the poor will pay for the safety of their money.

3. There are studies on money transfer mechanisms in East Africa, many of which are informal.

The costs of money transfer locally is very high... especially for small amounts, yet the need to transfer money is huge and increasing as populations become more mobile and urbanise. This study is based ion Uganda and Tanzania.

On product development:

4. There are introductions to qualitative methods of market research

Understanding customers is critical to developing effective financial services.

5. There are a range of toolkits and guides. Of particular importance to those introducing e-banking products is the toolkit on Pilot Testing. Ensuring that a rigorous pilot testing method is followed is of particular importance

6. There is also a toolkit on operational and product risk analysis which is basic, but useful especially during the product development stage to help institutions consider risk. It does not cover specific e-banking risks. Risk is such an important element within e-banking that specific and experienced advice will need to be sought.

Smart Cards and Small Depositors

Does the cost of smartcards make them irrelevant for serving smaller depositors? Can they be used independent of an expensive ATM system to offer services?

Madi Hirschland: I have some basic questions related to costs and serving the poor. I know that the costs of smart cards must vary a lot. However, in many cases, does the cost of the cards alone make them irrelevant for serving smaller depositors? Also, are ATMs relevant for potential small depositors who work in a completely cash economy? These questions arise from observations of a few MFIs.

In just three years, PRODEM FFP, a Bolivian nonblank financial institution, moved from serving 1,400 depositors to serving over 38,000, many of whom are illiterate, rural and do not speak Spanish. It has accomplished a position of market leadership through the use of biometric smart cards and ATMs that do not require the user to be literate or to speak Spanish.

However, PRODEM offers two types of liquid savings accounts, the smart card account that has a $7 annual fee and a passbook account that costs $3 per year. While smart card holders can transact at any branch and can withdraw (a minimum of US $12) from any ATM, passbook holders can only transact at their home branch. For small depositors who do not travel, a passbook account serves nearly as well as a smart card - and is more affordable: 61% of Bolivians work in the informal sector where they earn an average of $960 per year. For these, the $4 savings for the passbook account represents, on average, more than one day's income.

Similarly, I worked with a microfinance bank in a country where about 86% of the population was living on less than $1 per day and less than 10% are banked. A market study showed that many of the bank's potential (poorer) clients thought they could save about $1 per week. The cost to the bank of its smart cards was $7.

These examples suggest that while smart cards might provide much more convenience and security for upper poor, slightly larger depositors - and might greatly lower the MFI's back office costs, they are not relevant for many smaller depositors.

Also, are ATMs relevant as vehicles for deposits of cash? I understand that many people who live in the cash economy do not trust their cash to a machine (neither do I!). I also wonder whether ATMs can even handle tattered bills (and in large quantities.) (Interestingly, for cost reasons, ProDem's current ATMs only disburse cash, in two denominations. They do not accept cash and the smallest denomination of withdrawal is the equivalent of US$ 12.)

Smartcards are more expensive, but they offer far more functionality

Jim Wells: Lots of great questions. As in most things, price is only one variable. You get what you pay for. Yes, chip cards are more expensive than mag stripe cards, but they offer far more functionality -- much of which may be critical to the success of your initiative.

For instance, being able to use the cards as virtual bank accounts could significantly lower your cost to serve smaller depositors. Placing souped-up ATMs, or more properly multi-functional ABMs (automated banking machines), in appropriately secure locations (stores, churches, schools, etc) in remote locations brings the bank to the people, rather than forcing them to come to the bank. Convenience increases the relevancy of the bank to cash-based consumers. It could also provide a partnership opportunity for MFIs to act as agents for banks in remote areas.

To the best of my knowledge, PRODEM's customers don't gain access to any other payment applications. Loading savings balances onto the smart card is a fairly simple application. It provides appropriate benefits to customers who travel outside the area of their home branch, for which they are willing to pay. The bank balances the cost of the smart card against the necessity to link all its branches.

ATMs can easily be configured with bulk cash acceptors, but the trust factor is a powerful one. My guess is that you would need a human interface for this market, but that person could conceivably be accepting cash and incrementing the balances on the card and on the host computer via a terminal attached to a satellite telephone attached to a solar collector. All the technology exists to do almost anything you'd like to do. But, you may have to cobble it together.

Partnerships between MFIs and banks

Greta K. Greathouse: I'm interested in your comment that there are "partnership opportunities" for MFIs to act as agents for banks. Are you aware of any such "partnerships" developing between MFIs and postal banks specifically?

Jim Wells: I wish I could say yes. I have been advocating such linkages for some time, but don't know that anyone has paid any attention. I seem to be having more success here in the States linking banks and credit unions with check cashers to expand access to transactional and relationship financial services in poor neighborhoods abandoned by so-called mainstream institutions. The concept is virtually identical - each party does what they are best at, all for the benefit of the consumer.

Nigel Morris-Cotterill: Jim, two of the large supermarket chains in the UK have gone further than putting ATMs in their lobbies. They began by realising that cash is expensive to handle and they can reduce the scale of the problem by giving "cashback" to their customers who pay by card simply by adding an item to the bill. This does not appear as a cash advance so far as the card company is concerned and so there is no handling fee and, for those that have an interest free period on credit cards, they can make use of that.

From this, and looking at the charge cards in non-food outlets, the supermarkets went on to form their own banks. These are, in effect, savings institutions but, in conjunction with established banks and card clearers, they operate a service which has taken the bank to the people in a new way. That's fine in the business model of chain stores and warehouse sized supermarkets but not likely to happen in countries where, as so many have said, the retail outlets in most poor countries are little more than huts where there is no electricity.

Smartcards independent of ATMs

Laura I Frederick: A word of caution to all that you not assume smart card usage just in relation to ATMs. ATMs are quite costly to support, but smart cards can be used in PoS, hand held devices, etc. Also they provide greater security and hold more information than other cards, as Jim pointed out. Finally, they are much lower cost strategy for providing "branchless" banking services than other technology solutions.

However, Madeleine, I don't want to dilute your excellent point that cards, just like accounts for clients should be selected based on appropriateness for the client's needs.

Jim Wells: Laura makes some excellent points. Smart cards actually have more application and potential in non-ATM usage, particularly in fostering a move away from the cash-mentality of the poor. Wages, benefits and other income deposited into accounts behind the cards is already safe. They become unsafe the moment they are withdrawn. The biggest opportunity in using technology is to come up with news things we can do. The biggest pitfall is to look at new technologies merely to improve what we are doing today.

One of the biggest hurdles we face in attempting to use technology to better serve the financial needs of the poor is building sufficient utility into electronic applications so that there is a compelling alternative to having one's entire net worth in a pocket. Once poor consumers realize that they can satisfy their needs to pay bills, buy goods and services, transfer and receive funds -- without touching actual currency -- the concept of thrift can take hold. Then we can start building alternatives to Roscas and other informal financial networks.

Payroll cards to replace checks or direct deposit

> *Participants discussed experiences with payroll cards to distribute paychecks. Unless carefully planned, such systems are a benefit to employers, but not necessarily employees who may have difficulties in accessing their pay.*

Jimmy Harris: An interesting sidebar as we wrap up the conference...

"More workers get paid with cards instead of checks; Firms save on labour, but some employees face fees," Stephanie Armour. USA TODAY. McLean, Va.: Feb 16, 2004. pg. B.01

> *"More employers are replacing traditional paychecks with payroll cards, a new type of system that allows employees to get money out of cash machines instead of cashing checks.*
>
> *"Instead of getting a paycheck, employees can opt to get cards that are credited each pay period with their wages. Workers can use the cards to withdraw money from ATMs or they can use them like a debit card to make purchases.*
>
> *"Some users have to pay a transaction fee or monthly charge for the cards; in other cases, fees are waived. ….*
>
> *"The cards are targeted to employees who don't have bank accounts and can't use direct deposit. About 8.5% of the 14 million households without bank accounts used payroll cards in 2003,*

according to Celent Communications in Boston. That's expected to jump to roughly 25% of the homes without bank accounts in 2006."

Challenge in initial implementation of payroll cards

Grant Duff: This is exactly the model we are piloting with a number of employer and benefactor groups presently in the very low income groups. It does have some drawbacks that we are working on, e.g. there is a very high level of polling of accounts for balances in the first weeks, with the resultant loss of cards to ATM's configured to hold cards after a number of consecutive unsuccessful withdrawal attempts. We are also experiencing a high level of lost PIN's in the first weeks.

However, these aspects were anticipated as we introduce magstripe card technology to a community for the first time. This requires a high level of service from service agents in the field on the initial deployment of the solution and user training, where the customers have little or no ATM experience.

The process is cost efficient and generally accessible and therefore works for the employer and recipient of funds. The model requires that cards can be issued, serviced and replaced in the field. To this end, we are using Teba Bank's USSD GSM technology.

Jim Wells: The problems with lost/forgotten PINs with a population of low literacy is a perfect reason to use biometrics. The high levels of balance inquiries may indicate cardholder suspicion as to whether the funds have been loaded to their account.

Be wary of fraud in relation to payroll cards

Nigel Morris-Cotterill: A word of caution. There are a number of very dubious operators offering payroll cards. Several of these are organisations on the fringes of banking, often operating from jurisdictions where civil enforcement is difficult, and using non-bank payment methods to arrange funds transfer.

In principle, the concept is sound but employers or service providers considering it should be aware that it is a market that is so new that fraudsters have moved in ahead of caution and should only deal with businesses for which they can establish proper credentials.

Grant Duff: Nigel, you are one hundred percent right on the issue of caution. I must mention that the South African system is tightly controlled in terms of only banks accessing the National Payments System and the South African ATM and EFT systems. Appropriate regulation and interchange rules are a requirement for a successful implementation of this type of payments arrangement.

Payroll cards are not a real service if they aren't backed up with adequate access points

Brian Richardson: I have to agree with the commentary. Great for employers, but unless the card can be used as a fully interoperable and transactional channel, all that happens is that employees are forced to stand in long queues at an ATM to withdraw their cash. After payday, people are known to stand in queues for up to 4 hours to get to an ATM. I am not sure that this is the solution. It certainly could be if the card was a debit card with which they could transact.

Grant Duff: I agree with you. The interoperability of the payment mechanism is important to allow for flexibility of use in as many channels as possible. The pressure on ATM's is particularly felt in rural locations e.g. Lesotho, where there simply isn't enough infrastructure to support the demand. Mini ATM's, (self-service devices without cash dispensing capabilities, supported by merchant based cash floats), provide a less expensive solution, but create their own problems such as the risk of arbitrage of debit card transactions.

Jim Wells: Simply substituting a plastic card for a paper check benefits primarily the employer – a fact not lost on employees. Still, payroll cards present a superb opportunity to help poor people reengineer their financial lives. Salary credited to cards is already in a form more secure than cash in pocket. To avoid having cardholders pulling their funds out of ATMs, issuers need to develop applications for the cards that respond to cardholders' use of cash. Once the need for cash is reduced, the demand at ATMs should be lessened.

New "MiCash" Product

Jimmy Harris: Here in Washington, DC, a financial services company has just launched the "MiCash" multipurpose card, targeted to the Hispanic population in the area, and specifically to the market segment that doesn't have bank accounts. According to their ads, the card allows a user to take cash from an ATM, pay bills (like gas, light, and water bills), pay for phone calls (it is also a phone card), buy groceries and other goods (it is a debit or POS card). The card costs USD $4.95. Not sure if there is a service fee for loading, but I would think so. A user purchases the card at MiCash agents, gets 2 cards (one to send overseas for use there as an ATM card and phone card), "loads" it at MiCash agents, and uses it.

It will be interesting to follow MiCash's experience, particularly relating to questions 3, 4, 7, 8, and 9 of the virtual conference.

Nigel: Take a look at the MyKad (MyCard in English) at www.mykad.com.my The second card to permit withdrawals from foreign ATMs is a superb idea which raises (within existing regulatory frameworks and suspicious transaction monitoring) a can of very unpleasant worms.

Topic 14: How can the challenge posed in developing a suitable distribution infrastructure be met?

Summary of Discussion

Infrastructure was discussed in-depth during several earlier topics in the conference. In this final topic, there was brief discussion of various creative ways of meeting the infrastructure challenge.

Developing an Infrastructure

David Cracknell: Which comes first, the card or the infrastructure? This is one of the major challenges facing the development of electronic banking solutions, and one of the major attractions for proponents of cell phone based banking.

To recap some relevant points, here is a ten-point list... (apologies for length but this summary should be useful)

1. Ron Webb talked of an evolutionary process in the development of electronic banking systems. Using ATMs to build the card base and then using this expanded card base to build a business model for merchants that works.

2. The nature of merchants used by the masses is different in most of Africa and Asia from countries like South Africa where merchants like Pick n Pay and Shopright can offer massive coverage.

3. The need to think laterally was an important point made by Laura Fredrick

4. The desirability of partnerships between institutions to enable the development costs and client servicing to happen (was raised several times). In this way each business model builds on the success of other business models.

5. The Smart Card / Mag Stripe debate ... may come in here as well given Smart Cards use off-line verses Mag Stripes relative affordability ... however please I don't want to raise the technical debate too hotly again mostly as technologies are converging and a Smart Card with a Mag Stripe is increasingly common.

6. The falling cost of ATMs and POS devices may come to the rescue, with Cash machines as low as a few thousand dollars and POS devices starting from USD 350 the business case is changing

7. An enabling environment for e-banking is essential, I gave an example early in the conference of the issue of who could be a rural deposit taker in India, but the issue is much broader, taxation, communications, investment in infrastructure, regulation and supervision....

8. The post offices offer great potential, but few post offices are online, and even some of those who will not be easy to integrate into. Of course a POS solution could side step post office systems. However, it’s not this simple, as to date many post offices have received huge per transaction payments from postalbanks.... so the business case will need to be examined carefully.

9. Donors could play a part in creating an enabling environment or pump priming an appropriate infrastructure... some argued that donors should take care not to invest in small scale proprietary solutions.

10. Finally, a disbursed infrastructure raises huge issues over financial literacy and client level communications...

Usage of satellite communications in ebanking

Riccardo Moro: I am active in the field of satellite terminals, namely Inmarsat, Irdium, Thuraya as telephones, and Regional B Gan as a modem. All are very versatile and relatively costly. They have wide coverage (global for the Inmarsat and Iridum) pan European, Saharan Africa, middle east and India and Russia partially. It offers 144 kbs connectivity broadband at 12 $/MB, packet data.

There are so many areas and territories where there is not even one bank (RDC for example). As of late we are distributing small vsats for always on internet link, that can be connected to wireless devices (hot spots). Of these there are under our umbrella more than a hundred, so there is a population for a filed application.

Consortium of Indian banks reach ATM sharing agreement

David Cracknell: This should be of general interest, given our current conversation on infrastructure.

> *The Hindu Business Line 12 banks share ATMs*
> *Our Bureau*
> *Mumbai , Feb. 26*
>
> *TWELVE banks have come together to form yet another ATM sharing arrangement. BANCS, the new arrangement will share a network of 2,000 ATMs.*
>
> *The banks in the group at the moment sweep across categories are Bank of Maharashtra, Bank of Bahrain & Kuwait, Greater Bombay Co-op Bank, Centurion Bank, Central Bank of India, UTI Bank, Punjab & Sind Bank, IDBI Bank, Ratnakar Bank, SBI Commercial & International Bank, Cosmos Bank, Air Corporation Employees Co-op Bank, Saraswat Co-op Bank.*
>
> *Another 8 banks are to join the hold taking the total ATM network to 2,800 machines.*
>
> *What the customer of Bank X will have to pay to use the ATM of Bank Y, (assuming that both banks are part of BANCS) is yet to be decided. The charge Bank X will have to pay Bank Y for the same is fixed at Rs 25 per each cash withdrawal. Whether this cost is passed on to the customer or not will be decided by each individual member bank.*
>
> *The consortium called `BANCS' has been processing close to 1,00,000 transactions per month during its pilot operations that commenced in January 2004, said Mr Mani Mamallan, Chief Operating Officer, India Switch Company (P) Ltd at a press conference held here on Thursday.*

Developing a Distribution Infrastructure - points of transactions and regulations

Cerstin Sander: A question related to distribution infrastructure: the transactional focus which was mentioned in some of the early contributions is a relevant and useful one when it comes to e-banking; building on that is the question of how we can get to what we might frame as POTs (points of transaction) which are not branches or ATMs and not a point of sale in terms of purchase, such as paying retail purchases.

Clearly there are many regulatory and security implications in thinking about that, but is there a way to think about transactional conduits outside the directly regulated financial industry? While this may be very difficult to do for savings/deposits, for money transfer or payments more generally, it is easier to do for money transfer, a key service for large portions of low income populations; there are examples such as in Latin America (for instance Brazil) where regulators have got their head around this and allow retail outlets

such as pharmacies and grocery stores to be part of service networks; in a growing number of countries money transfer companies are licensed separately and in some they can work with all kinds of retail outlets as sub-agents, in others they are limited to licensed banks or sometimes to banks and forex bureaus

An important underlying distinction for regulators may be to look at more of the financial transactions as separate from banking - they do this for foreign exchange for instance by licensing foreign exchange bureaus. In this context, a distinction such as between e-payments and e-banking might be useful.

Developing a Distribution Infrastructure

Gautam J. Ivatury: Your question today gets at what's most exciting about e-banking, for me: the potential for e-banking infrastructure to roll out and reach millions of poor much faster than FIs rolling out branches organically. David Porteous, David Cracknell and others touched on challenges to scale when they mentioned the role of government and the need for partnerships among many players.

ICICI Bank's kiosk program in India seems to me an example of a potential winner in terms of widespread distribution in a challenging environment. Here are some thoughts in respect to your framework of challenges to scale:

> **Goal:** Set up rural distribution network for products including transfers insurance, credit, etc.
>
> **Existing Infrastructure:** ICICI Bank has virtually no branches or distribution network in rural areas
>
> **Approach:** Deliver financial services through PC kiosks with wireless connectivity that are financed independently and become profitable even without financial services.
>
> **Drivers for Scale:** Kiosk rollout is driven by kiosk companies that finance the WLL infrastructure and share profits with entrepreneurs who operate the kiosk.
>
> **Financing:** The kiosk entrepreneur and local banks (through small business loans) handle financing under commercial terms. State governments have apparently also committed financing.
>
> **Convincing the Merchant:** The user base already exists. Kiosks serve rural populations (of all income levels) with messaging, email, e-governance, health apps, and other services - becoming profitable even without layering financial services on top.
>
> **Regulation:** Not clear (at least to me) if kiosk operators can collect savings and repayments. The Bank is exploring an inexpensive ATM add-on to the kiosk that may solve this problem.
>
> **Human Touch:** MFIs or loan agents should be layered on top of this kiosk infrastructure to handle delinquencies, marketing, relationship-building with borrowers, etc. The kiosk can function as a remote branch for the agent's cash deposit or data download from a PDA / smart card. Trainings of local individuals could work where MFIs are not physically present. More thinking needs to be done on this aspect, but I see the human touch as critical to any successful rollout of e-banking infrastructure. I'm just skimming the surface but the challenges for ICICI Bank don't seem too dissimilar from what one would expect in countries with less infrastructure (but without being an expert, I'd guess that WLL may not work in all contexts).

Conference Summary

Summary of Discussion

At several stages throughout the conference there were postings and discussions which we feel addressed not a specific topic but rather the overarching issue of providing ebanking to the poor. We have included these in this final section of the conference report.

The Big Question: Can we break through?

This thread appeared at the end of Week 1 and provides a quite nice summary of many issues we discussed in Week 1.

David Porteous: I read the general tenor of contributions over the past few days to be saying that e-banking is tricky (e.g. literacy issues & customer adoption issues at the low end) and can be costly (in people and technology), which implies a model of gradual adoption over time, probably from the top of the market downwards as technologies mature over time. I have also read a strong argument that incumbents, who may have less interest in broader expansion of access and indeed may be conflicted by fears of cannibalizing their existing client bases, have a strong advantage over newer entrants in a way which would deter new entrants to the sector. This view may well be true.

However, I wish to ask the big question in my mind one more time before accepting this more limited conclusion: *does e-banking (if we understand it to mean new channels) not offer the prospect of substantial, if not massive, progress in banking the poor, provided certain threshold conditions are met?*

My own musings on this continue to be provoked by the very rapid roll out of pre-paid cell phones into poorer communities across Africa, when at the beginning, most people (including industry insiders) felt that the market for such devices was very limited. The SA estimate was around 250 000-500 000 subscribers in five years; whereas the networks here achieved that within the first year or so, and there are now in SA as many cell phone users in roughly nine years as bank account holders (around 13m each). And the cell phone is a technologically advanced, costly (to the consumer; highly profitable to the networks) product which demands that the user be numerate and able to enter commands and work through screen menus (at least to SMS, as many of the poorer users do--with high frequency).

Cell phone development has displaced fixed line telephony to a large extent; but it happened under particular conditions. The question for e-banking is: what are those general conditions and could they apply to the roll out of E-banking?

One common characteristic which I believe needs careful thought is that both cell phone and bank accounts are subject to strong network externalities i.e. the more users plugged in, the greater the value proposition to each user. For banking, this is especially true for small person-to-person payments which we find are so pervasive in South Africa (let alone widespread government-to-person payments in the form of small regular grants). To benefit from these network externalities, you need a sudden massive increase in subscribers; small pilots often fail because the real value proposition to users is not demonstrated when the network is small. Is this not underlying what we are seeing with the slow progress of some of the micro-finance e-banking experiments?

Hence, a derived question is then whether there is a case for governments (as in Graham's question yesterday) or donors to back a massive push in this area (e.g. on e-banking literacy, or subsidizing origination of new accounts) e.g. covering initial fixed costs to get lower marginal costs of wider roll out.

A final comment: the effects of such a push could be very disruptive on existing banking systems – this is perhaps why incumbents and regulators are not often keen. But are we condemned to slow, incremental processes of growth; or is there still a real leap-forward opportunity in new technology for banking?

Brian Richardson: One cannot argue with David Porteous' logic and well portrayed argument. The key issue is getting the support of all the various partners that David Cracknell has alluded to in his email on partnerships. This is no mean feat for smaller players and I would hazard a guess that even the big banks would struggle in getting this type of support and interoperability even with the enormous power that they have. Amongst the issues is not only cost, and securing strategic partnerships but enormous time that overcoming the barriers requires – both legislative and those created by the payments system. In addition is the huge "protectionistic" approach of the powerful players in allowing new entrants into "their" perceived space.

Dirk Bruynse: I agree fully with David on the Big Question. E Banking is the only conceivable solution to achieving the objective of banking the previously unbanked. The Banking of previously unbanked revolves around efficiency and the ability to cost effectively run transactions over a widespread area. (Of course, excluding the financial literacy training which needs to go hand-in-hand with a deployment\).

The easiest way to achieve this is to ride on the back of other networks and technologies, as well as understanding that this cannot be done alone. We need to band together to achieve the economies of scale necessary to achieve this objective. The transaction has to be extremely efficient and highly automated to include settling all transactions in real time. With some lateral thought this can be done. The technology is available to achieve this. The cell phone companies have shown us what can be done.

Overall Learnings

Nigel Morris-Cotterill wrote off-line some of his overall reflections on the conference. He gave permission for this to be used in the conference report.

In this informative and sometimes provocative conference we have done one great thing: we have abandoned all the politically correct talk of "developing", "LDC" etc and talked about the poor from a global not national perspective.

Unfortunately, we have not been able to define "poor." What we have done, and Chuck's summaries have helped to clarify this, is to identify divisions between different types of poor.

For the scratching-a-piece-of-dried-mud-hoping-to-grow-enough-to-eat-and-spending-three-hours-a-day-walking-to-water poor, we recognise that the cost of getting services to him and the cost of providing those services is unlikely to be justified by the return (if any) on the account. In order to bring this class of poor into banking, the costs have to be subsidised: either by charging other customers more or by state subsidy. And the biggest challenges are a) physical security for machines receiving or paying out cash and b) the lack of infrastructure - from roads via electricity and comms out to remote areas.

For the entrepreneurial farmer or similar, microfinance can provide a very effective way out of poverty - but that account has to be managed. In many cases, this is being managed well with a passbook. So, from his point of view, e-banking is pointless and he is not going to travel miles each week to bank perhaps the equivalent of USD2. However, from the point of the bank's need for data collection, there are clear advantages provided this client does not need infrastructure. In effect, we are talking about hand-held portable ATMs and the far off dream that they will all use e-money in some form.

For the urban poor, economies of scale mean that tech and its delivery becomes more viable. Yet these are the people who do already have access to the more traditional banking model and the savings of using cards (if there can be effective inter-bank co-operation on card recognition) is in reducing the cost of the branch

network. These are the people who are most likely to be educated, most likely to have access to information on, for example, grants and MF and who are already receptive to the ideas. They can come to public meetings that explain everything to many people at once.

From reading through the posts again, I guess that the thrust of the conference will have been:

a) let's get the poor into banking and away from a dependence on cash
b) the tech's a tool not an objective in itself
c) if the highest tech that can be afforded or deployed is a passbook and duplicate record, then we should accept that
d) we need to address regulatory concerns that are too often standardised to fit the bigger institutions but actually hinder the objective of getting the poor into banking.
e) the ultimate objective (which is far in the future) is to move everyone to a secure, binding, authenticated and auditable system of electronic money with effective interbank data interchange
f) that whatever we do, it's going to cost someone a lot and in poor countries the business models of banks, and the tendency to work in isolation from competitors, do not support the long term development of proprietary systems and that common systems should be encouraged.

Lessons from the Financial Deepening Challenge Fund

> This email was sent off-list by Jonathon Ridley, summarizing the important contributions from DFID's Financial Deepening Challenge Fund (FDCF), which has previously invested in a number of e-banking initiatives. [Editor's note: I have taken the liberty to shorten and edit the following letter provided by Jonathon; you may find the original in the digests at the ebanking website.]

I have prepared a brief overview of those projects funded through the Financial Deepening Challenge Fund (FDCF) which rely, to some extent, upon e-banking methodologies.

Although all of the funded projects (save Equity Building Society, Kenya) are still in their early stages, we are very keen to feed this into knowledge networks so that as information becomes available we can disseminate "lessons learnt" to the widest possible number of interested parties. The projects that have been underway for some time have primarily been domestic FIs in East Africa that have perhaps had the most challenges to face, whereas more recent projects lead by organisations from South Africa, India and Europe have a more developed (technological) base to work from and I will be able to report on these projects in more detail in the future.

Projects funded by the FDCF with an e-banking (or relevant) element include the following:

- **Cooperative Bank of Kenya, Kenya:** Franchise model for linking savings and credit cooperatives (SACCOs) with formal sector banks. SACCOs gain access to a greater range of banking services and the franchise agreement imposes liquidity and asset quality requirements on participating SACCOs.

- **Equity Building Society, Kenya:** Mobile banking using GSM technology. Technology with on-line processing allows greater range of services to be offered from mobile units.

- **CRDB Bank, Tanzania:** Smart card products. Development of smart card infrastructure and specific products tailored for the poor.

- **Teba Bank, South Africa:** Debit card products for poor people. Development of debit card infrastructure and specific products tailored for the poor.

- **Union Bank, Pakistan:** Agricultural Credit Card. Card based farm input scheme for small farmers. A collaborative venture between the Bank and agricultural input supply firms.

- **Megatop, India:** Micro Insurance Program for Farmers in Andhra Pradesh and Madhya Pradesh through an IT Enabled Network Called "e-Choupal"

- **Vodafone, UK/Global:** A business-to-business connectivity platform (or, solution) for financial sector institutions in Kenya and Tanzania that operate over geographically disbursed areas, beyond the reach of fixed line telecommunications infrastructure. The service is ultimately intended to improve the provision of business-to-customer services by micro-finance institutions (MFI) by increasing the possibility of intra-/inter-organisational transfer of (various) financial data sets across open standards-based networks.

- **Botswana Savings Bank, Botswana:** Electronic Passbook. To establish an improved and affordable financial services delivery system, based on well established card and satellite technology, which will increase the ease of access to banking and other financial services for the country's poor and un-banked citizens who are currently largely unserved by the financial sector.

- **Teba Bank, South Africa:** Point of Sale franchise banking services. Affordable and accessible financial services to financial services, with particular emphasis on rural and peri-urban areas, by means of a Point of Sale (POS) device, which enable the customer to access a transactional banking account. The technology to be utilised is the Global System for Mobile Communications (GSM) and Unstructured Supplementary Services Data (USSD).

- **AON Uganda, Uganda (in partnership with Microcare Health Ltd):** Affordable health insurance for low income workers in Uganda. The project leverages significantly off an IT based control and management system which enables the project to take a health insurance offering to scale to a high volume low income market, whilst controlling costs through its networked integration of point of treatment centres.

Key Points

At this early stage, it is easier to identify the challenges that have been faced by the projects than to identify "recipes for success", however, for each challenge that has been faced and surmounted an achievement has been made and it seems useful to list some of the major challenges:

- **Suppliers:** Purchasing errors, miss-selling (by suppliers) and weak core capacities/systems present significant threats to the adoption of this technology. Perhaps establishing an "industry listing" of those suppliers that deliver consistently well (in quality and price) would be a useful source of information to prevent the perpetuation of such badly sold/purchased/ priced goods and services?

- **Bank/MFI Partnerships:** Where commercial banks have adopted these technologies with the purpose of extending outreach, opportunities perhaps exist for MFIs to leverage off the investments (and mistakes) made by the commercial banks, assuming that the right partnerships can be developed.

- **MFI Capacity:** Where commercial banks are attempting to extend their reach through collaboration with MFIs, additional issues exist relating to upgrading the skill level of the MFIs (in order that they can integrate fully) and the extent of this task seems easily underestimated. Incentivising the adoption of these more transparent systems has proven also to pose a challenge.

- **Cross-Functional Benefits:** For commercial financial institutions, the attractions of extending services to the previously unbanked through the use of e-banking systems are underpinned by the cross functionality of these systems, that is, developing a network of ATM's/POS units may provide benefits to existing customers as well as the new (previously unbanked) customers.

- **Marketing Issues:** Maintaining focus on developing and implementing appropriate marketing tools and techniques for the unbanked segment requires close attention as this segment must clearly be treated (and the marketing activities managed) as distinct from others. Errors in marketing such products might include weaknesses in the design features of the Product (such as failing to consider the importance of anonymity when designing e-money products for non-account holders) and poor choices relating to Place, i.e., sighting outlets in the wrong locations, where the target customers simply will not buy (or are not present). Partnerships between MFIs and commercial banks can play a particularly important role in these matters as MFIs bring greater understanding of the preferences of the target customers.

- **Retail outlet issues:** Where non-bank retail outlets are utilised to distribute financial products/services, incentivising the retailers to staff and operate the relevant systems requires some thought, since low initial uptake can rapidly lead to the retailers losing interest in providing a consistent service to customers.

- **Corporate partnering:** Whereas initial marketing strategies have often included mass marketing to poor customers with mixed results, emerging strategies often entail building partnerships with corporates whose own low-income employees and customers represent potential markets for e-banking products/services. Partnering with these corporates may have the additional benefit (through building a critical mass of users) of incentivising wider retail operators.

- **Profitability:** Profitability of the implemented projects has not yet been proven, although it is considered that significant additional benefits accrue in addition to profit, such as: increasing customer base; positioning/re-positioning the FI as one with greater (technological) capacity and geographical reach; and building core competence in an area that will be key to future competitiveness. Notwithstanding these benefits, we believe future commercial viability essential.

- **Commercial Ventures:** For commercial organisations entering the arena for the first time, pricing issues (amongst many others) will be particularly crucial and we feel certain that useful models will develop that have far greater application beyond the individual projects within which they are formulated.

Although it is not the role of the FDCF Fund Managers to drill down into the technical details of each FDCF project, I will be happy to try and facilitate communication with the FDCF projects if this is useful. I hope that this information is useful for your important discussions and hope that the FDCF can play an ongoing role in the discussion groups as they develop over time.

Wizzit Case Study

Brian Richardson wrote up a case study on his organization's experiences with ebanking.

Brian Richardson: A personal thank you to all who participated in this conference - I found the debates fascinating and challenging. As the various threads of each day unfolded, I could not help but think through the experiences we have had over the past two years in launching an initiative for the unbanked. I thought it might be of great interest and hopefully useful for many participants to document this. You can download the document at: www.microfin.com/ebankingresources.htm

We are fiercely determined to bring financial services to the unbanked. I hope that you find our experiences of interest as it acts a means to bring all the various threads of the conference together in a very practical way. We have tackled each and every one of the issues that have been raised and debated over the last two weeks and think we have found workable solutions to most. We would be delighted to hear from you with whatever help you can offer.

Web resource on e-banking

Ramesh Arunarchalum and his staff put together a useful set of e-banking articles grouped into one of four categories: General E Banking, Legal Issues Articles, Technical E Banking, Case studies, Country Perspectives. The resources can be found at:
http://www.mitrabharathi.com/ebank_main.htm

Ramesh Arunachalam: This database will be expanded and updated regularly and will also have a search and retrieval facility later. Participants could send useful resources to: ebanking@mitrabharathi.com (This e mail will be active from 1st March 2004, after the conference) Attention: Ms Sonal Mishra, Consultant, MFCG

Conference Evaluation

At the completion of the conference participants had the opportunity to complete an on-line evaluation. The results of the 37 completed evaluations are summarized below. In virtually every category, participants strongly affirmed the structure and content of the conference. (Note: the final two columns are responses to the two most useful topics covered during the conference.)

The detailed evaluations with the participants' written comments can be downloaded from the ebanking website.

Topic:	**Relevance**	**Usefulness**	**Length**	**Volume**	**Summaries**	**SumLength**	**Mostuse:**	**Mostuse2:**
Coding								
1	Not at all	Not at all	one wk	a lot less	Not at all	much shorter		
2	Not very	Not very	two wks	somewhat less	Not very	somewhat shorter		
3	Somewhat	Somewhat	three wks	about same	Somewhat	about same		
4	Very	Very	four wks	somewhat mor	Very	somewhat longer		
5	Extremely	Extremely		a lot more	Extremely	much longer		
Averages	**4.22**	**4.19**	**2.32**	**2.97**	**4.51**	**2.97**		
Counts	**37**	**37**	**37**	**37**	**37**	**37**	**37**	**37**
1	0	0	3	2	0	0	6	7
2	0	0	25	7	0	4	6	3
3	5	5	3	20	3	30	4	5
4	19	20	6	6	12	3	2	3
5	13	12		2	22	0	1	2
6							1	3
7							2	2
8							1	2
9							1	1
10							9	3
11							2	2
12							1	0
13							1	1
14							0	3