MicroSave

Market-led solutions for financial services

E/M-Banking

Optimising Performance and Efficiency Series

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Market-led solutions for financial services

Presents

Optimising Performance and Efficiency Series

E/M-Banking

The Optimising Performance and Efficiency Series (OPE Series) brings together key insights and ideas on specific topics, with the clear objective of providing microfinance practitioners with practical and actionable advice. Based on *MicroSave's* acclaimed Briefing Notes and India Focus Notes series, the Optimising Performance and Efficiency Series provides succinct guidance on a variety of topics from product innovation to delivery system optimisation. Each of the booklets addresses a key topic that can transform a microfinance institution for the better. The Series will help improve microfinance institutions' double bottom line – both the business and its social performance.

Also in this series…

- **Individual Lending**
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- **Savings**

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Electronic and Mobile phone-based Banking: Opportunities, Issues and Challenges

There is growing consensus that e/m-banking offers a unique opportunity to address mainstream banks' two major barriers to serving the low-income market: **the need for a branch infrastructure** and **managing high volumes of low value transactions**. The potential of e/m-banking to significantly extend the reach of financial institutions into rural areas, without investing in "bricks and mortar" branches, is widely acknowledged.

For several years now, *MicroSave* has been closely involved with several e/m-banking initiatives in Africa and Asia, in particular working on the "soft side" of e/m-banking where the technology interfaces with the customer. Thus *MicroSave* has worked with a variety of providers including Vodafone's M-Pesa, Kenya Post Office Savings Bank's Cash Xpress and Eko in India to provide support/conduct market research, process mapping and analysis, pilot-testing, brand/marketing and financial education, etc.

In addition, *MicroSave* periodically holds "M-banking Dialogues", (most recently, in collaboration with CGAP, in Kathmandu – the summary of this Dialogue is included as an Appendix) to bring together a select group of providers that are actually implementing e/m-banking solutions. These allow practitioners to discuss some of the nitty gritty details and challenges involved with developing, testing and rolling out e/m-banking solutions. These Dialogues have proved immensely valuable for participants, who leave with significant learning through such peer-to-peer exchanges.

In response to repeated demands from practitioners, *MicroSave* has developed this compendium of brief publications, which mines *MicroSave*'s rich experience, and blends it with that of leading consultants and practitioners in the field of m-banking. Additional information and interviews with leading m-banking practitioners can be found in short films available from *MicroSave*'s MicroFinance Podcast: www.MicroFinancePodCast.com.

This compendium offers guidance on a wide range of opportunities, issues and challenges for e/m-banking.

The papers presented are as follows:

1. *Meeting the Challenge – The Impact of Changing Technology on Microfinance Institutions (MFIs)* – Richard Ketley and Ben Duminy

   Prepared in 2003, this paper describes the potential and challenges of e-banking (ATMs, POS devices, and mobile phone-based systems) for banks and for microfinance institutions and touches on what MFIs should do to prepare for the unfolding technological revolution.

2. *Electronic Banking for the Poor* – David Cracknell

   A summary of the seminal paper of the same name that was prepared after *MicroSave*'s virtual conference on e-banking in 2004, the paper examines the fundamentals of the technological options, business case, customer value proposition, environment for electronic banking, steps for testing an e-banking solution and case for donor involvement in e-banking.

3. *Point of Sale Device vs Mobile Phone–*
   Ben Davies and John Owens

   This compares the benefits and drawbacks of these two key delivery channels, their strengths and weaknesses, as well as the opportunities and threats inherent in the technologies.

4. *Issues in Mobile Banking 1: Implementation Choices–*
   Jenny Hoffmann

   This examines some of the key strategic issues for financial institutions considering implementing m-banking solutions, including: the market potential; whether to supplement or substitute channels; strategic alliances necessary to succeed; the imperatives of customer hardware and of systems; as well as optimising the financial returns.

5. *Choosing a Mobile Phone Banking Format –*
   Ben Davies and John Owens

   Key issues faced when choosing which m-banking format to use include: usability/reliability, security and ubiquity. This examines the trade-offs involved and highlights the implications of some of the decisions that must be made on formats.

6. *The Role of Partnerships and Strategic Alliances to Promote Mobile Phone Banking at the Bottom of the Pyramid–*
   John Owens

   This looks at the role of partnerships and alliances in m-banking, drawing some of the existing examples represented at the *MicroSave*-CGAP M-banking Dialogue held in 2008. It examines the importance and the different configurations/types of partnerships necessary to bring mass m-banking solutions to the low income market, as well as options for microfinance institutions.

7. *Incentivising 3rdParty Agents to Service Bank Customers –*
   Ben Davies and John Owens

   Noting the two basic models: branchless banking servicing and mobile commerce provider models, this examines the four key factors that affect the willingness of agents to provide m-banking services: complexity of services; expected volume of transactions; impact on the agent's primary business; and fee generated per transaction.

8. *Pilot and Rollout Strategies–*
   John Owens

   This examines the factors that have to be taken into account when pilot testing and rolling out m-banking for clients of small banks or MFIs, including: the impact the new service may have on the institution; regulatory and compliance issues; monitoring and feedback from customers and merchants; and partnership support and coordination.

9. *Mobile Phone-Based E-Banking: The Customer Value Proposition* –
Graham A.N. Wright, Nick Hughes, Brian Richardson and David Cracknell

   Based on discussions at *MicroSave*'s first M-banking Dialogue held in 2005, this examines what poor people want from m-banking financial services, and the benefits they expect from these solutions. It examines the barriers and challenges to providing m-banking services, noting how strong cash is as a competitor to e-money, as well as how these challenges might be overcome.

10. *Creating a Tipping Point for Mobile Financial Services*–
John Owens

    This examines why the take-up of m-banking services has often been slower than anticipated, and highlights the importance of financial education programmes. Using Malcolm Gladwell's "The Tipping Point: How Little Things Can Make a Big Difference," it describes three agents of change that create tipping points in the spread of various social epidemics: strategic alliances/ partnerships and marketing agents; branding and building on initial uses of m-banking services; and the power of context – the customer value proposition.

11. *Issues in Mobile Banking 2: Regulatory and Technical Issues*–
Jenny Hoffmann

    This examines regulation requirements, or in some cases, the lack of understanding/interest of the central banks, which remains one of the key barriers to implementing m-banking by financial institutions. In addition, it discusses why many financial institutions struggle with technology issues around selecting appropriate systems and delivery channels … and how to respond.

12. *Electronic Banking: The Next Revolution in Financial Access?*–
Graham A.N. Wright and Manoj K. Sharma

    This highlights the role of e-banking in improving financial access to the poor. It brings forth three major reasons, mainly inadequate customer value proposition for the end-users, a poorly developed business case for the companies collaborating, and the debilitating environment, responsible (one or all) for successful implementation of e-banking solutions. This note concludes with highlighting opportunities for financial institutions and telecommunication companies, regulator's willingness and understanding the present market demand for enhancing financial inclusion.

Meeting the Challenge – The Impact of Changing Technology on MicroFinance Institutions (MFIs)

Richard Ketley and Ben Duminy[1]

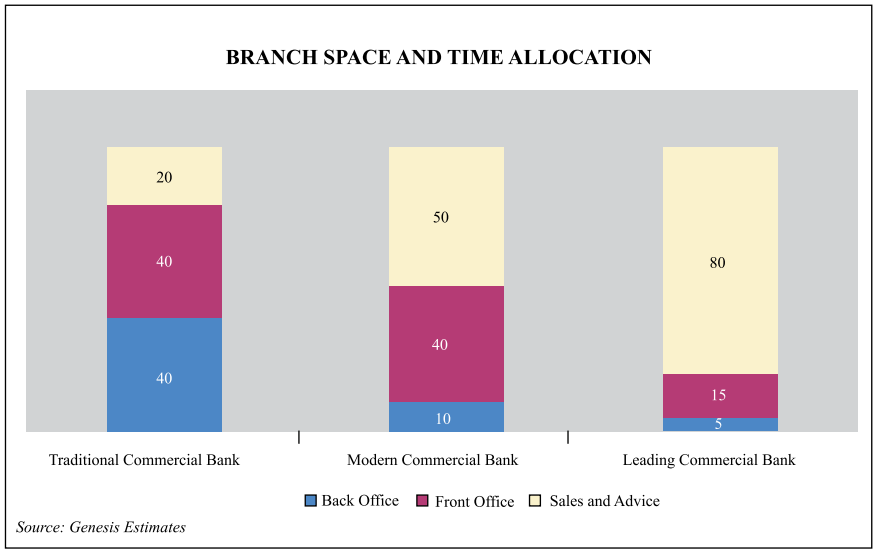
[1]This publication has been produced in collaboration with Genesis and Ben & Duminy and Associates – consulting firms that specialise in assisting banks and MFIs in Africa to meet the strategic challenge of technology. For further information please contact: Richard Ketley on rpk@genesis-analytics.com

G:NESIS

Ben & Duminy & Associates
Strategy and Project Consultant

Why Conventional Banks Have Not Set Up Shop to Cater for the Poor?

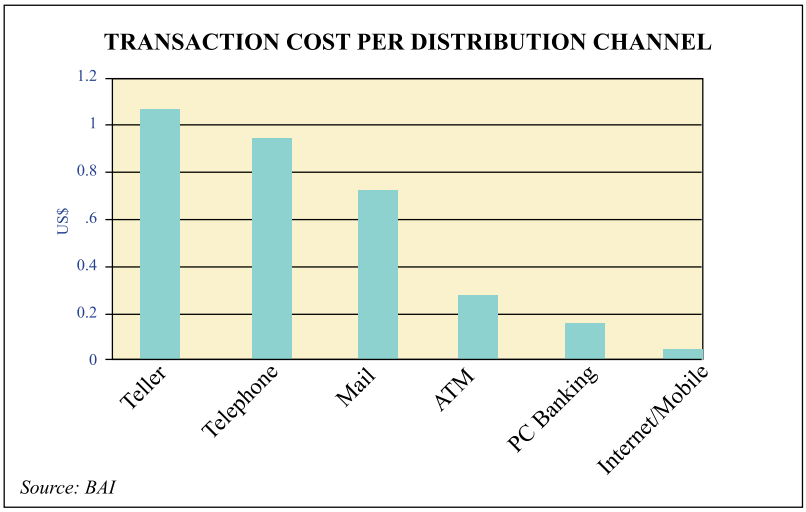
Until recently, banks rarely provided banking services and products designed for the poor. It simply was not profitable to do so. Banking was a costly and labour-intensive task for all concerned. Banks needed huge branch networks filled with tellers, checking clerks, forms, and files. The back office at branch level was often as large as the front office. Customers were required to stand in long queues at inconvenient times, complete complex forms, and in the case of the poor, receive service that was not geared to customers who had limited time, or literacy. Over and above this, credit processes were devolved from methods developed for corporate banking, and relied heavily on collateral. Costs were closely related to the structure of branches. The figure above depicts how technology is changing the way branches are organised and with it, the cost structures of branch banking.



One of the only way banks could maintain profitability amid their high transaction costs, was to limit branch networks and focus on customers with relatively high balances in their accounts.

The Impact of Technology

Technology in banking is no longer the stuff of science fiction. The proceeding figure showcases the dramatic savings (per transaction) in space and people that technology can bring to retail banking. This can be even of the cost of transacting through different channels.



More dramatically demonstrated through a comparison with costs falling dramatically, banks can now afford to consider providing banking services to people with much lower income levels.

Automated Teller Machines (ATMs) & Point of Sale (POS) Technology

ATMs revolutionised banking upon their inception 30 years ago. Their deployment was elayed for over 20 years in many African countries due to their cost, the often inadequate telecommunications (now solved by mobile phones), and electricity supply. Until a decade ago, ATMs were bulky, expensive, and difficult to maintain and replenish, requiring many thousands of transactions to achieve profitability. Nonetheless, ATMs gave their owners a huge comparative advantage, and it was often the case that the bank with the biggest ATM infrastructure maintained their position as market leader.

This began to change as banks began to allow switching (using Bank A's ATM card on Bank B's ATM). This dramatically reduced the cost of entry for new banks. Increasingly, financial institutions have also been able to deploy POS devices in locations that often provide the same functionality as an ATM at a fraction of the (already reduced) cost.

In more and more markets, banks share ATM and POS infrastructure, allowing any participant in the switch access to a far larger network at far less cost. Securing access to the switch is an important strategic challenge for many emerging banking operations and is often the key to the low cost distribution of funds to low income customers.

Plastic Cards: A Technology Impossible to Ignore

Even in Africa, commercial banks in many countries have migrated almost all of their customers to electronic channels, using debit cards (where cash is debited directly from the account and the transaction does not execute unless sufficient funds are available) at ATMs and POS devices. Card technology has further reduced costs, achieved high levels of processing efficiency, and radically altered bank business models. Furthermore, the cost of implementing a plastic strategy has fallen dramatically in recent times. Once the initial fixed cost (which is also falling) has been covered, the ongoing costs are comparatively small. Increasingly, South African banks are relying on debit cards to deliver banking services to the poor. While cash transactions do sometimes still take place in the banking hall, banks have a clear agenda to phase these out.

Mobile Phone Technology: The Answer for Africa?

The most exciting new technological development in banking is mobile banking – using a mobile phone to execute transactions. This is rather like internet banking, but on a small screen (it is to be distinguished from telephone banking in which individuals speak to a call centre).

The potential of mobile phone based banking in developing countries dwarfs that of the internet. There are now over a billion mobile phones worldwide (and the number grows daily), as opposed to less than 400 million internet users. In a country like Uganda, the number of mobile phone users exceeds internet users by a factor of ten. Mobile phone ownership reflects an entirely different socio-economic profile. A mobile device is always with the user, unlike a desk based internet access point. In South Africa, banks process 550 million transactions for mobile "top-up" (recharge) annually! These transactions are a convincing testimony to the scope and potential of mobile banking.

Mobile Phone Based Solutions Have Great Potential in Africa :

1. African markets are not saturated with alternative payment channels (ATMs, POS and branches).
2. Cell phone ownership is high, while internet access is comparatively low. Low income individuals often prioritise mobile phone payments (more often than not on a prepaid basis) above some basic expenditures.
3. Poor physical infrastructure often makes it difficult to reach a bank.
4. Cheque usage is very important in economies with large networks of small traders each of which needs to pay suppliers and is subject to a high degree of fraud (particularly amongst small and medium enterprises), long clearing times and heavy investment costs for the banks. Cheque usage can be replaced by mobile payments.

Mobile payment solutions are already operating in Zambia and have been very successful in the Philippines. Widespread use of mobile payments would transform the very definition of a bank. Using mobile technology, Person A could give Person B cash, Person B would debit their own account and credit A's account, using his or her mobile phone. This simple transaction would eliminate the need of Person A to physically make a trip to the bank or ATM to receive or deposit cash.

Mobile banking could eradicate the security concerns previously associated with informal saving mechanisms. For instance, if an MFI sent a representative to collect deposits at a marketplace, depositors would feel more comfortable handing over their deposit (or loan repayment) if they received a text message on their cell phone confirming that the bank account in question had been instantly credited. (Market trader person A, hands cash to deposit collector B, B receives cash, debits B's account and credits A's account on mobile handset).

Making it Happen

This briefing note does not delve into the technical complexities of setting up the infrastructure or alliances necessary to benefit from a mobile payments system or plastic strategy. But the message is clear - technology is changing the entire banking landscape. The poor are more and more becoming a viable target market for conventional banks. MFIs need to understand this challenge or risk becoming irrelevant.

MFIs cannot afford not to develop an appropriate technology integration strategy. This strategy should:

1. Understand the challenge and opportunities in the emerging switching environment in their economy and the opportunity for mobile payments.
2. Explore the advantages and disadvantages of developing alliances and partners with the formal banking sector so as to remain competitive in the evolving technological environment.
3. Ensure that technological solutions remain simple, non-alienating and aligned with their customers' needs.

Electronic Banking for the Poor

David Cracknell

Why Electronic Banking?

Electronic Banking brings the potential to extend low cost virtual bank accounts to a large number of currently un-banked individuals worldwide. Change is being driven by falling costs of technology, by competition and by the ability of electronic banking solutions to offer customers an enhanced range of services at a very low cost.

Whichever technical option is chosen, the development of an electronic banking solution should consider the customer perspective – the customer value proposition; the institutional perspective – the business case; and the local environment for electronic banking.

Technical Options

Technologies used in electronic banking include, but are not limited to:

- *Personal Digital Assistants:* Used by microfinance programmes to automate record keeping.
- *Automatic Teller Machines & Point of Sale Devices:* Used in conjunction with Magnetic stripe or Smart cards.
- *Magnetic Stripe Cards:* Low cost cards operated through a magnetic stripe on the reverse of the card.
- *Smart Cards:* More expensive chip based cards that can store information off line on the embedded chip.
- *Cell-phone banking:* Banking through cellular phones, either through menus or through SMS.

Customer Perspective – The Value Proposition

An electronic banking solution must provide sufficient value to persuade the customer to move transactions away from cash. However, cash is an incredibly versatile medium of exchange. It is universally recognised as a store of value; and it is accessible, portable and divisible.

- *Features:* What needs does the e-banking solution meet? What features encourage the user to maintain an electronic account in preference to cash? For example, improved personal safety and the ability to transfer value from person to person.
- *Accessibility:* Limited distribution of transaction points strongly reduces the value proposition to the customer. Walking many kilometres to access services is inconvenient and costly. Saturation of an area with the service is preferable to a wider thinner, distribution.
- *Affordability:* Cash is inherently "frictionless" there is no charge that gets levied each time value is transferred. Given this, start up and transactional costs need to be as low as possible for both the end user and the merchants these users frequent.
- *Ease of use – convenience:* The e-banking solution needs to be simple to use, fast and user friendly.

Institutional Perspective – The Business Case

From an institutional perspective, the electronic banking solution should increase profitability. This means careful consideration of functionality, business volumes, fees and charges, efficiency gains, development costs, partnerships, and distribution channels.

- *Functionality:* The level of functionality that the institution wishes to develop, whether this should be narrowly or widely focused.

- *Building volume through segmentation:* By careful development of different business segments the financial institution is able to build transaction volume through the core ebanking infrastructure.
- *Fees and charges:* Developing an appropriate revenue strategy is heavily influenced by the functionality offered, the segments served and the anticipated volume of transactions.
- *Efficiency Gains:* The financial institution is able to handle substantially increased business transactions without corresponding investment in physical infrastructure.
- *Controlling development costs:* Costs must be controlled during the development phase to ensure positive returns on investment.
- *Partnerships:* Multiple business partnerships are essential in building a multi-functional e-banking solution and in supporting the distribution network.
- *Distribution network:* The distribution network must meet customer requirements for accessibility, ease of access and widespread functionality, whilst meeting institutional cost requirements.
- *Developing multiple business cases:* Each partner involved in the solution must benefit, whether through reducing costs, increasing efficiency, increasing turnover, or through direct income.

The Environment for Electronic Banking

Many e-banking projects are developing in South Africa. This is not the result of chance, but rather that the South African environment is more favourable for electronic banking. There are well-developed banking and retail sectors, a supportive central bank, good communications and a generally positive policy environment. The environment for electronic banking is influenced by the:

- Evolution of the financial and retail sectors: The nature of the financial and retail market in which the solution is being launched is a key determinant of product features, interoperability, potential volume drivers and basic financial literacy.
- Level of financial literacy: The level of financial literacy influences communication of the product, the nature of the distribution channel and the nature of transactions made.
- Regulatory and policy environment: The regulatory and policy environment should be supportive of electronic banking. This includes appropriate banking regulations and communications, security, and information policies.

Testing an Electronic Banking Solution

The development of an electronic banking solution is far from easy as it will have considerable impacts upon the financial institution. Risks during development and design must be carefully managed.

- *Institutional capacity:* The financial institution will require new technical competencies in order to run the e-banking solution. New functions like risk management, call centres and relationship managers may be necessary. Existing functions such as treasury management, internal audit and marketing may need to be strengthened.
- *Managing development risk:* The development phase carries considerable risk that the solution will not be developed as anticipated or will run over cost.
- *Pilot testing:* Whilst pilot testing may demonstrate the product to the competition, it represents the final opportunity to make changes to the design and/or implementation of the product.
- *Research:* The pilot test phase provides an opportunity to research client acceptance of the product, to refine marketing and communications, to test the suitability of the distribution infrastructure, and to test assumptions in the business case.

Options for Microfinance Programmes

Developing an electronic banking solution will be beyond the capacity of most microfinance programmes. However, with a good back office system, the MFI can consider a number of options. These include:

- *Personal Digital Assistants:* Using PDAs to improve loan processing and data collection (e.g. SafeSave in Bangladesh).
- *Credit scoring for micro-loans:* Using scorecards to improve credit appraisal for new and existing customers.
- Microfinance programmes as issuers of their own cards through a wider initiative: In this case, microfinance programmes do not need to develop their own back office systems. (e.g. Opportunity Bank operating with Malswitch in Malawi) .
- *Microfinance programmes operating low-end closed loop ATM systems:* A relatively low cost ATM system can be built (e.g. Prodem in Bolivia).
- *Groups of Microfinance programmes implementing a focused programme:* In this case development costs are shared (e.g. Ferlo-MEPS in Senegal).

The Case for Donor Involvement

Donor subsidies need to be carefully applied. The Virtual Conference on Electronic Banking for the Poor (Feb 2004) derived the following general principles.

Principle 1: Donor subsidies should focus on building shared infrastructure and consider scalability.

Principle 2: The recipient institution should cover the recurrent costs of the e-banking initiative.

Principle 3: A careful cost-benefit analysis should be conducted before an e-banking initiative i launched.

Principle 4: There is a considerable amount that can and should be learned from the successes and failures of existing and previous initiatives. Donors should document this experience.

Principle 5: There is a potential role for donors to help governments understand and develop appropriate policy environments in which electronic banking initiatives would flourish.

Principle 6: Donors can invest in promoting e-literacy.

References:

- References can be downloaded from www.*MicroSave*.org. The Electronic Banking paper has an expanded list of references and still more information is available on the *MicroSave* website.
- Cracknell David, "Electronic Banking for the Poor – Panacea, Potential and Pitfalls", *MicroSave* (2004).
- Waterfield, Charles, "Conference Summary – Virtual Conference on Electronic Banking for the Poor", *MicroSave* (2004).

Point of Sale Device vs. Mobile Phone as a Channel for M-Banking

Ben Davies and John Owens

Point of Sale (POS) systems have been the primary device used by banks in South America to provide branchless banking services, while mobile phone based solutions are being used by banks in partnership with mobile network operators (MNOs) in the Philippines to fulfil a similar role.

Given the functional capabilities and the multiple formats in which POS (merchant acquiring platform, cash advance device, teller management interface) and mobile phones (direct channel to customers, merchant environment, money transfer platform, branchless banking interface) are used by financial service providers, this note will focus on the relative merits of the POS and the mobile phone in a branchless banking environment.

Indicative Costs (Service Provider & Customer)

Mobile phones offer a cost advantage from a device perspective in that most (if not all) branchless banking agents will have a mobile phone. In contrast, the POS, ranging from $400 to $800 per device and the overall total cost of ownership, including software licensing and maintenance, can be expensive, particularly if POS deployment runs into the thousands.

From a management/back office platform perspective, indicative costs are very similar. Platforms can range from $2.5 million upward depending on what systems are already in place and whether systems need to be Card Association certified (in the case of POS systems - add $500,000; M-commerce platforms - add $1m or more, depending on whether it is for issuing or acquiring).

When evaluating the two platforms, an estimated cost per transaction needs to be included. The POS has the capability to process transactions more quickly, allowing infrastructure costs to be spread across a high number of transactions. Using a mobile phone-based system is ideal in lower transaction volume environments (small or rural villages or with small merchants). Ultimately, however, at any given transaction volume, the mobile phone can offer a lower cost infrastructure.

The key to reducing costs of card accounts is the ability to shift the cost of maintaining accounts from the customer to the merchant using a merchant discount charged for retail POS transactions. In some markets, this reduces account fees significantly for customers who make payments at retail POS terminals. In the case of one bank in South Africa, account fees could be reduced to $0.50 per month for unlimited retail POS transactions and two cash back/advance transactions at retail POS terminals. In other markets, such as Colombia, bank agents are actually paid a slight fee per transaction that is often less than the costs associated with teller based transactions.

Transactional Capabilities

Both platforms offer very similar transactional capabilities in the branchless banking format. Both devices can support the majority of transactions conducted by lower income individuals in un/under-banked environments.

The two key differentiators between the two devices are:

- *The printing of receipts:* POS are capable of printing customer records of transactions. This has been found to be an important service for low income customers with limited trust in the reliability of financial service providers or those coming from a savings passbook environment. This can be ameliorated by sending transactional information to the customer's mobile phone[1], but again trust of an SMS as a record and level of mobile phone penetration needs to be evaluated in each

market or customer segment. Ultimately, we could see SMS reference numbers become as accepted as internet banking transaction reference numbers are already for higher income level clients, especially if SMS transaction notices could easily be printed if required by the customer.

	POS (with or without card)	Mobile phone
Balance enquiry (on device)	✓	✓
Balance enquiry (printed)	✓	✗
Mini Statement (on device)	✓	✓
Mini Statement (printed)	✓	✗
Bill payment (Person2Business)	✓	✓
P2P (account to account)	✓	✓
P2P (money transfer)	✓	✓
Cash-in	✓	✓
Cash-out	✓	✓
Card acquiring	✓	✗

- *Bank cards:* In this case, the POS offers an advantage over mobile phone by allowing customers to use their bank card to make payments using the existing POS and ATM terminals that are already deployed in a given country.[2] It also allows customers from other banks to access services at the service point, similar to the way banks share ATM networks. This can generate additional revenues for the branchless banker as well as the financial service provider.

Convenience

In a recent survey by Genesis Analytics, it was found that typical transaction times per transaction instrument were positively correlated with the value of the transaction, i.e., the longer it took to transact, the higher the average value per transaction. Customers used the convenience of card and internet for higher value transactions.

In the case of branchless banking, third party facilitated transactions can take time to complete on both the POS and the mobile phone. In the case of POS, transaction times can be reduced if individuals are able to identify themselves and their bank accounts by using a card and PIN or biometrics. In the case of bank branches, this reduces transaction costs from $1.3 to about $1 (various sources including, Genesis, Forrester Research, Bain & Co.) by reducing teller time per transaction and increasing transaction volumes per teller.

Product Appropriateness

South Africa's experience using mobile phones to facilitate financial transactions has only been partially successful, while Kenya's market has seen significant take-up of M-PESA (latest count is nearly 5 million registered users) and the Philippines has seen a significant take up of GCASH and Smart Money with approximately 9 million registered users.

Both *MicroSave* and Genesis research has highlighted the importance of the customer value proposition and product appropriateness in driving usage of mobile phone channels. For example, for money transfer in Kenya, M-PESA leverages a well documented need to move funds between individuals who are outside the banking sector in countries with low bank penetration. In the Philippines, Smart Money and GCASH also build on the large amount of money transfers between urban and rural areas and overseas. Coupled with the distributional advantage of MNOs, money transfer services offered by MNOs is a compelling value proposition and attractive product for customers.

[1]This is commonly done for mobile phone banking transactions as well as mobile money transfers in the Philippines.
[2]It should be noted, however, that M-PESA and banks such as Standard Chartered in India are now using codes that are sent to mobile phones via SMS to enable withdrawals at ATMs without requiring a card.

Mobile phone banking South Africa: In the case of mobile phone banking in South Africa, most South Africans in lower income segments use their bank accounts to receive salaries, which they then cash-out as quickly as possible. In the case of individuals who are not banked, cash-out facilities are provided by government as part of a social welfare distribution infrastructure. There is very little incentive for customers to use a mobile phone banking solution, as there are still issues with the cash-out process.

A similar argument can be made for branchless banking services. In the case of a branchless bank value proposition, the financial service provider needs to provide a compelling value proposition to the third party, who acts as the servicing agent. In the case of branchless banking agents, key determining factors of sign-up include the range of available monetary and non-monetary benefits of being an agent. The monetary benefits increase with the number of potential services from which revenue can be generated, including transactions, account activations, credit, etc. Non-monetary benefits flow indirectly from providing these services, i.e. customers identify a bank brand with a range of services offered by an agent whose primary business then benefits from improved exposure and visibility from traffic through the store (see *MicroSave* Briefing Note # 69).

In terms of processing as many transactions as possible, supporting card payments (the key differentiator between POS and mobile phone only models) becomes an issue where card transactions are a significant share of potential transactions faced by an agent. This may be very high (South Africa) or very low (Nepal). For card payments, an important element for agent value proposition over time is the rate of growth in card penetration. India has recently passed the 100 million debit card mark in terms of the number of cards now in circulation, and is growing at 2 million cards per month. For mobile phone-based payments, delays in SMS confirmation messages has been an issue for some M-PESA customers, since clients are left unaware of whether a transaction has actually occurred. This becomes more of an issue when transaction volume increases significantly and MNO networks are congested.

Concluding Remarks

Formalised payments using a variety of channels are a well-established activity in most countries and the move towards electronic payments is changing the face of retail financial services in developing countries. The predominance of one type of electronic payment will have a significant impact on the relative importance of mobile phone and POS as complementary channels in the branchless banking environment. Ultimately, models that combine and offer the ease of a mobile phone-based system while offering a POS card, that builds on the existing network of POS and ATM terminals, will most likely offer a significant advantage to a mobile phone-based or POS-based only solution.

Issues in Mobile Banking 1: Implementation Choices

Jenny Hoffmann[1]

[1]The author recognises the contribution of the Finmark Trust in funding earlier work on which this chapter is based.

Introduction

One of the key barriers to access to financial services to the poor and particularly to those living in remote rural areas is the price of being banked. The costs include both the fees charged by the financial institutions and the time and money required to access the banking infrastructure. Relatively recent technological advances have allowed the cell phone to become a safe and effective transactional device. The widespread and rapidly growing ownership of a mobile phone and the ever increasing geographical coverage of the networks means that the use of this device has the potential to be able to offer a cost effective and simple means of making financial transactions to service this largely untapped market.
As with any investment decision, the criteria for whether and how to establish a mobile banking business derive from the threats and opportunities of the environment and the strengths and weaknesses of the potential investor and/or operator. However, given that mobile banking is still a relatively new technology solution in the field of banking, the experience that has been gathered in early initiatives may be able to provide some generic guidelines as to the choices which need to be considered. This Briefing Note examines some of the key strategic issues for financial institutions considering implementing mobile banking.

Market Potential

The operator needs to begin by deciding on its market entry strategy and this will vary according to the vision of the organisation and the market potential in the relevant country. The target market segment needs to be quantified and socio economic data gathered in order to assess effective demand. MTN Banking made the decision to price and position for the lower end of the market, but began communicating to the upper end of the market on the basis that although there was great potential in the mass market and unbanked, they felt it was important that the product be positioned aspirationally, rather than as an offering aimed at the poor. Vodaphone, on the other hand, has so far looked at only targeting the unbanked and have selected markets and channels accordingly.

Substitute or Supplement

Some operators may see the advantages in adding an additional electronic channel to an existing account providing either informational and/or transactional services. At the other end of the spectrum the intention may be to create a banking service centred on the cell phone which will be a whole new relationship with the customer. In other words, the mobile banking may be a substitute or a supplement for existing banking services (or a substitute for informal financial services). In terms of views on revenue, the provider may see this as:

(a) a stand alone driver of revenue in its own right;
(b) a way to attract new customers into their main product line or a way to retain and enhance the relationship with existing customers; or
(c) a way to reduce the transaction cost of dealing with the market (for example being able to purchase airtime from the handset saves the 15-20% commission that a telco would otherwise pay to an airtime vendor).

Operational Alliances

If the instigator is a telecommunications company (telco) they may wish to ensure that the platform can be used by a variety of banks (banking agnostic). This is the model used in South Korea. On the other hand, a bank may wish to offer its clients the ability to access their accounts using any of the telco's in the country (telco agnostic). MTN Banking was set up as a loyalty scheme for MTN, offering additional value to its customer base. The software was burnt on to the SIM card or sent "Over the Air" so that a banking client would need to have an MTN SIM card. (This proved effective for new cell phone

customers but was problematic for existing customers who either needed to download the software and/or swap their existing SIM card from a 16k to a 32k card. This affected approximately 20% of potential clients requesting the software although this is reducing since all cards currently being distributed are 32k). So if the investor is a telecommunications company the model could be built to require their own phone and SIM card. An exclusive relationship between a telco and a bank is more likely to enable the telco to use the infrastructure and knowledge base of the bank regarding banking expertise. However if the mobile account is competing with other bank offerings there will inevitably be a conflict of interest which will manifest itself in terms of allocation of resources and possibly competitive pricing restrictions.

Customer Hardware

Options around the technology that can be used will depend on the level of accessibility of the required handsets to a broad enough market. The lack of standardisation among handsets will also have an impact in several ways. For example, it may affect whether the banking software can be made available on the handset as opposed to centrally, which then has a knock on effect on the level of security for authentication. There may also be a practical problem of educating the customer on how to access and use the software since the display may differ from one phone to another and indeed not even be available on some models. The functionality of the SIM cards being distributed and available will have an impact on the kind of software that can be used. In many developing countries the SIM card capacity is still 16k whereas SIM browser SMS based banking software will typically require at least 32k cards.

Systems

Systems need to be chosen that are appropriate to the banking environment being considered. In developed electronic infrastructures like South Africa there need to be system links to the:

- Payments system (for bill payment and inter bank transfers)
- Card acquirers for the use of bank cards
- ATM network and bank branches for cash withdrawals and deposits

In countries where there is little or no electronic banking infrastructure then 'stand alone' systems are more appropriate. Here the system will need to do a lot more of the functions such as cash management, central bank reporting and ATM system management as these will not be carried by the existing banking infrastructure.

As the mobile banking solutions are accessed via the mobile phones, the availability of the banking service should be perceived to be as good as that of the mobile telephony service. This means that a sufficiently available banking system and architecture needs to be chosen. This will also need to be operated with 24/7 supervision, which of course has cost implications.

Financial Model

Operational Profitability: The driver for the business model must be considered upfront. It could be seen as the new business line, a way to retain clients or as a new channel for their primary products. For example, telcos may wish to use cell phone banking as an alternative channel for consumers to purchase airtime at a lower cost and more conveniently, (thus saving airtime agent commission of 15-20%). In considering the model as a new business line, the key drivers of profitability are the average transaction numbers and the average float value. Revenue needs to be derived from a balance of transaction fees and interest earned. However, the profitability may be restricted by the extent to which the business is a price taker if a large number of services have been outsourced. This is likely to be the case if

the business is being provided by a non bank since in many countries only a bank can have access to the payments systems. The other restraint is that of customer affordability and comparisons with substitute products. The main operational costs will come from call centre staff, software and hardware maintenance/operations, the cost of communications, and plastic bank cards (if they are used).

The cost of acquisition of an account derives mainly from (a) the cost of the download of the software, particularly if this is a number of SMS's; and (b) the commission paid to the distribution channel; or (c) the employment cost if not outsourced; or (d) cost of calls if a call centre is needed. The higher the cost of acquisition, the greater the number of transactions expected will need to be in order to reach a reasonable pay back period per account. Transactions with a relatively high revenue may be the sale of airtime, acquiring and money transfer.

Fixed Costs: Major areas of fixed costs derive from the acquisition and development of software and hardware and the establishment of a call centre. Opportunities to lease the software and even the hardware from a host who provides the service on a per transaction basis are beginning to emerge.

Marketing can be seen as a semi variable cost although in some senses it is closer to a fixed cost since it is difficult to tie it to the numbers of accounts either activated or active. Since mobile banking is a new concept for most banking clients and banking is itself a new concept for many poor people, successful implementation requires significant expenditure on marketing and education. The customers need to feel that they can trust the provider as well as to understand how to use the service. Compliance is also a big driver of costs since it increases the amount of documentation collected as well as the information required to be warehoused.

Choosing a Mobile Phone Banking Format Usability/Reliability

Ben Davies and John Owens

During the September, 2008 *MicroSave*-CGAP workshop in Nepal, various m-banking providers shared the use of a range of communication formats supported on GSM networks, ranging from SMS (Short Messaging Service) through to HTTPS (internet). Each format has a number of advantages and disadvantages over the other potential formats.

The key issues faced when choosing which format to use include:

- *Usability/Reliability* – is the format easily adopted by customers?
- *Security* – how easy is it to intercept customer sensitive information for the purposes of committing fraud?
- *Ubiquity* – how many different types of phones generally used by the public support the communications format?

When evaluating these formats, m-banking/m-commerce providers need to always emember what type of service will be offered. Each transaction type has a range of characteristics that need to be supported by the communication formats. In most instances, ubiquity of the service is more important than the level of security capability of the mbanking/ m-commerce provider's platform. This is because, internationally, transaction frequencies and amounts of lower income customers are in the low/medium risk category.

Transaction Types	Risk profile	Typical Risk Mitigants
Informational: balance enquiries, mini statements	Low - information can be used to transfer value to other accounts	Identification PIN not the same as ATM/debit card PIN
Low value transactions: prepaid services - water, power, airtime	Medium - information can be used to transfer value to other accounts	Identification PIN not the same as ATM/debit card PIN
High value (designated recipients): supplier payments; salary payments; regular recipient payments	Medium - information can be used to transfer value to other accounts	Identification PIN not the same as ATM/debit card PIN
Hight value (undesignated recipients): non-regular recipient payments; card acquiring	High- information used to initiate these transactions can be used to defraud customers, most mobile phones are not 3DES compliant (do not offer security levels of a POS	Mobile phone security upped by the use of WIG/ STK or internet protocols - ideally encryption keys are hardwired onto SIM; card acquiring limited to 1 card per phone - phone becomes "personal key entry device"; undesignated recipients can become designated through verification of customer ID

Usability/Reliability

Voice has been used by financial services companies to service customers, using either a call centre operator or Interactive Voice Response (IVR) system, depending on the type of service being offered (credit applications or transaction queries vs. balance enquiries). One determining factor regarding the success of using this channel is the cost per transaction faced by the service provider (call centre, IVR platform, communications) and/or customer (communications) as well as the transactional functionality (supporting payments services for regular recipients have been successful, but not new recipient payments).

Initial m-commerce and m-banking platforms have provided services through USSD (Unstructured Supplemental Service Data) and SMS. Each type required customers to remember codes to initiate transactions, e.g. USSD requires the use of a format typically reflected in a set of *, numbers and a # (*140*12345678#) that initiate a query. In the case of both USSD and SMS, the requirement that customer remember the codes for each transaction limited the usability of the platform. In the past, m-payment transactions were limited since customers battled to remember what code to use for each type of transaction. To deal with this, m-banking and m-commerce providers generally have to provide users with quick reference guides to assist them in remembering the codes for various transactions.

USSD's advantage has been that it offers the most reliable communication format available as it is prioritised above all other communications formats offered by Mobile Network Operators (MNOs). Voice and SMS generally suffer from being second and third order priorities respectively on the network, (although SMS can be prioritised above voice). To handle issues related to this problem, some MNOs that offer mobile money services provide this service on a dedicated network that does not compete with regular voice and SMS traffic (for example Globe's GCASH).

Menu driven formats supported by USSD2 and WIG (Wireless Internet Gateway)/STK (SIM Tool Kit) have proven more user friendly for customers. The menus are either hosted on a central server and pushed to the phone or downloaded over-theair (OTA) onto the phone and stored on the SIM (for example GCASH and SMART Money). Note, however, that in some markets pushing an STK menu onto low end phone s i s sometimes unreliable and therefore extensive and expensive SIM swaps are necessary. Depending on the completeness of the menu, customers may not need to know anything more than the PIN. However, depending on the configuration of WIG/STK, delays in the sending and receiving of secure SMS can affect service levels. USSD2 (being session based) can also suffer reduced service levels if sessions time out.

HTTPS services through WAP, GPRS, 2G formats and 3G formats (including HSDPA) offer access to internet level usability on the phone. The speed of GPRS can make website downloads slow; therefore, only EDGE, 3G and HSDPA are recommended for website downloads and these will only be used as MNOs upgrade their networks over the next few years.

Security

Earlier formats tended to be less secure than more recently released formats. Voice, USSD1/2 and SMS are considered the most easily "hack-able"[1]. Encryption at the level of the network is either non-existent or very limited when compared to internet protocols. This has limited these formats usage for higher risk transaction types (non-designated recipient payments and card acquiring).

Ubiquity

Certain formats are not supported on phones. HTTPS, for example, is only available on higher end internet enabled phones. Workshop participants estimated that only 20% of mobile phones in India had internet capability, and, of those, between 20-30% had enabled their mobile phones for internet service. Providing banking services in this format would limit immediate take-up to 6% of the potential market, with the majority of users belonging to higher income bracket.

While the global trend towards HTTPS enabled mobile phones is positive and rapid, it is likely that lower income segments of society will not own HTTPS enabled mobile phones during the next 3-5 years. M-commerce and m-banking providers are therefore required to address demand from lower income segments through other formats such as WIG/STK and USSD2.

In the case of WIG/STK, the control of the SIM is required in order to load these applications onto the mobile phone. While in the past, MNOs have generally not provided access to SIMs to third-parties, partnerships between MNOs and banks are beginning to take place, especially in Asia[2]. This effectively allows the MNO to restrict access to the network to those banks with which it has partnered. In these

[1]One bank in South Africa using USSD2 technology has not experienced a single case of fraud on the platform. This was attributed mainly to the complexity of accessing the mobile phone banking application vs. other bank channels such as ATM & POS.
[2]Bank of the Philippines Islands with Globe (Philippines), Banco de Oro with SMART (Philippines), Kookmin Bank and several smaller banks with SK elecom (South Korea). It should be noted that these partnerships are often influenced by the regulatory environment and have been more challenging in some markets, especially in Africa.

cases, however, the potential penetration of mcommerce and m-banking services will be limited to the market share of the network's customer base. In countries such as the Philippines, where there are only two major MNOs, banks can easily partner with both operators. In more fragmented markets, with smaller, multiple MNOs, this may be more of an issue.

USSD2 requires less direct intervention from MNOs (MNOs need only enable the USSD2 channel – an issue for MNOs who sometimes do not have a billing module for USSD2, or who are looking to block third party providers). This opens the channel to third-party providers such as banks and payments aggregators. Once the channel is open, potential market penetration is limited to the potential market size. In the case of a bank provider, this would be the percentage of customers with mobile phones that the bank is able to target. For payment aggregator businesses, penetration using USSD2 could be 100% of the mobile phone subscriber market if a card based acquiring platform is used by 100% of the banked market. Joint ventures and partnerships (see also Joint Ventures Between MNOS And Banks, page no. 27) between MNOs and banks or networks of small MFIs using WIG/STK channels will probably be more effective in the long run to reach un/underbanked customers.

Concluding remarks

While the trend towards mobile phones supporting HTTPS is expected to be rapid, the medium-term outlook is that financial service providers will be required to use USSD, SMS and STK formats to provide access to lower income customers.

The type of communication format used is to a certain extent determined by the providers' status as a MNO, bank, third party service providers or joint venture between MNO-bank- MFI. MNOs have greater flexibility in terms of which format to use to service their customers, while banks and third party service providers typically default to USSD1/2/SMS/WIG STK solutions.

Key determinants of which format to use will depend on what services the provider is looking to offer. Security of transactions should be traded off against who the target customers are, and what types of transactions they will make.

The Role of Partnerships and Strategic Alliances to Promote Mobile Phone Banking at the Bottom of the Pyramid

John Owens

Role of Partnerships and Alliances

For small banks and microfinance institutions (MFIs) planning to offer mobile phone banking solutions, a partnership or strategic alliance with Mobile Network Operators (MNOs), banks, and/or third party service providers is essential[1].

Over the past decade, MNOs have been quite successful at establishing strategic alliances and partnerships by tapping into local networks that allow for mobile hone services to reach the bottom of the pyramid. In 2003, Globe Telecom shifted from a scratch-card based airtime top-up system to an over-the-air top-up latform that developed a close alliance and working relationship with an extensive network of distributors and microenterprise operators that grew from 50,000 in 2003 to more than 400,000 in 2006[2].

It should be noted, however, that forming strategic alliances is challenging, especially when approaching MNOs, which tend to focus on volume first, and value added services second. Hence, smaller banks and MFIs will generally need to collectively work together in order to attract the attention of MNOs and offer a arge enough value proposition.

Interesting examples of strategic alliances and partnerships between small banks, networks of MFIs, and MNOs that build on the competitive advantage that each of these players bring to the table include:

RBAP-MABS – GXI

Globe Telecom's G-Xchange Inc (GXI) realised the importance of strategic alliances and partnerships when they were approached by the Rural Bankers As sociation of the Philippines (RBAP) Microenterprise Access to Banking Services (MABS) programme that planned to help banks offer banking services that could be facilitated via the GCASH platform. This strategic partnership allowed both parties to build on their core competence and develop a full range of mobile financial services, especially mobile banking services that were suited to meet the needs of low-income clients and customers of multiple member rural banks. While on their own, each rural bank was too small to provide a sufficient value proposition for the MNO to work with them, as a collective group sharing a mobile banking platform, these small banks were able to provide a significant business proposition for the MNO.

The large and established network of rural bank branches, and the ability of RBAP and its established MABS programme, provided outreach to a large number of rural communities. This partnership leverages the close existing ties that the banks had established with tens of thousands of micro and small businesses and low income households in their communities thereby allowing them to more easily expand and offer mobile banking services in a wider number of rural communities. Likewise, the MNO was able to more quickly expand the use of their mobile money platform by leveraging the strong reputation and linkages that these microfinance oriented-banks had in their communities.

Under this initiative, five rural banks were able to register over 70,000 clients and employees for mobile phone banking services in more than 50 communities. In one small town, the Rural Bank of Cantilan was able to register over 1,200 mobile phone banking clients using the GCASH platform. With a total population of only 26,500 and approximately 6,000 households, the bank was able to help create and establish a fairly wide spread mobile payment and mobile phone banking ecosystem that benefitted both the bank and the MNO, and created a situation whereby clients were the ones that promoted the services.

[1] Cracknell, David, "Electronic Banking For the Poor", *MicroSave*, p.17, September 2004
[2] A Grassroots Approach to Emerging-Market Consumers, The McKinsey Quarterly pg 5

M-Paisa – First Microfinance Bank

While Vodafone has been very successful providing mobile money transfer services using the M-PESA model in Kenya on their own, for their new initiative in Afghanistan, Vodafone and their local partner, Roshan, quickly recognised the importance of leveraging local MFI partners in order to provide increased access banking services, especially the access to credit via a mobile wallet. To accomplish this, they partnered with a large MFI, First Microfinance Bank, to offer loan disbursements and repayments via the M-Paisa platform[3], thereby allowing the MFI to use the technology platform of the MNO, while the MNO was able to build on the existing network and large base of microfinance clients and thereby leverage the strong grassroots connections of an established MFI[4].

Orange and PlaNet Finance

Realising the importance of strategic alliances and partnerships between MFIs and MNOs, France Telecom's Orange also recently partnered with PlaNet Finance to focus on developing mobile phone banking services, first in Senegal, and later in Jordan, Egypt, and the Ivory Coast[5]. By developing partnerships and strategic alliances at an early stage, both parties benefit from the core competence of the other party. Networks of smaller MFIs benefit from the investment of the MNO in managing and hosting a mobile banking platform that can even offer collection or accounting functions, thereby allowing the MFI to focus on its core business.

Joint Ventures between MNOs and Banks

More recently, large MNOs with substantial resources have been establishing or investing in joint ventures with banks. These include: Telenor and Tameer Bank; Globe and BPI; Orange and BNP Paribas; and Orascom and Ora Bank.

Telenor and Tameer Bank

The relationship, and ultimate investment made by Telenor, grew out of a strategic alliance that started after Tameer Bank decided that mobile phone banking services would be the best channel to effectively reach out to rural clients. To do this, the bank chose to use a STK (SIM Tool Kit) solution that required a very close and integrated partnership with a MNO, in this case, they choose to work with Telenor which had 18 million subscribers in Pakistan. They also chose to take advantage of Telenor's prepaid card distribution network in order to distribute their new SIMs as well as to act as cash-in/cash-out agents for the bank. Tameer Bank had already determined that the new service would be co-branded with the MNO in order to reach out the millions of subscribers who had a strong affinity to MNO but were not bank clients.[6] After realising the advantages of having a bank license to facilitate mobile money, Telenor decided to acquire a 51% share in Tameer Bank in November 2008.

Role of Third Party Mobile Phone Banking Service Providers

In addition to partnerships and alliances between banks, MFIs and MNOs, there is also another partnership model, which includes outsourcing some of the functions of the bank or MFI or the MNO to a third-party service provider. This includes aggregators who make use of mobile phone technology to facilitate certain functions of a bank or MFI.

[3]M-Paisa is the name used by Roshan for their m-money platform in Afghanistan
[4]Interview with Aiaze Mitha, formerly of Roshan.
[5]PlaNet Finance Press Release October 27, 2008
[6]Mas, Ignacio, and Kabir Kumar, "Banking on Mobiles: Why, How, for Whom?" Focus Note 48, Washington D.C. GCAP, June, 2008.

Eko India

In India, one such model is that of Eko India, which provides access to low cost mobile financial infrastructure including IT and non-IT services for financial institutions including banks and MFIs. Eko India works along with Eko Aspire Foundation (EAF), which acts as a Business Correspondent for banks. Eko has developed a banking platform called "SimpliBank" which provides a low cost financial infrastructure that leverages the efficiency of the existing pre-paid recharge distribution network model and the customer behavior associated with prepaid airtime top-up. The third-party platform operated by Eko is intended to operate as a hosted mobile phone banking platform for various banks, MFIs, nonbanking financial companies, personal loan providers and remittance outlets.

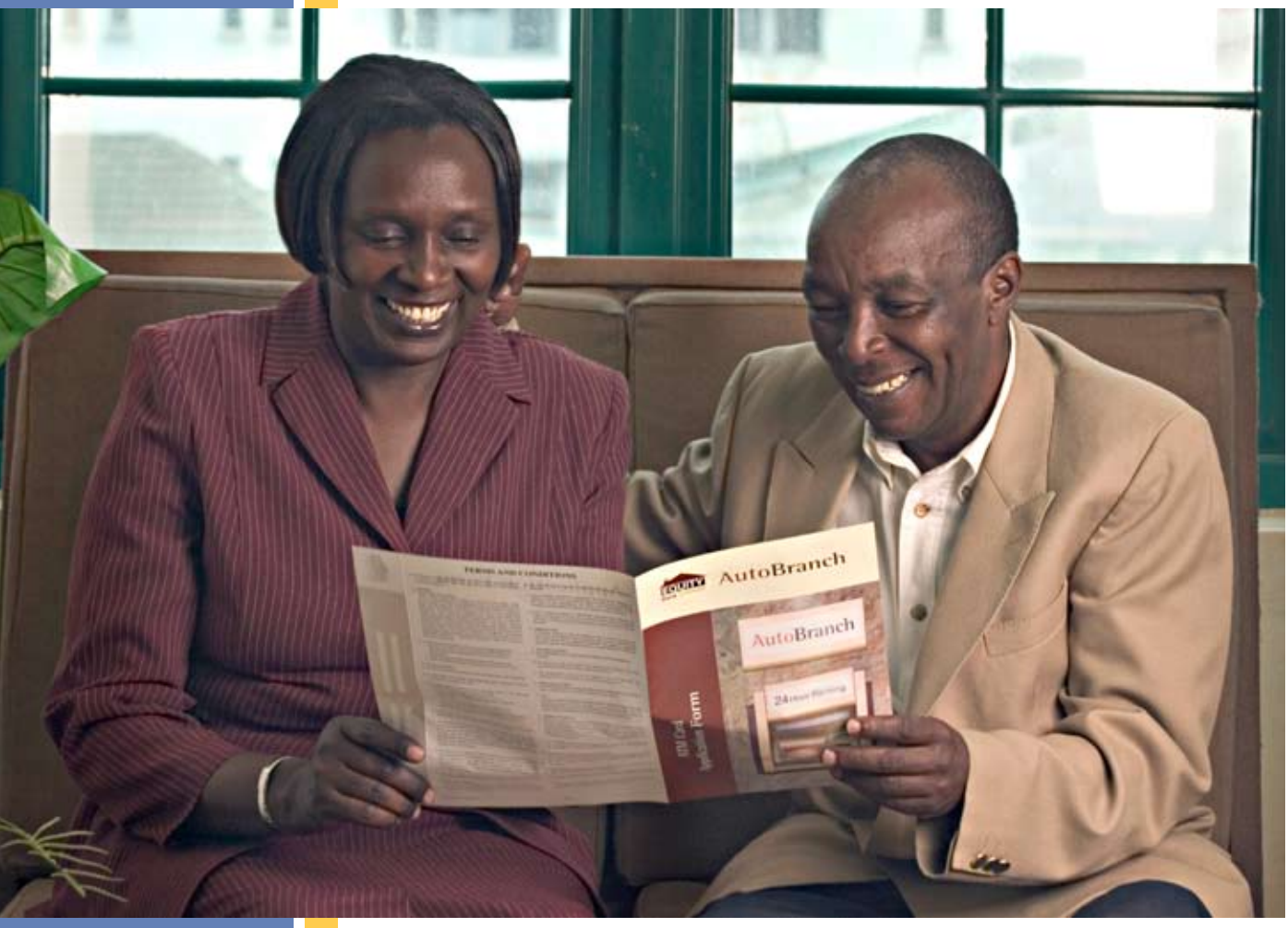
Summing Up

Small banks and networks of MFIs interested in offering mobile phone banking services will need to develop strategic alliances and partnerships with larger banks, MNOs and/or thirdparty mobile phone banking service providers. Smaller banks and MFIs will often benefit more from working together to share a mobile phone banking platform. This also creates certain economies of scale and a more promising business case for larger banks or MNOs that could host a mobile phone banking platform for the smaller banks or MFIs. Increasingly, MNOs offering mobile money platforms are also investing in or developing joint ventures with banks to more rapidly increase the range of services and uptake of mobile financial services. This can also create an opportunity for smaller banks and MFIs wishing to take advantage of mobile money platforms to facilitate access to banking services.

Lastly, third-party mobile phone banking service providers will also continue to play a role for banks as well as small MFIs who would prefer to outsource certain banking functions and turn over much of the technical development and management of an agent network to a third party.

Incentivising 3rd Party Agents to Service Bank Customers

Ben Davies and John Owens



Using 3rd party agents to service customers provides a potentially low cost distribution channel for financial service providers. Two models include:

1. *Branchless banking servicing models* adopted in South America. Driven by banks, agents act broadly as bank employees (although the legal definition still differentiates between bank employees and agents) in order to facilitate a number of services, including transactions, account enquiries and new account origination on behalf of a bank.
2. *Mobile commerce providers* operating in the Philippines, and more recently in Kenya and South Africa. Under these systems, agents fulfil a range of services for non-bank mobile money issuers (M-PESA and GCASH) as well as joint MNO – bank ventures (MTN Banking and SMART Money - Banco de Oro) service providers. Services provided by agents are typically more limited (money transfer only or new account origination only), however, providers have been increasing the range of services provided by agents, converging on the South American model.

In the case of both models, providing the appropriate incentives for agents to provide these services has been the primary challenge for banks and non-bank mobile money issuers alike. The branchless banking model adds another party between the financial service provider and the customer. In some cases, this creates "incentive incompatibility" issues, where agents may attempt to try and maximise incentives offered by the banks and/or non-bank financial service provider, which may negatively affect the relationship with the customer. So providing appropriate incentives is important in order to ensure that agents act in an appropriate manner on behalf of the financial service provider, while still ensuring an appropriate "return" for acting as an agent.

Experience has shown that four key factors affect the willingness of agents to provide these services:

1 . Complexity of Services

a. Financial services are foreign to most potential agents, who do not work in the financial services sector. Training (sometimes required for Know Your Customer (KYC) and other regulatory reasons) is a critical component of the channels success. The more complex the product sold, the more training is required, raising the administrative burden and costs for the financial services provider.
b. Related to this is that individuals, acting as agents change regularly. In larger supermarket chains for example, staff turnover can be over 30% per annum. This requires ongoing training (and sometimes certification) of new employees.
c. If processes required to provide a service by an agent are lengthy or multi-staged, it is unlikely that the agent will actively promote the service, or will require significant incentives to do so. For every stage in a process, the probability of the agent following the process incorrectly increases exponentially. Therefore, the most effective approach is to provide a straight-forward checklist type procedure that can be provided to frontline staff that is very easy to understand and follow[1].

Financial services providers should therefore design processes that are easy to understand. This inevitably means that the "front-end" platform used to process transactions incorporates a significant amount of process automation and user-friendliness in the hands of the agent. A good example of process automation and user friendliness is the account origination platform offered by a bank in South Africa through their agents. Account origination happens on a mobile phone interface with photographs of required KYC documentation captured by the agents. Back-end

[1] GCASH and SMART Money in the Philippines provide simple checklists with screenshots for each step of the transaction to be handled by the front-line personnel. Flyers and standees for customers are also provided with step-by-step instructions.

processes manage: customer verification through third-party client databases; account activation; card activation; setting of security protocols; linking mobile phone to account; activation of mobile phone banking solutions on mobile phone; and automated activation of internet banking. With this system, account origination takes just 5 minutes.

Critical to the success of the electronic account application process was getting regulator buy-in. In the case of electronic storage of KYC documentation, one bank in South Africa spent over 6 months lobbying the regulator for the required exemption. Compromises in terms of account functionality were offered to offset the perceived risks faced by the regulator. It should also be pointed out that KYC documentation in electronic format is easy to search and transactional limits set by regulators can also help to better manage Anti- Money Laundering (AML) risks.

Alternatively, mobile phone-based systems are being used in India, Kenya, and the Philippines under which agents complete tasks using manual procedures and simple SMS or STK (SIM Tool Kit) menu-based programmes to complete and authenticate transactions. In order to ensure appropriate training to frontline agents, mobile financial service providers needed to develop simple step-by-step guides with mobile phone screen shots to ensure that the customer and agent could easily process transactions.

2. Expected Volume of Transactions

Possibly the most difficult issue to manage is that transaction volumes cannot be too low to obviate the initial time and effort needed to understand the services offered, but also not too high to limit time needed to service their primary business. For example, in the card acquiring business, credit card transactions per month per device are typically managed to between 500 and 1,500. In addition, limits on mobile money transaction amounts must also be set and balanced against the needs of the clients, amounts that agents can easily handle and the concerns of regulators. Ideally, transaction limits should be similar to those set for ATM transactions in a given country.

Another important factor is ensuring that the accreditation and activation of agents is carefully planned in order to avoid a "chicken and egg" situation where there are either too few agents, or too few clients cashing in or cashing out at agents.

3. The Impact on the Agent's Primary Business

Non-financial benefits of the agency model can provide significant incentives to potential agents. This confirms the experience of POS deployment for businesses. Businesses are willing to accept a merchant discount because: card users are then guaranteed access to available funds in their accounts; businesses reduce cash handling costs; businesses with Card Association signage attract higher income customers (including foreigners with Card Association branded cards); and electronic POS transactions allow easy accounting reconciliations. Some of these same strategies can also be deployed by mobile money issuers as well as banks and their 3rd party agents. Specific advantages to agents offering branchless banking services include:

1. Bank or mobile money branding at an agent's store which can increase the spending rate in the store.
2. Cash recycling (cash withdrawals) allows agents to reduce their own cash handling costs by reducing the number of deposits made on a weekly basis.
3. Increasing the spend rate in the store by providing access to funds through the agency relationship.

4. Allowing the business to access products and services offered by the service provider (i.e. supplier payment services, salary payments and credit).

4. Fee Generated Per Transaction

Identifying what and how the fee needs to be paid to the agent to incentivise agents to provide the service is more than just the application of a margin above the service providers' costs. The fee should be determined after taking into account the previous three issues as well as determining the agents' willingness to provide the service.

Also a key benchmark that needs to be set is the hypothetical revenues generated from other transactions, either on an aggregated or per transaction basis. This sets the opportunity cost of processing transactions on behalf of the service provider.

For example, (excluding the positive impacts on current business and the fact that the reseller may have spare time available to process the transaction), if an airtime reseller receives a discount on average airtime sold totalling $0.10 per 30 second transaction, it is unlikely that the reseller would provide alternative services, unless this hurdle rate is met or the volume of mobile phone-based banking business is substantially larger.

Another issue that may be faced by potential agents is the cost associated with processing higher cash-in payments. In the case of South Africa, banks charge a cash deposit fee of 1% of the value. Providing cash deposits outside bank branches therefore requires the deposit fee to cover this cost. In the case of the cash-in leg of the Money Transfer, the fee would need to be at least $0.50 to cover the cash deposit fee of an average money transfer. In the Philippines, both Smart and Globe Telecom covered the costs of the cash-in fee at their branches as well as at various bank and major 3rd party agent locations, thereby making it basically free for customers to convert cash into mobile money.

In contrast for cash-out payments, the agents' fee could be very low as funds are transferred into the agents account at no cost, obviating cash deposit fees. However, in the case of MPESA in Kenya, limited access to cash at "cash-out" points has forced M-PESA to incentivise agents to hold cash by offering higher agency fees for larger value transactions.

Concluding remarks

The role of 3rd party agents is one of the most important issues for those undertaking branchless banking initiatives. The key is to develop a straightforward system that provides enough of a value proposition for the 3rd party agents while properly controling costs for the branchless banking operator.

Critically, the importance of local conditions requires managers undertaking a branchless banking initiative to:

- Investigate international experiences (see CGAP Technology site for more information) ;
- Adapt to local market conditions;
- Balance the timing and deployment of agents vs. potential clients; and
- Balance the amount and types of incentives in order to ensure that there are no "incentive incompatability" issues.

Pilot and Rollout Issues for Mobile Phone Banking Services

John Owens

During a CGAP-*MicroSave* workshop on mobile phone banking services held in Nepal in August 2008, participants shared the challenges in pilot testing and rolling out mobile phone banking services. They noted that during the pilot test, a number of factors have to be taken into account including: institutional issues, regulatory and compliance issues; monitoring and feedback from customers and merchants during pilot test and rollout; partnership support and coordination.

Institutional Issues

Frontline Staff: Introducing mobile financial services usually requires quite a bit of training for existing staff especially in small banks or MFIs where multi-tasking is often the norm. Many institutions also initiated their mobile phone banking services by getting their own employees to pilot test the new service and provide feedback. Several rural banks in the Philippines actually decided to require all of their staff to accept their salary and/or allowances via the banks' new mobile payroll service that used the GCASH platform and allowed the bank to test all cash-in and cash-out services. This effectively served to ensure staff members were properly trained in all front line procedures, as well as become accustomed to using mobile money and thus could effectively promote the services to others.

In addition, staff members can be an important resource for pilot testing, especially where there are large numbers of staff that can provide feedback to the institution. Equity Bank's pilot lasted many weeks and staff raised several issues that needed to be addressed over a longer pilot testing period.[1]

In addition, specialised marketing staff may be required, especially in the early stages of offering the new service, in order to promote and educate clients about how to register and use of mobile phone banking services. These may be contractual agents, as in the case of WIZZIT, which hired and trained specialised "Wizz Kids", focused on recruiting and promoting the mobile phone banking services offered by the bank.

Marketing and Call Centres: As mobile phone banking services move from a pilot test to rollout stage, the marketing and publicity strategy needs to be properly planned out. Aligning closely with Mobile Network Operators (MNOs) can offer unique mass marketing opportunities that financial institutions would be unable to achieve on their own (i.e. MTN Banking and SMART Money).

Also, institutions will need to either set up a call centre, or coordinate with an existing service, to ensure that customers' and merchants' questions can be properly dealt with and handled. In the case of the Philippines, rural banks using the GCASH platform were able to effectively coordinate and use Globe's own GCASH call centre to answer basic questions about some of the services being offered by the bank. In addition, a website was set up so that bank frontline staff could easily go online to access up-to-date information on frequently asked questions.

Back Office: Institutions must also develop appropriate operations and procedures manuals that document each and every step of the mobile phone banking process. These procedures should be carefully tested during the pilot test and then modified before the rollout. Careful checklists and step-by-step flow charts for each and every product or service are useful to ensure that the new procedures are easily understood by new and existing staff.

Systems Development: In almost all cases, institutions will require some amount of strengthening of their back office systems. This is especially the case for larger banks where mobile phone banking

[1] CGAP-*MicroSave* M-banking Dialogue Deliberations, September 2008.

services are directly linked into the back-end systems of the institution (as is the case in Equity Bank, XAC Bank, Tameer Bank).[2] However, it should be noted that as the use of mobile money expands in several countries as a payment option, smaller banks and MFIs may find that they only need to prepare simple procedures and accounting entries to make use of mobile money for loan disbursements, payments or micro remittances.

Regulatory Compliance Issues

The Basle Risk Management Principles for Electronic Banking also apply to mobile phone banking services and should be understood by small financial institutions planning to offer these services to their clients.[3]

In the Philippines, the Central Bank (Bangko Sentral ng Pilipinas (BSP)) issued their own guidelines for electronic banking - circulars 240 & 269 (2000), which are a useful resource and guideline for other countries and institutions to follow. In 2006, the BSP went a step further with the issuance of circular 542 that focussed on consumer protection issues. The BSP also set up a specialised department, the Core Information Technology Supervisory Group that focussed on reviewing electronic banking applications. The close working relationship that this group established with MNOs as well as financial institutions is an exemplary model for other regulators dealing with a similar issue in their countries[4]. A case in point, was the approach taken by Rural Bankers Association of the Philippines (RBAP), which was able to assist rural banks with speeding up the application process since the BSP was able to review and approve standardised e-banking procedures for rural banks that had been developed with the support of RBAP and it's USAID-supported Microenterprise Access to Banking Services (MABS) program. Once standardised operating procedures were reviewed and approved, the BSP was able to quickly review and approve over 45 separate rural bank applications for mobile phone banking services using the GCASH platform.

Pilot Testing and Monitoring

Proper pilot testing includes an initial beta test or user acceptance test phase as well as fieldtesting the product with staff, clients, and merchants (especially when agent-merchants are utilised) to monitor their response and behaviour; assess how the system performs in different locations; test the validity of third party business cases; and test the entire support and procedures from the frontline staff to the back office operations.

During the pilot testing of mobile phone banking services in the Philippines, it became apparent that the distribution network of cash-in/cash-out agents to facilitate easier access to mobile money needed to be approached differently. The initial strategy of focusing on airtime top-up agents was not a viable due to much higher commissions associated with loading airtime, so the banks shifted to encouraging their own client base to promote cash-in and cash-out services that was made possible by adding the Text-A-Deposit and Text-A Withdrawal services whereby larger merchants could easily deposit or withdraw mobile money remotely from their bank accounts making access to GCASH much easier. In another pilot test of using M-PESA for microfinance loan payments, a local MFI, Faulu, quickly discovered that the system was not appropriate for group-based lending systems.

One commonly reported challenge for pilot-tests and rollouts of mobile phone-based systems is that after the beta-test, if the system is successful, it is very difficult to keep the number of subscribers low and thus run a neatly controlled test. Several m-banking systems that have met a real market need,

[2] **Mas**, Ignacio and Kabir Kumar, Banking on Mobiles, Why, How, For Whom?, CGAP Focus Note 48, June 2008
[3] Bank for International Settlement (2003)
[4] Philippine Regulatory Approach provides exemplary m-banking model, Nokia Expanding Horizons, Q1 2008

report being overwhelmed in a variety manners (IT systems, call centre management, agent/liquidity management etc.) as the product takes off and is accepted. Thus service providers often find themselves struggling to keep up with, and respond to, the changing needs and emerging challenges presented by the burgeoning business. Telenor reached up to two million customers in the weeks after the launch of their new service. Given the difficulty in stress testing systems, it is extremely important to ensure systems can handle considerably more demand than is anticipated[5].

Partnership Support and Coordination

Except for larger banks, creating greater access to financial services via a mobile phone will require a partnership approach to achieve economies of scale. This means that smaller banks and MFIs will need to coordinate with MNOs, banks, merchants and others. Support from specialised third-party service providers (for example Eko) or networks (MABS, PlaNet Finance, *MicroSave*, ACCION) can assist member banks, credit cooperatives, or MFIs to develop proper standards and procedures that make developing, pilot testing, and rolling out mobile financial services much easier than would be possible if they attempted to develop a similar service on their own. In negotiating with MNOs, small individual banks or MFIs generally need to consider sharing a mobile payment platform and establish a single negotiation with the operator(s)[6]. The pilot test phase also offer an opportunity to test partnerships, this was especially the case between MNOs and MFIs such as Globe-RBAPMABS-Rural Banks, M-PAISA-First Microfinance Bank, and M-PESA-Faulu and thirdparty agents such as Eko India. The pilot test phase also allows all parties to analyse the business case for each partner to ensure that each is benefiting from the partnership.

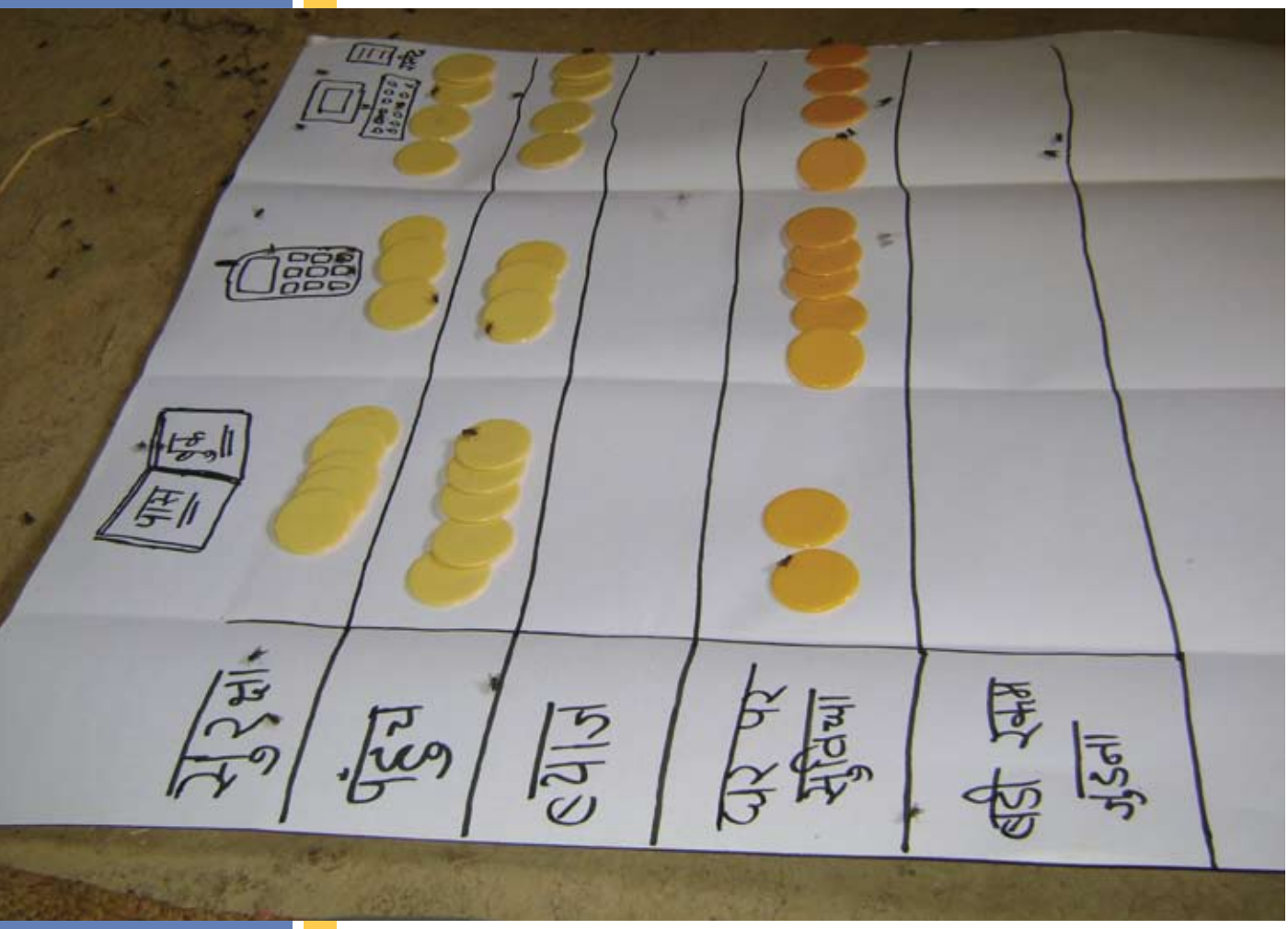
In Conclusion

The experience to date is that traditional pilot testing and incremental entry for mobile phone banking services is difficult and quite unique from testing and rolling out other financial services and products due to the newness of the technology, new partner relationships, and regulatory challenges. Institutional issues include significant training for frontline and back office staff. New technologies also require changes in systems and procedures. Regulatory compliance issues must also be addressed and it is important to get the regulators on board early. Pilot testing mobile phone banking applications can also be challenging due to the potential for exponential uptake which may make controlled pilot tests more difficult so most institutions at least start with their staff and selected clients in the beginning. Testing partner relationships whether they are between banks, MFIs, MNOs, or third party service providers, or combinations of all four, are important. Smaller MFIs will most likely need to group together or work through networks in order to offer mobile phone banking solutions.

[5] CGAP-*MicroSave* M-banking Dialogue Deliberations, September 2008.
[6] Mas, Ignacio and Kabir Kumar, Banking on Mobiles, Why, How, For Whom?, CGCAP Focus Note 48, June 2008

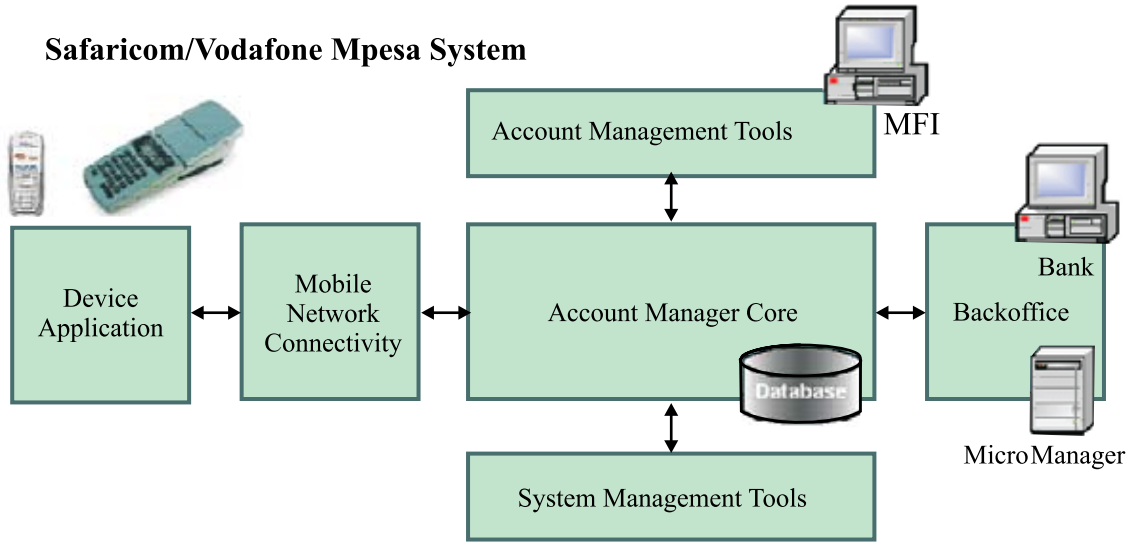
Mobile Phone-Based E-Banking: The Customer Value Proposition

Graham A.N. Wright, Nick Hughes,
Brian Richardson and David Cracknell



Introduction

There is growing consensus that e-banking offers a unique opportunity to address mainstream banks' two major barriers to serving the low-income market: the need forabranch infrastructure and managing high volumes of low value transactions. In addition, ebanking systems hold the promise of being able to extend centralised banking systems deeper into rural communities[1].



Despite this, the many examples of failed e-banking initiatives provide ample warning that offering e-banking solutions is not an easy proposition. Only very few of these initiatives have failed because of technological problems – the technology and security requirements are broadly understood and available. Where e-banking products have often failed is because they have not adequately addressed the customers' needs. Too often the financial institutions have focused on the technological solution or the savings that it can generate for their business, without considering the needs of the customers or the intermediary agents who usually have to provide the service to them. This Briefing Note examines these issues in the context of mobile phone-based e-banking solutions.

What Low-Income People Want

Customers often want more than just a new channel for traditional banking services. Indeed, traditional services can be irrelevant or of limited value to the low-income market. Vodafone's initial research in Kenya noted two key customer requirements for a mobile phone-based system to succeed:

1. The ability to answer the simple question, "What is in it for me? I need a secure, convenient and lower cost service for financial products that meet my requirements".
2. The importance of moving money around quickly and across the customer's own network. Airtime transfer models have demonstrated this. In Kenya, Safaricom launched the Sambaza product that allows subscribers to send small amounts of airtime value across the network to others. After just a few weeks, many thousands of transactions were being made using this service.

[1]For more on E-banking, see Cracknell, David, "Electronic Banking For the Poor - Panacea, Potential and Pitfalls" – available on *MicroSave*'s website: www.*MicroSave*.org under the Study Programme section.

MicroSave is grateful to the co-authors of this Briefing Note: Nick Hughes is Head of Social Products & Enterprise for the Vodafone Group and Brian Richardson is Managing Director of Wizzit

Typically poorer people are looking for the following from a current account offered using ebanking systems:

1. A safe place to keep money.
2. Accessibility / liquidity – The ability to turn electronic money into hard cash and vise versa at convenient locations (agents / ATMs).
3. Ability to transfer money – to and from the financial institution, to make payments and to remit value to friends and relatives.

As part of its preparatory phase, Wizzit used focus groups to establish the spending patterns and financial transactions of its low-income target group and the mobile phone-based solution was built on the basis of this research. Wizzit quickly learnt that the clients wanted inter-operability with the mainstream ATM/POS-device-based payments system, which is already extensive throughout South Africa.

Benefits – Not Features

In market research conducted for *MicroSave* Action Research Partners implementing mobile phone-based e-banking solutions, clients identified the following benefits:

1. It is fast and saves time. *"There is no more wasting time ... the funds are very near formy use at any time"*.
2. The savings associated with the loan disbursement process (which removed the need to go to the bank and pay the fees to cash the cheque).
3. The reduction of hard cash in some transactions enhances security. *"One does not have walk around with money in his/her pocket ... my money will still be secure even if I lose my SIM card"*.
4. The solution is also likely to provide convenience especially with person-to-person transactions. *"...It is almost a 24 hour service."*

Barriers and Challenges

Conversely, there are also significant barriers to the use of mobile phone-based solutions:

1. Many low-income people, almost 80% of one microfinance institution's customers in a recent *MicroSave* market survey, do not have mobile phones. Many of these do, however, have access to mobile phones through friends and relatives. Mobile phone public call offices could also assist in overcoming this problem.
2. The experience in Kenya has shown that some customers require significant training to become familiar with phone-based services. It is possible to define a target customer profile according to their degree of comfort with phone usage.
3. Some agents may not have sufficient funds to meet clients' requirements forcing customers to move from one agent to another looking for cash.
4. Agents may require additional security as they hold greater liquidity to meet the demand for cash.
5. Customers may not be able to read or send SMS messages. In India one bank is eveloping a solution using numeric messages – so, for example, to send money will be "121", the mobile number, the amount involved, and the PIN number.
6. Some suppliers may refuse to accept the new mode of payment without significant marketing in order to win their confidence in it.

7. Many rural people do not have electricity in their homes and have to walk to the nearest market to pay to recharge their phone.
8. Some handsets have limited features for example memory and word space.

Keep It Simple and Learn Together

Many of these concerns reflect the fact that because the technology is new, people are likely to use the solution cautiously. Experience in South Africa and the Philippines shows that once customers have past making around three transactions a month they lose their fear of the technology and the number of transactions increases substantially.

Technology specialists and bankers often exacerbate this problem by over-complicating the solution, adding every possible function. In some cases solutions are offered without a clearly defined need for them. It is important to get into the market with one application responding to a specific need and then expand usage.

In Philippines and South Africa, providers have seen an iterative learning process - to assess if the solution works and if not to go back to clients to get feedback and then revise it. Providers also involved users in how to perform transactions and how to better address their needs. E-banking applications are often 'data rich' allowing analysis of usage quickly by the service provider and providing a strong basis for customer relationship management.

Cash As King

It is important to understand when customers need to use cash and when they do not. Certain transactions have low cost – going to the shop for a small purchase, for example. Whereas the cost of a remittance or transfer is much higher, for example bank charges for processing salary or pension payments. These charges could be reduced if a cheaper mechanism was used.

Nonetheless, to put cash into people's hands is an extremely expensive exercise – both for the financial institution and the customer. ATMs need to be maintained and stocked with cash; and agents with POS devices or offering cash-back facilities need to derive value from providing these services – either in cash or through increased business, and ideally both! Similarly, the perception that cash is free or frictionless for the low-income customer is wrong, when transport and time re taken into account.

However, providers are only going to be successful in the short term if they concentrate on areas where cash is inconvenient and the solution can do things that cash cannot. Examples of this include:

1. Cash on delivery payments.
2. Small business people's payments (to suppliers and repaying individual loans) from their business premises.
3. Distributors' truck drivers who no longer carry cash.
4. Salary payments, especially convenient where high volumes of small wages are disbursed into remote locations
5. Insurance companies (collection of premiums and payout of lump sums).

Conclusion

E-banking solutions' ability to respond to these needs and to provide real customer value for the agent and end-user alike will determine the ultimate success of mobile phone-based (and all other) e-banking solutions for the poor.

Creating a Tipping Point for Mobile Phone-based Financial Services

John Owens

The take up and active use of mobile phone-based financial services, other than mobile airtime purchases, has been slower than anticipated. This is due to a number of issues including a lack of understanding of mobile financial services, lack of trust in sending money via a mobile phone, and low levels of technological literacy. As more and more institutions focus on mobile financial services, it is now generally accepted that some amount of financial education will need to be provided in order to address and overcome these issues.[1]

In order to understand some of the key elements needed to educate clients about mobile financial services and to reach a critical mass of clients and customers using these services, it is important to understand a bit about what has made other similar campaigns effective. In his book, *"The Tipping Point: How Little Things Can Make a Big Difference",* Malcolm Gladwell describes three agents of change that create tipping points in the spread of various social epidemics.[2] Under the "Law of the Few" he talks about the importance of building social epidemics by involving a rare set of people or partners with a special skill set. These include connectors, mavens, and salesmen. Connectors are the people who *"link us up with the world…these are people with a special gift for bringing the world together*"[3]. Mavens are the information specialists or the "*people we rely upon to connect us with new information*"[4]. They are the ones in each community who accumulate knowledge and know how to share it with others. Salesmen are the "persuaders" and have charismatic and powerful negotiation skills. They tend to be the ones that have a special trait to make others want to agree with them. The second major agent of change is referred to as the "Stickiness Factor" or the specific content of a message that makes it memorable and the third major agent of change is referred to as the "Power of Context." This last factor points to the fact that human behaviour is sensitive to and strongly influenced by the environment and the surrounding circumstances at a particular time and place.[5]

In understanding how to better promote and educate people about mobile financial services, these three factors can be used to analyse some of the approaches now taking place.

The Law of the Few – Strategic Alliances/ Partnerships and Marketing Agents

Establishing strategic alliances and partnerships as well as attracting and training marketing agents is one of the key areas in promoting and educating clients about mobile financial services. In the Philippines, the Rural Bankers Association of the Philippines (RBAP) Microenterprise Access to Banking Services (MABS) program approached Globe Telecom's G-Xchange Inc. (GXI) subsidiary just after it had launched the GCASH platform in October 2004.

The MABS programme had a long established history and had gained experience with banks in developing market-based solutions for the development of microfinance products and services. The rural banks, on the other hand, were important "connectors" and "mavens" in their respective communities with long established histories that date back decades, with some banks having a 50-year history in their communities. Their connections with hundreds of thousands of microenterprise borrowers and millions of small depositors made it easier to help to provide information and promote the opportunities and advantages of mobile financial services, especially mobile phone banking. Several banks hired mobile phone banking specialists who acted as "salesmen" not only to register and encourage clients to actively use mobile phone banking services but also to initially target particular business owners who were seen as connectors, mavens, and established salesmen in their own right. These included the heads of market

[1] Microfinance Opportunities, Freedom from Hunger, Genesis and *MicroSave* have done significant work on this already.
[2] Gladwell, Malcolm "The Tipping Point: How Little Things Can Make a Big Difference", Back Bay Books, 2002
[3] Gladwell, p. 38
[4] Gladwell, p. 19
[5] Gladwell, p. 129

vendor associations, small but popular pharmacies, travelling salesmen, and even hair salon operators. These key businesses were important since they are the ones that can create a tipping point where they actually advise other customers about the benefits and features of mobile financial services.

WIZZIT also used unique "salesmen" known as "Wizz Kids" who were from the same socioeconomic background and from the same communities to directly connect to potential clients. The selection of right "connectors" and "salesmen" is also apparent in the case of Eko India, which is using small business agents to train and recruit clients to offer mobile phone banking services.

The Stickiness Factor – Branding and Building on Initial Uses of Mobile Financial Services

In order to ensure a sufficient level of "stickiness" to educate and promote mobile financial services, branding and building on the initial mobile financial service experiences (airtime loading) that most clients are familiar with are key. GCASH and SMART Money in the Philippines were easy to brand since they also operated under the national brands of the two major mobile network operators (MNOs), Globe Telecom and Smart Communications, which combined serve some 60 million subscribers. In fact, when the rural banks in the Philippines were developing mobile phone banking services, they opted to co-brand their products with the MNO, since the brand was well recognised and allowed the banks to jointly support and benefit from an already established national brand.

In countries where mobile financial services are increasing, the initial focus has been to encourage clients and businesses to switch to mobile phone payment/money transfer platforms to facilitate airtime reloading and money transfers. Examples of this include GCASH and Smart Money in the Philippines and M-PESA in Kenya. Due to the low value amounts that clients can load their pre-paid accounts, most pre-paid customers load their mobile phones several times a week and this is important in becoming familiar with the uses of mobile money and increases the "stickiness" factor.

Understanding how small clients shifted from the normal scratch-card-based airtime loading systems to an electronic airtime loading system via a mobile wallet is important in order to educate the public and promote a broader range of mobile financial services, especially mobile phone banking services.

Repeated use of new technologies, whether they be ATMs, Smart Cards, or mobile financial services is necessary for clients to learn and remember how to use new technologies[6]. Having clients regularly use a mobile phone and a PIN to convert mobile money to airtime load, or use it to send a money transfer, is probably the easiest way to get clients accustomed to using a mobile phone for payments. As clients become familiar and grow more accustomed to relying on mobile money, other services, such as mobile phone banking services, are then easier to introduce.

The Power of Context – The Customer Value Proposition

In promoting mobile financial services, especially mobile phone banking services, the focus must be on the value proposition for the customer. The important messages to focus on in an educational campaign include: why a mobile channel is better than alternatives, the various types of transactions that are possible, the speed, accessibility, convenience, ease of use, low cost and improved personal security in using mobile financial services.

[6] Cracknell, David, "Electronic Banking for the Poor", *MicroSave*, September 2004

Television campaigns, sitcom shows, advertorials, billboards and the use of videos that demonstrate the actual use and benefits of mobile phone banking services can also be important in helping to develop the appropriate "context" of mobile financial services. SMS campaigns are also viewed as very effective, and of course, are cost effective for MNOs. In the Philippines, these examples include MABS Mobile Phone Banking videos, Globe Telecom's promotion of GCASH during popular daytime shows, and television ads and commercials produced by Smart Communications to promote SMART Money. M-PESA also successfully used short videos, as well as one local television ad with a catchy jingle that focused on the advantages of quickly sending funds from the city to the countryside.

M-PESA's Tipping Point

Since its launch, M-PESA continues to report phenomenal growth and far reaching popularity with close to 5 million egistered users moving an average Kshs.120 million per month.

Strategic Alliances/ Partnerships – The growing number of subscribers have access to over 4,000 conveniently located MPESA outlets nationwide that also double up as sales and key information points. They include leading supermarkets chains, banks and ATM service providers – partnerships that have substantially reduced the challenge of insufficient cash float.

Furthermore, following in the footsteps of GCASH and Smart Money, Vodafone announced its partnership with Western Union to pilot its cross border Mobile Money Transfer (MMT) service that lets customers send remittances between the UK and Kenya.

The Stickiness Factor – M-PESA benefits largely from its strong brand association to its parent company – Safaricom – East Africa's most profitable company serving over 12 million subscribers. Its popularity and use is such that now many small to medium sized companies are using the solution to pay salaries to their casual labourers. Over and above sending and withdrawing cash, buying airtime, M-PESA clients can also pay their post-paid bills, purchase goods and withdraw funds. In addition, client now have the option of withdrawing cash from a PesaPoint ATM.

The Power of Context - Microfinance clients essentially look for five things when deciding to choose a financial service provider. Namely: convenience, affordability, trustworthiness, proximity and security. These are not only critical financial service attributes to a microfinance client but are M-PESA's demonstrated and strongest brand attributes. M-PESA's strong marketing arm uses these attributes in its wide range communications channels that includes both above and below the line channels to inform and encourage use of M-PESA's range of services/functions.

Source: Corrinne Ngurukie, *MicroSave*

Mobile financial services, especially mobile banking services, are now being viewed as having the potential to reach a large number of customers, especially un/underbanked customers. This is because of the widespread availability of mobile phones worldwide as well as the ability to offer clients an enhanced range of financial services at very low cost. But to realise the full potential of the mobile banking revolution, providers will have to achieve trust and understanding amongst a critical mass of potential customers.

Issues in Mobile Banking 2: Regulatory and Technical Issues

Jenny Hoffmann[1]

[1]The author recognises the contribution of the Finmark Trust in funding earlier work on which this chapter is based.

Introduction

Regulation requirements – or in some cases the lack of understanding/interest of the central banks – remain one of the key barriers to implementing mobile banking by financial institutions. In addition, many financial institutions struggle with technology issues around selecting appropriate systems and delivery channels. This Briefing Note seeks to shed some light on these issues.

Access to Payments Systems

In some countries such as South Africa, only a bank can participate in the national payments system and all instructions to make payments on behalf of a customer are deemed to be acceptance of deposits and can therefore only be undertaken by a bank. If this is the case then a non banking operator will need to either obtain their own banking license or else form an alliance with a bank so that deposits or 'the business of a bank' will be done within a division of that bank. One option that may be available in some countries, to avoid the need for a bank license, would be to use an electronic purse, which can be differentiated from a bank account as the source of transactions, although the float account itself would still need to be housed in a bank. Finally, it may be possible to make use of legislation (where it exists) governing electronic money to avoid the need for a banking license. In South Africa, e-money can only be issued by a regulated bank and there remains a lack of clarity in many other countries. This ambiguity may in itself be regarded, as an unacceptable business risk and make a relationship with a bank seem more attractive.

Anti Money Laundering

Mobile banking offers increased advantages to the customer and the provider as the number of services, which can be offered from the handset increases. Transacting from a mobile phone reduces the costs to the provider and makes the banking experience more convenient and more cost effective to the customer. However, anti money laundering regulations increasingly require greater face-to-face interaction between financial institution and customer in terms of identifying customers, so called Know Your Customer requirements. The service provider will have to establish the best ways to open accounts and to monitor transactions subsequently. Some countries do provide for reduced authentication requirements for account holders, which are regarded as low risk, but there is usually still a requirement for some face-to-face interaction either with employees of the financial institution or its agents. Both the United Kingdom and South Africa have introduced the ability to open accounts without the face-to-face interaction as long as the risk of identity fraud can be mitigated in other ways. The cost of effectively monitoring ongoing transactions remains.

Using Agents

The selection and management of agents will be restricted to those who can meet the specific regulatory requirements for the taking of deposits and management of documentation in the country of operation and this may add significantly to costs. Furthermore, regulation may be a factor in the services that can be offered by an agent and the ability to manage operational and reputational risks.

Agencies for Accessibility: Agents enable service providers to interact with large numbers of customers. The ability to offer services such as basic training, physical information materials (manuals and leaflets), physical identity authentication, documentation verification, replacement cards, etc. depends firstly on the ability to either own one's own distribution channels or to find agents such as retailers, community groups, NGOs etc. The Safaricom M-Pesa model in Kenya uses airtime resellers and these agents are required to keep a cash float.

Customer Service and Information Sources: A multi lingual call centre can provide assistance with some transactions and technical information but there are some services that do require physical interaction. However, the centralised nature of a call centre means that the business is better able to control performance. Call centres can themselves be an expensive solution depending on the extent to which costs are fixed or variable and the problems of needing flexibility and a high level of service.

Costs and Commissions: The costs of agents needs to be carefully managed since the commission required will need to be comparable with the opportunity cost of their core business or other agency business. Agents who are paid to open accounts can be paid either on a per account basis up front, or based on a transactional or usage model (as for airtime usage with cell phones) or for a combination of the two. There will be a trade off between risk and cost since many people, at least initially, will open an account but the number of transactions may remain low for some time. However ongoing commission would be more expensive in the long run if the business becomes successful.

Systems

Implementing a mobile banking system requires decisions to be made regarding the choice of systems. This covers:

- the platform or computer system to be used,
- the enabling technologies such as the SIM (such as the SIM toolkit or a browser) or the handset,
- the interactive technologies such as WAP, SIMToolkit and Java, and
- the transport or bearer channels on the GSM or CDMA mobile network such as voice/touch tone dialing (IVR), SMS or USSD.

Decisions will be Driven by Various Factors Including:

- The regulatory environment - this includes the security requirements of the card associations if the offering is to include branded plastic cards and/or the requirements of a national payments system and the Central Bank.
- The level of functionality required by the market, for example whether the system merely offers information such as a balance enquiry or will it be required to make person to person payments.
- The availability of secure infrastructure such as SIM toolkit and SAT allowing greater risks to be taken.
- The availability of features on handsets such as WAP, Java or the Simtoolkit GSM 03.48 (which allows the SIM to 'give instructions' to the handset) This impacts on the customer experience such as the level of interaction with a menu.
- The level of risk of transactions for example based on the value and/or the type of customer transacting will drive the level of security required or the processes used to open an account.
- The sophistication of the market and its preferred method of interfacing with the service e.g. SMS, USSD strings, voice etc.
- Affordability for the customer and the business case of the provider, relating for example to the average size and frequency of transactions expected.

The process will be iterative and multi dimensional as choices impact on other choices both technically and financially. The business and its compliance officers will need to work closely with the technical experts. There will always be risks in technology based applications and the business needs to decide whether to manage this through its business practices or in the technology itself, recognising that the choices around technology will ultimately determine the size of the potential market.

Patents and Legal Risk: There are various patents relating to the use of mobile telephones in banking which may restrict or increase the costs of any business in this domain.

SMS and USSD: There is a debate regarding which channel is preferable but the final choice will depend on many of the issues raised above such as perceived level of risk of the transaction as well as market preferences and sophistication. For example, using the USSD string requires the customer to enter a string of numbers and/or letters, which will often result in errors as opposed to the use of structured commands or a menu. However, USSD commands can be used by virtually any handset and would be very appropriate for simple requests for information such as balance enquiries which could be saved onto the phone. USSD phase 2 does allow for a menu function. However, risk management practices will determine whether USSD or SMS toolkit or WIG/WAP is necessary or not.

Interactive Voice Recognition (IVR): Depending on the culture and respective pricing of each channel, in some countries it may be worth looking at the use of IVR. Vodafone has used this successfully in Egypt. This however places a higher traffic load on the network and depending on whether the customer is charged for the time that they are active may affect the attraction and viability of the service.

Electronic Banking: The Next Revolution in Financial Access in India?

Graham A.N. Wright[1] and Manoj K. Sharma[2]

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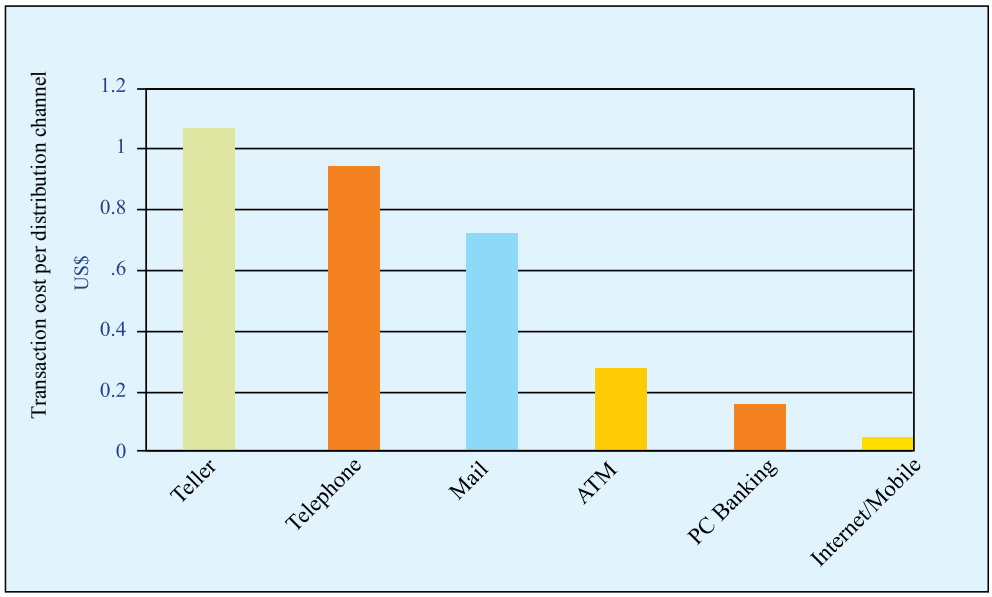
[2] Manoj K. Sharma is Deputy Programme Director of *MicroSave* India

Introduction

E-banking has the potential to revolutionise access to financial services for the poor. As David Porteous, then CEO of the FinMark Trust in South Africa, noted in a recent *MicroSave* [3] virtual conference on e-banking, "Does e-banking not offer the prospect of substantial, if not massive, progress in banking the poor, provided certain threshold conditions are met?"

There is growing consensus that e-banking offers a unique opportunity to address mainstream banks' two major barriers to serving the low-income market: the need for a branch infrastructure and managing high volumes of low value transactions. The potential of e-banking to significantly extend the reach of financial institutions into rural areas, without investing in "bricks and mortar" branches, is widely acknowledged. Nonetheless as William Randle notes, there are often significant disincentives for banks to develop ebanking solutions: "Existing branch delivery systems, which absorb more than half the operating capital and define the organisational structures of most banks, represent an important incentive to maintain the status quo."[4]

Figure 1: Illustrative Costs per Distribution Channel



Source: Quoted in Ketley and Duminy 2003; BAI

However, this reticence of banks to invest in alternative channels, and particularly mbanking, for the poor is changing for several reasons:

1. The reduced costs of serving customers through e-banking channels (see Figure 1);
2. Increasing number of high-end customers are seeking e-banking solutions and thus the banks are adding to their e-banking infrastructure – either through direct investment or through a growing range of collaborative switches that allow interoperability across networks;
3. The profitability of these complex systems is driven above all by the numbers of transactions and customers using the services they offer;
4. The steady (if not yet dramatic) falling costs of ATMs and point of sale (POS) devices and mobile phone hand-sets;

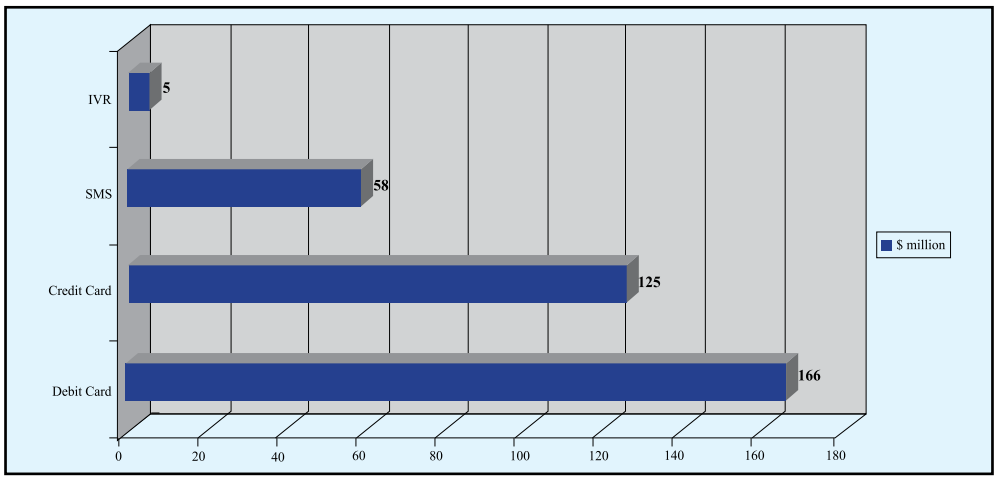
[3] *MicroSave* is a technical assistance and training service provider that assists financial institutions develop market-led products and delivery systems for the low-income market. Visit our website: www.*MicroSave*.org.
[4] Quoted in Stegman (1999)

5. The size and potential of the market at the "bottom of the pyramid" is now betterunderstood and recognised than previously; and
6. There is growing pressure from the telecommunication companies for collaborative arrangements with banks – and thus driving banks to enter into these agreements before their competitors do.

In India, both the Government and the regulator are quite concerned about the skewed outreach of the banking sector including the nationalised banks. Of the 428 million deposit accounts in the country, only 30% are in rural areas. With a rural population of 741.6 million, the rural penetration of banks is as low as 18%.[5] Even when access to banking is available, "The transaction costs of savings in formal institutions in India were as high as 10% for the rural poor. This was because of the small average size of the transaction and the distance of the branches from the villages." [6]

These effects and the skewed outreach is further amplified by the service area system that has denied private sector commercial banks access to the rural areas, despite the primarily rural focus of the priority sector lending (PSL) requirements. This creates great incentives for those banks subject to the PSL requirements to extend their reach into the villages through alternative channels. Furthermore, subject to changes in the regulatory environment (discussed below), the increasing penetration of mobile phones and the extensive PCO network across the country, offer huge potential to massively increase access for poor households across the country.

Figure 2: PV Investment to Install and Maintain Systems in South Africa



Source: Datta, Arnab, Mehmet Pasa and Tom Schnitker (2001)

1. Assumes market of 150,00 merchants with 25% penetration of POS
2. SMS/IVR require one time cost of $5 million for back-end IT systems Figure 2. Present Value to Install and Maintain E-banking Systems in South Africa

Furthermore, as shown by Figure 2, this could be done on a very cost effective basis, thus offering the hope that mobile-based banking could become the basis for financial inclusion on a scale hitherto only dreamed of by the most optimistic of visionaries.

However, for all the growing talk of a revolution in financial access for the poor through ebanking, there is limited evidence of it actually happening. Indeed markets across the globe are littered with examples of unsuccessful e-banking initiatives that failed to achieve their potential. Despite the backing

[5] Singhal, Amit and Bikram Duggal "Extending Banking to the Poor in India" ICICI Bank, India 2002.
[6] Markson, Todd, Michael Hokenson and C. K. Prahalad "University of Michigan Business School – Case Study" 2003

of Hewlett Packard and a host of well-known microfinance network organisations, the much heralded RTS system in Uganda has been abandoned by three of its four partners and seems to have stalled in the last one. Even in pioneering Indian microfinance institutions, such as BASIX and SKS, initial attempts to introduce smart cards failed. M-banking has, however, taken off in South Korea and also in Japan. In the Philippines, over 4 million customers use the financial services offered by the telephone companies Globe and Smart, but m-banking remains nascent in Africa and scarcely used elsewhere.
Careful examination of the reasons for the failures across the globe almost invariably traces the cause to one or several of three key factors:

1. Inadequate customer value proposition for the end users; and/or
2. A poorly developed business case for the companies collaborating; and/or
3. A debilitating environment.

Successful implementation of an e-banking solution is not dependent on technology – which has been available for a long time now – but rather on understanding these three key factors.

Customer Value Proposition

As too many e-banking solutions providers have discovered, if there is no value proposition for the customer, the solution will become a problem! Cash is an extremely effective exchange mechanism that has been used for many years, is low cost and highly acceptable to the poor – replacing it is no easy matter. Furthermore, most e-banking solutions providers over-estimate the value poor people attach to their security and time. Even in highly insecure environments such as Nairobi in Kenya, where *MicroSave* is working on two e-banking solutions with leading banks, MFIs and mobile phone companies, personal security is heavily discounted by users. Poor customers are typically above all interested in saving money, then the time taken to make transactions and finally about increasing their personal security. It is therefore essential to conduct extensive market research to understand the needs, aspirations and motivations of the target market before designing an e-banking solution.

Typically poorer people are looking for the following from a basic current account offered using e-banking systems:

1. A safe place to keep money.
2. Accessibility/liquidity – The ability to turn electronic money into hard cash and vise versa at convenient locations (agents/ ATMs).
3. Ability to transfer money – to and from the financial institution, to make payments and to remit value to friends and relatives.

Box 1. Wizzit's Market Research

As part of its preparatory phase in South Africa, Wizzit used focus groups to establish the spending patterns and financial transactions of its low-income target group and th e mobile phone-based solution was then built on the basis of this research. Wizzit quickly learnt that the clients wanted inter-operability with the mainstream ATM/POS-device-based payments system, which is already extensive throughout the country and had to change its original design accordingly.

A well designed e-banking solution will offer a combination of deposit taking, withdrawals, bill/ premium payments, money transfers, pension and other social payments, air time top up, internet access etc. Getting the combination right and thus identifying the real needs/demands of the target market is key to success.

David Cracknell points out in his seminal paper "Electronic Banking for the Poor - Panacea, Potential and Pitfalls",[7] the customer value proposition depends on four basic criteria:

[7]This paper can be downloaded from www.*MicroSave*.org under the Research Papers section.

1. *Features:* What needs does the e-banking solution meet? What features encourage the user to maintain an electronic account in preference to cash? For example the ability to transmit money rapidly from the place of business or to reduce cashholding in areas of high insecurity.
2. *Accessibility:* Limited distribution of transaction points strongly reduces the value proposition to the customer. Walking/travelling 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.
3. *Affordability:* Start up and transactional costs need to be as low as possible for both the end user and the merchants these users frequent. Cash is inherently largely "frictionless" there is no charge that gets levied each time value is transferred – cashrelated costs do, however, arise through the transport/time etc. need to make a transaction.
4. *Ease of use – convenience:* A solution must be simple to use fast and user friendly. Wealthier individuals are prepared to accept a fee for convenience, however, lower value users will accept greater inconvenience to save money or to facilitate low value transactions.

Box 2. Banking Correspondents Provide Access in Remote Brazil

In Brazil, access is the key. Between them Banco Economica, Banco Postal, Banco Popular and Lemon Bank run nearly 30,000 "banking correspondent" outlets that now serve every municipality in Brazil - even though many of these are only reachable by boat or plane. The banking correspondents use small retail outlets and post offices with a combination of: a POS, a PIN pad, a bar code scanner to read bills, a PC and a sort of teller machine with a screen. They link to their parent bank through basic dial-up or satellite connections and manage millions of transactions every month. (Source: CGAP Note on Brazil's Banking Correspondents, Gautam Ivatury, 2005).

If these criteria are not met positively, the market will see no value in the proposition and the customers will not adopt the solution.

One of the greatest challenges for e-banking solutions is identifying reliable "cash-in/cash-out" points with high prevalence and accessibility in the target market. This is particularly difficult in rural areas. In many countries, regulatory authorities are permitting small shops to fulfill this role, however this is not yet acceptable in India. Perhaps India Post offers a viable alternative.

Box 3: India Post – Does it Offer Solutions for E-banking Outreach in India?

India Post operates the largest postal network in the world, comprising 155,516 postoffices, of which 89 per cent are in the rural areas (Annual Report 2005-06). Even the smallest branches in remote areas provide financial services such as banking and money-orders. The geographical reach of India Post is unparalleled in the country; it has more than double the number of branches of all the banks in the country put together. On an average, in 2004, a post-office in India served an area of 21.13 sq. km and a population of 6,585.

As on March 31, 2005 it had 540,334 employees, of whom 246,678 were departmental employees (45.65 per cent) and 293,656 (54.35 per cent) were Gramin Dak Sevaks, who provide the village postal services as franchisees of India Post (Annual Report 2005- 2006).

The strengths of India Post are its long tradition of handling financial services (from 1882) and its credibility and trust. It reaches the bottom of the pyramid with a minimum savings bank account of Rs.20, with more than 137,000 branches providing these services in the rural areas. Of course, Know-Your-Customer is one of the major strengths of India Post. Its vast army of postmen can be used by various service providers for verification of the customer's residential address. India Post has already announced its decision to verify the addresses of customers of mobile phone companies and there exists a good business opportunity for it in this area.

Source: Adapted from R Vaidyanathan, The Hindu Business Line, July 13, 2006

Business Case

The development and costing/pricing of the business case is central to a successful e-banking solution. There are of course, individual and mutual business cases for the partners involved in a solution. The business case will revolve around the level of functionality that the institution wishes to develop. Technology specialists and bankers often over-complicate the solution, adding every possible function. In some cases, solutions are offered without a clearly defined need for them. It is important to get into the market with one application responding to a specific need and then expand usage. Experience in South Africa and the Philippines shows that once customers have passed making around three transactions a month, they lose their fear of the technology and the number of transactions increases substantially. Thereafter, the e-banking solution provider can build volume through careful development of different functionalities and business segments. On mobile-based systems such as Teba Bank's A-Card and MTN Banking, for example, airtime top-up is a popular function that drives much of the revenue within the system.

Developing an appropriate revenue strategy depends on the functionalities offered, the segments targeted and the anticipated volume of transactions. The dilemma here is that high volumes are required to leverage the potential of e-banking systems and to allow solutions providers to offer the services at prices acceptable to the market. And it takes time to achieve these volumes. Indeed, one of the major lessons from the South African experience has been that take-up of e-banking solutions by the poor has been slower than anticipated … patience and deep pockets are likely to be essential! In this context, it is important to control costs during the development phase to generate positive returns on investment – this once again dictates that solution providers identify key core functionalities and deliver on these first before expanding the range of options available to the customer.

For banks with existing infrastructure, migrating customers onto e-banking infrastructure can free up their existing physical infrastructure. In Kenya, *MicroSave*'s partner Equity Bank now serves a million customers and is implementing an aggressive campaign to move them onto its ATM, POS and m-banking infrastructure in order to empty its crowded banking halls … with a view to welcoming the next million customers in 2007.

Multiple business partnerships are essential in building a multi-functional e-banking solution and in supporting the distribution network. Each partner involved in the solution must benefit, whether through reducing costs, increasing efficiency, increasing turnover, or through direct income. Those involved in providing solutions should also be aware of the costs too – for example the cost of compliance with know your customer/anti-moneylaundering (KYC/AML) legislation may be prohibitive. A particular risk for MFIs using group-based lending methods is, of course, that an m-banking solution will undermine the attendance of group meetings – clients will simply send their repayments to the MFI over the mobile from their businesses. M-banking solutions have huge potential to make individual lending programmes hugely more efficient for both MFIs and their clients but are the nemesis of groups.

Thus the business cases/value propositions for all partners are likely to be complex – by way of example, Figure 3. outlines the likely business case, value proposition and costs for partners in m-banking.

Stakeholder	Benefits	Costs
Mobile Phone Producer	1. Increased sales of handsets. 2. Sales of solar-panel mobile chargers. 3. Meeting government requests to serve the poor	1. Development of handsets with additional functionalities / language requirement 2. Advertising new features / application to attract customers
Network Providers/ Managers	1. Monthly phone account rental. 2. Revenue from SMS traffic. 3. Revenue from new clients with moiles in their hands. 4. Revenue from increased usage driven by over the phone top-up. 5. New service and thus increased "stickiness" of over all service package. 6. Meeting government requests to serve the poor.	1. Integration of costs. 2. Product marketing/ communications. 3. Increased coverage of remote locations to serve m-banking clients
Agents/ shopkeepers	1. Revenue from transaction commission. 2. Increased footfall on their premises (and thus potential sales). 3. Cash-back options. 4. Direct purchases on the solution. 5. (Over time) ability to offer direct loans.	1. Security deposit/bond to be deposited with bank. 2. Likely to need to manage larger cash floats to meet the liquidity demands of m-banking users. 3. Commission paid on purchases made through the solution.
MFIs	1. Rediced administrative costs (COs should be able to focus on following up on defaulters and on loan appraisal) and thus profitability. 2. Integrated and thus more accurate IT/ portfolio management systems. 3. Automated reminders through SMS/call centres for those in arrears. 4. Incentive for group members to maintain excellent rating to graduate to individual m-banking based loans. 5. New loan/savings product lines and thus greater client loyality. 6. Gradual integration in the financial value chain as agents / correspondents to banks.	1. Passed on KYC requirements/routines. 2. Undermining of groups through rapid graduation of clients to m-banking based individual products. 3. Need to learn/implement individual lending methods - this may involve different field officers. 4. Need to amend IT/MIS system for integration into the system. 5. Need for extensive product education/marketing.

Stakeholder	Benefits	Costs
MFIs' Customers	1. Accessibility-quick access to many outlets for deposit or withdrawal services as well as loan repayment. 2. Convenience-ability to repay loans from work premises - thus saving travel cost and time and reducing security risks. 3. Convenience-over the phone pre-paid top-up facilities. 4. Security-less cash around the home or needing carrying to where it is to be used. 5. (Over time) P-2-P and P-2-B transactions with others on the system-thus saving travel cost and time and reducing security risks. First targets should be utilities payments/insurance companies; thereafter need to examine options provided by migrant workers.	1. Cost of acquisition of the solution: mobile phone and software. 2. SMS and transation commission.
RBI/ Government	1. Possibility of reaching out the underserved the unbanked through this channel. 2. Greater integration of the cash economy with the banking sector. 3. Integrating MFIs into the formal banking system, reducing risks and utilising their outreach to expand savings services to rural areas.	1. A paradigm shift in the banking systems, including reworking of the service area approach, priority sector approach and targets etc. 2. Reorienting banking policies and regulattory framework to enable e-banking.

Environment

The environment for electronic banking will be determined by the nature of the financial and retail market - for example existing e-banking infrastructure in terms of ATMs and POS devices already in place. In South Africa, the widespread presence of these devices meant that there is demand for access to these service points and a hybrid card/mobile-based system is most likely to succeed. These factors will drive product features, accessibility and transaction volumes.

Another key environmental determinant is the financial literacy of the target market. The level of financial literacy influences communication of the product, the nature of the distribution channel and the nature of transactions made. Creative campaigns that combine key financial education and product marketing will be essential for e-banking for the poor to succeed. Nonetheless, it is important not to under-estimate the creativity and flexibility of the poor when it comes to using technology. In most of Africa and Asia, airtime has already become a surrogate currency with people sending the PIN code numbers of prepaid cards across to their relatives/friends or business associates. Indeed this system has already been formalised with value transmission services in some countries. In Kenya, Safaricom launched the Sambaza product that allows subscribers to send small amounts of airtime value across the network to others. Within a few weeks of its launch, many thousands of transactions were being made using this service.

However, the biggest challenge and in many cases, obstacle, to harnessing the full potential of e-banking to massively increase financial access is the regulatory and policy environment. This includes banking regulations and appropriate communications, security, and information policies. Across the globe, central banks and other regulatory authorities are struggling as they assess how to respond to the opportunities offered by e-banking, and particularly, m-banking. Specifically, they typically remain concerned about agency arrangements, KYC/AML requirements and the creation of a parallel payments system.

A recent review by Bankable Frontier Associates for DFID noted "Most African providers of m-payments and m-banking services noted that the major barriers to their growth related to (i) uncertainties over customer adoption, which is common at an early phase of market development; and, in South Africa at least, (ii) specific regulatory issues such as remote customer due diligence [KYC/AML] requirements and access to the payments system." Similar issues are reported by *MicroSave*'s partners in Kenya. As the Box 4 below (from Cracknell, 2004) demonstrates, the Indian environment has been particularly difficult for those seeking to offer e-banking services.

Box 4: Demonstrates the Indian environment that has been particularly difficult for those seeking to offer e-banking services

Eligibility of clients: under Reserve Bank of India guidelines, smart / debit cards can only be issued to clients who have maintained their account satisfactorily for six months. This is likely to restrict the ability of the bank to provide specialised services using a card.

Loading of value: The section on cash withdrawals does not permit the withdrawal of cash or deposit through a POS terminal, which means that all facilities for loading value on smart cards must be housed within bank premises. If the banking system is to extend services to the poor it must be able to do so cost effectively.

Presence at ATMs: The current guidelines do not allow the presence of any persons other than security guards at ATMs, effectively preventing the bank from providing direct assistance to low income, frequently illiterate customers.

Written record of transactions: A written receipt is required either at the instance of the transaction or in a regular report. This may prove difficult with low value high volume transactions.

Customs duties: While automatic teller machines have a customer duty of 60% their cheaper avatars (Cash Dispensers), which have the potential to reach out to the mass market, have a customs duty of 150%.

Service Area Agreements: The current service area approach restricts competition between banks in rural areas, thus making it more difficult for a bank to strategically roll out networks of ATM machines.

Source: Cracknell, 2004
Singhal and Dugal, 2002

There may indeed be additional barriers for as Porteous (2006) notes, "The field of mpayments and m-banking is not only new and fast evolving but also sits at the overlap of several regulatory domains – those of banking, telcom and payment system supervisors, and anti-money laundering agencies. The overlap substantially raises the risk of coordination failure, where the legislation or regulatory approaches are inconsistent or contradictory. In such environments, it is likely that m-banking may simply be an added channel for already banked customers. A comprehensive vision for market development between policy makers, regulators and industry players can help to define obstacles and calibrate proportionate responses to risk at appropriate times".

Porteous goes on to propose a framework of principles which are necessary, (noting that they may not be sufficient) to enable m-banking.

First tier principles are those necessary for m-banking to happen at scale at all:

1. There should be sufficient certainty around electronic contracting.
2. Customers should be adequately protected against fraud and abuse in the m-banking environment.
3. Inter-operability should be encouraged, through ensuring that providers can access payment platforms and that consumers are able to switch financial providers.

Second tier principles: for transformational models [that will extend banking services to the un-banked thus massifying financial inclusion, through m-banking solutions] to emerge and succeed, the following additional principles are also necessary.

4. KYC/AML procedures for account opening should be risk based, and not unduly prejudice remote account openings by low-value customers.
5. Customers should be able at least to make deposits and withdraw cash through agents and remote points outside of bank branches.
6. Adequate provision must be made for the issuance of e-money by appropriately capitalised and supervised entities which are not necessarily banks (Porteous, 2006).

Conclusion

India's 200 million un-banked represent a tremendous opportunity for financial institutions, and telecommunications companies interested in serving the bottom of the pyramid. Serving this market requires the management of high volumes of low value transactions – which is precisely what robust e-banking systems are designed to do. Indeed profitable e-banking systems are dependent on managing large volumes of transactions, since it is these transactions that drive the majority of their revenue. With the significant and growing penetration of mobile phones, linked to the potential the public call office system, and the low cost of mobile telephony in India, one can only hope that m-banking will be allowed to play a significant role in the push for financial inclusion.

With India's leadership in technology one can only wonder why countries like Brazil with its correspondent banking system and the Philippines/South Africa with their m-banking solutions are so far ahead. Policy makers in India are clearly committed to optimising financial inclusion whilst maintaining the integrity of the financial system, securing depositors' savings and suppressing money laundering – this is a balancing act that will continue to challenge regulators worldwide.

However, even with the most enabling of regulatory environments e-banking solution providers are only going to be successful in the short term if they concentrate on areas where cash is inconvenient and the e-banking solution can do things that cash cannot. To do this effectively, they need to spend more time on understanding the market and building the value proposition and business case … the is technology ready and available!

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Appendix 1

Deliberations of the CGAP *MicroSave* M-Banking Dialogue

Prepared by David Cracknell

Twenty practitioners and observers of mobile phone banking gathered for a two day dialogue workshop in Kathmandu, Nepal in August 2008. This blog summarises the deliberations of the participants in the dialogue. Deliberations focused on the customer value proposition; customer education and marketing; learning from pilot tests and preparing for rollout and pricing.

In Summary: There are multiple m-banking experiments underway in diverse geographies and various regulatory environments. Various players are experimenting including Banks and Telcos (sometimes alone and sometimes in partnership), but there are also third party payment platforms and agent networks emerging. Overall experimentation is at a very early stage and therefore drawing firm conclusions are premature.

Experience is that traditional pilot testing and incremental entry is difficult, since these services are in many ways revolutionary combining simultaneously elements of entirely new channels, new agents/players, new technologies and sometimes in uncertain/unclea r regulatory space. The reaction over time is unpredictable and can only be fully tested when the new offerings reach a larger scale.

The uncertainty of the actual uptake by clients, role of different players makes pricing or business modelling is very difficult at this early stage, it is better to retain flexibility in this regard, and treat initial pricing as "promotional" so as to manage customer/agent expectations.

Uptake by customers appears easiest when the service emulates and existing service already in use (overlaying an existing ecosystem). Customers are more familiar and there is a demonstrated demand for this service.

The Customer Value Proposition: The customer value proposition, essentially the proposition that attracts customers to m-banking appears to be similar in most cases; including ease of use, accessibility - usage at any location, and reduced cost for transactions. The reduced cost for transactions finding is supported by recent research by CGAP, which showed cost reductions from 35% to 85%.

Initiating solutions and KYC: Initiating solutions can be challenging, particularly where they are SIM toolkit based. This is due to the logistics involved in SIM swaps. Some solution providers use agents or retailers to perform elements of their Know Your Customer (KYC) legislation, in some cases handling the origination of key documentation, though it is clear that KYC is a legal responsibility of any partner bank. In the case of Eko documents are sent by the Eko merchant to the distributor, if everything is OK the documents then go to the bank for further processing. In the case of Standard- MTN cards are activated through a valid National Identity Card. Full KYC is only required when preset limits for transactions, or turnover are achieved.

Train merchants: Another aspect revealed by early implementations is the need to train merchants, to enable them to answer simple queries, so for example, in Afghanistan retailers are provided with placards with answers to the most frequently asked questions. Training is required, if merchants are to provide additional services and to explain these to clients. Solutions should not be evolved too rapidly otherwise this will confuse customers and require considerable investment in retraining merchants; though some customers adapt to changes very easily.

Keep it simple: Generally participants felt that keeping things simple was the best option – "teaching less to everyone is the best option." M-Pesa managed the training of clients that was required, by replicating existing client behaviour, both in terms of the design of their product – prepaid airtime had already become a second currency, and in designing M-Pesa around money transfer.

Test pricing but do not set too low: Pricing of any m-banking solution is difficult, and especially during the pilot test. Some experimented with different pricing during the pilot test or early during rollout, and were willing to offer special prices during sign up periods. However, generally it was felt that reducing prices could create real difficulties in re-instating prices later.

Interoperability: will be important for financial inclusion, so that it becomes cost effective for agents and clients. However, the challenge of building interoperability within the system was noted, because of the difference in the operating model between Telco's which view retaining customers as their motivation for electronic banking and banks who often want to build greater interoperability as a service to their customers. In the case of Dialogue-NDB although the solution is hosted on an independent server, the solution is a joint venture between the largest mobile provider and a leading bank. Other financial institutions are willing to use the channel, but other mobile operators have not signed up.

Customer Education and Marketing: Simplicity comes into the marketing message too – both in terms of keeping the message simple, but also in terms of feeding messages to the market in a controlled fashion. In different markets too, the most effective marketing message has been different. In Afghanistan for example, affordability was found to be a major issue, with the price of a transaction at one third of comparable transactions through the formal banking sector.

Approaches to launching the product are influenced by the market and adoption barriers, which in turn influence the amount and type of customer education that is required. For a "big bang" launch mass education is required. Agents need to be carefully prepared to handle both the volume of business and the range of queries that customers ask. Clearly incremental approaches are safer than big bang launches, as it is very difficult to stress test systems at volume. M-Pesa, in Kenya discovered this, as did Telenor in Pakistan.

Extent of uptake: Akey learning from early adoptions is that the extent of client uptake is often not in your control, Telenor reached up to two million customers in the weeks after launch. According to Ronny Naevdal of Telenor, "While services were not well communicated, the solution picked up because it fulfilled a genuine need." Given the difficulty in stress testing systems, it is extremely important to ensure the system can take up considerably more demand than anticipated. However, this approach is expensive.

Big bang development or big bang launch: Abig bang launch is less important to Alex Ibasco, than big bang development "we should have big bang development, and then launch our products one by one." This may be especially important for providers using SIM toolkits, due to the cost of providing new SIM cards, and the unreliability of over the air downloads, particularly for low specification phones. Loading features in advance of use was also a key feature in a SIM toolkit based solution in Afghanistan.

Promoting usage: Innovative methods of advertising were being used to market solutions including sitcom shows, advertorials and billboards. SMS campaigns were viewed as very effective, and of course cost effective for Telcom companies. However, these work much less well in the low income market, so in Afghanistan the Telco uses the voice channel for advertising. Akey question is "Is there a tipping point on customer education where the customer starts advising other customers on the nature of the service?"

Experiencing the solution: Multiple providers mentioned the need for customers to experience the solution several times before they would be persuaded to become long term users; Wizzit customers in South Africa were said to require four or five transactions to get used to the solution. Asecondary issue is the challenge of encouraging usage across product features. One provider encourages customers to use the solution when they sign up, so that customers see how the solution works. Using staff during pilot tests is a key factor in aligning staff toward the solution.

Incentivising merchants: A recurrent theme during the workshop was the best method for incentivising merchants. Some offered payments for each new account opened, but this led to many inactive accounts. Others such as Wizzit have changed to paying incentives after five transactions, but this led to accounts going inactive after five transactions! The quality of sales on a commission basis was noted to be much worse than customer initiated activations. In the Philippines, these factors have led to agents being incentivised on the basis of ongoing customer behaviour. Airtime commission is a powerful motivator, which ties agents to the telco and this differs considerably between countries and between operators.

Learning from Pilot Tests and Preparing for Rollout: Pilot tests at scale are difficult to perform. Some can operate at relative scale using staff based pilot tests, which were regarded as a useful form of pilot test, as staff were more likely to provide informed feedback on usability and performance. In the case of one solution in Pakistan the pilot was used to establish expectations, test the offering and to document the system. In documenting the system, care was taken to examine MIS reporting, fraud detection and thereby to establish the required infrastructure. In a second pilot test the platform had to be redeveloped to make it easier to use. In a third, the offering was radically simplified.

Optimise marketing and distribution: Akey challenge is not the technology (though this is important) but rather managing the marketing and distribution channel is the leading function.

Security of USSD: There was concern among some participants over the security of USSD as messages can be intercepted, leading to some USSD solutions operating transfers through lists of nominated account holders only. However, another respondent noted, that the M-TranZact system acted as a link between the bank and the customer, thereby providing a secure platform and an indirect link to client bank accounts. This system was viewed as secure enough to receive Visa certification.

Customer Care: Early m-banking implementations reveal the importance of call centres for effective customer care. Scale of the call centre varies between operators. Although call centres are used for customer management, some operators use them to convert calls into sales, for example giving advice on new features. Participants responded that there was a clear need to improve the operation of call centres, through mystery shopping, frequently asked question guides. In one case call centres were congested the hold message tells people to send an SMS to a number for a call back.

Planning and Project Management: Planning and project management are vital external dependencies are particularly important to plan around, for example the relationship with the bank or the telco, or the access to a short code. It is important to continually inform the project management with feedback from the field as the pilot test progresses using mystery shopping client satisfaction surveys and focus groups.

Market Research: Greater use of market research for product design would have identified problems in some solutions in one case it could have significantly improved usability. Research on user perceptions and user adoption helps to establish the natural flow of a transaction for a user. Research may have identified dependencies on network providers, and could have been better used to study the prospective end user environment much earlier, for example the requirements of marketing and customer service. This would have resulted in a flexible solution. Research is doubly important as it is very difficult to stress test solutions during a pilot test, and given how quickly m-banking products can go to scale, it is important to go to the market with the right product.

Management and Board Commitment: Management and Board commitment are essential to guide the development and implementation of the solution, in many solutions the project team consists of stakeholders from different departments, with the core team often concentrating on nothing else. Specific project management experience is often employed in flagship projects, which can be useful in a relatively complex development and pilot. However, even more than project management tools, there is a need to intensively interact with different departments to agree and to peg milestones. A sustainable business case helps to get deliverables into the critical path; otherwise delays with internal departments are likely. Business modelling is especially important.

Use staff to test the solution: Staff can be an important resource for pilot testing, especially where there are a large number of staff members to obtain feedback from. Risk is low with staff. The first Equity pilot lasted a few weeks, and produced many issues to resolve over a longer pilot testing period.

Questions answered through pilot testing: The questions – how do you balance risks? Are their issues which depend on the time of the month? How do you manage trainings and optimise the solution so that agents encourage customers to use different features of the solution? How do you encourage regulators to allow more agents? Which agents are likely to be net cash in agents, and which are likely to be net cash out agents? Manuals and trainings can only go so far, as a large number of people do not refer to manuals. Therefore, it is very important to optimise customer care channels and to make the solution as intuitive as possible. Cash in cash out is a practical issue which all participants commented upon. This is very difficult to stress test.

Understanding the m-banking Ecosystem: The lesson from Smart Money is to consider the entire 'eco system' of the solution and ensure that it works at all levels, then to add value we need to build complementary eco-systems together. Adding new features changes the dynamics in the eco-system. For example when Roshan added P2P transfer to their system, it created a need for a much greater cash in, cash out infrastructure. The need is to understand how your product is behaving in the market and then it is easier to determine the next steps.

Risks: Specific risks identified by participants included managing shareholder value, particularly for listed companies the need to perform to market expectations. This pressure can make it more difficult to move into lower revenue per user markets.

Conflicting cultures: There are conflicting cultures between telcom companies. Know Your Customer and Card Issuance are transactions are banking oriented, and can require central bank audits, data centres and extensive security. Smart are required to meet international financial standards.

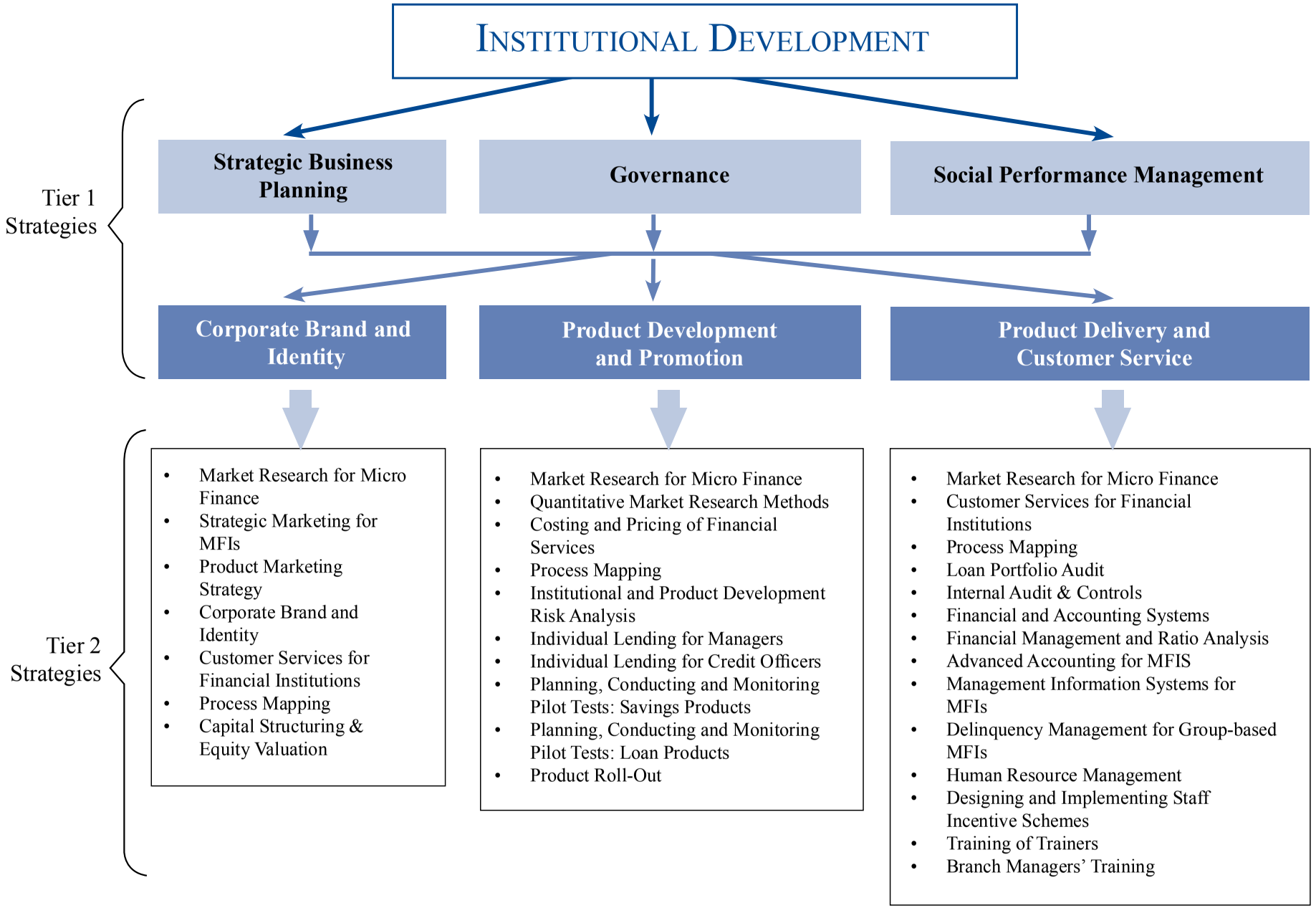
Pricing: Getting the pricing of a solution right is very important particularly if the solution is intended to serve the mass market. However, a standard business approach to modeling doesn't work. We don't know the total market size and we don't know the willingness to pay. Too much at this stage is guesswork. The early experience with Smart is that prepaid air time drives the business rather than payments. This could change as adoption of new services becomes more ubiquitous, though Smart like others find it challenging to increase adoption.

Local Realities: Pricing needs to take into account local market realities so that market research is an important aspect of pricing. In some solutions, such as M-Pesa, pricing depends on the price people pay for transferring money within the country. Questions include, how many users will adopt a solution from a user group and the exact revenue share with the partner bank and agents. One of the biggest challenges is a lack of information – for example, the number of money transfers that are taken out, or the propensity to withdraw money in a particular market. Another challenge is that with a new service, customers cannot easily set a value on the service, as they are not able to make realistic price comparisons with other products and services.

Establish elasticity of demand: One participant opined that it is important to price high to begin with and then try out different pricing models in the market to determine elasticity of demand through targeted campaigns, this way you can maximise profitability. If markets are distinct, as for example, in the case of Oxigen in India, different services can have different pricing points. Aspecific pricing challenge is that business models are changing rapidly as new features are introduced.

Local market conditions: Understanding the local market is a vital element of pricing, for example, for Globe in the Philippines cash in is free, but the merchant is able to establish a price for cash out based on local market conditions.

Business Opportunities: Bill payments of different types appear to be the next good business opportunities after transfers, withdrawals and airtime top ups. Key is to examine transactions that people do on a regular basis and to see how these can be replicated electronically, cinema and railway tickets were mentioned. However, for this to become a reality there would need to be greater ability of some platforms to handle real time small transactions, and transaction fees would need to be much lower, and yet systems would have to handle significantly more transactions.


INSTITUTIONAL DEVELOPMENT
Tier 1 Strategies
Strategic Business Planning
Governance
Social Performance Management
Corporate Brand and Identity
Product Development and Promotion
Product Delivery and Customer Service
Tier 2 Strategies
• Market Research for Micro Finance
• Strategic Marketing for MFIs
• Product Marketing Strategy
• Corporate Brand and Identity
• Customer Services for Financial Institutions
• Process Mapping
• Capital Structuring & Equity Valuation
• Market Research for Micro Finance
• Quantitative Market Research Methods
• Costing and Pricing of Financial Services
• Process Mapping
• Institutional and Product Development Risk Analysis
• Individual Lending for Managers
• Individual Lending for Credit Officers
• Planning, Conducting and Monitoring Pilot Tests: Savings Products
• Planning, Conducting and Monitoring Pilot Tests: Loan Products
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