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Banking the Unbanked: Technology's Role

Summary

The Microdevelopment Finance Team (MFT) carried out pilot projects in Uganda to determine the role technology could play in increasing the reach of microfinance. The team envisioned a "data transaction backbone" that would link microfinance clients to their financial institutions and beyond. The resultant technology was known as the Remote Transaction System (RTS). The conclusions drawn from the study (and similar initiatives conducted in other parts of the world) include: that business process change and the implementation of new technology should proceed in tandem; that creative technology solutions are required to be tailored to the unique and often challenging needs in emerging markets and local contexts; and that partnerships between MFIs and local companies assist in reducing infrastructure costs. Technologies such as the RTS can evolve and provide functionality that serves to build bridges between MFIs and the formal financial sector.

Introduction

The goal of attaining economic development in many more countries around the world is unlikely to be realized while 1.7 billion working adults make less than US$2 a day and have little or no access to basic financial services. The history of financial systems in the United States has shown that providing citizens with access to capital and the ability to save are key underpinnings of economic growth. Yet between 70 and 80% of the world's population has no access to even the most basic financial services.

Over the last 30 years, the microfinance industry has proven that the extreme poor are bankable. Not only do they repay loans, but they also do so with very low defaults and relatively high interest rates. MFIs can, and have, become commercially viable enterprises. Yet the microfinance industry as a whole has not been able to grow fast enough to meet demand. At the same time, banks and entrepreneurs in developing countries are beginning to realize that there is a viable market for financial products among the vast unbanked populations of the world.

How can microfinance have macro impact in the world such that billions of today's urban and rural poor gain access to financial services? This is the question that a consortium of public and private sector partners, convened by the Hewlett-Packard Company, asked themselves three years ago. With financial support from the United States Agency for International Development (USAID) and Hewlett Packard, this consortium engaged in three pilot projects in Uganda to determine the role technology could play in increasing the reach of microfinance.

The outcome of the consortium's work was unexpected. Results came from a combination of multi-sector inquiry, research into other global initiatives, and findings on the ground in Uganda. The financial analysis that was conducted at the conclusion of the pilots pointed to a new direction that microfinance could take in order to achieve a dramatic increase in scale, the kind of scale that will allow the industry to move from the 120 million people that are currently being served to the 1.7 billion that could be served.

The three overarching lessons of the pilots were:

1. Technology combined with business process change brings the greatest return

2. Emerging markets require innovative, appropriate technologies that are designed for scale

3. The cost associated with building the infrastructure to support this enabling technology is too high for MFIs to go it alone

A growing number of practitioners and thought leaders in the microfinance industry are beginning to coalesce around concepts that are supported by these lessons - namely, that reaching significant scale in the microfinance industry is likely to require changing existing business operations and procedures, standardizing the collection and management of customer data, and sharing the cost of underlying infrastructures.

How could the reach of financial services to the world's poor be dramatically improved? What would it take to reduce transaction costs and help MFIs achieve greater business viability? What role, if any, might technology play? These were the questions that a diverse group of professionals calling themselves the Microdevelopment Finance Team (MFT) rallied to in July 2002.

Convened by the Hewlett-Packard Company (HP), this consortium of private and public sector partners pondered how to champion a breakthrough in the effectiveness, relevance, and scale of microfinance to bring financial services to a greater percentage of the world's poor. Was it possible, they asked, to grow today's 120 million customer base of microfinance recipients tenfold or more? Could microfinance reach the 1.7 billion working adults who live on less than US$2 a day? What would it take to build the retail capacity and IT infrastructure that could serve that many customers?

Today, nearly three years after the MFT first met, a roadmap is unfolding that gives some needed direction toward reaching this kind of world changing scale in the delivery of financial services to the rural and urban poor. It is a map that reflects a number of pilot projects that have been undertaken around the world, the thought leadership of those working in microfinance, and the early experiences of the credit card industry in the United States, which helped revolutionize the delivery of financial services in industrialized countries. It is an answer that looks to the role that technology can play in championing scale in microfinance.

Defining the Problem, Identifying a Potential Solution

When they first started their weekly conference calls in August 2002, the members of the MFT began by analyzing the state of the microfinance industry. What, they wondered, were the obstacles keeping the industry from achieving greater scale? When the team had a working definition of the problem components, they vetted their thinking with a wider audience of industry leaders. Together the team and its partners coalesced around the following obstacles to scale:

- An over-dependence on donor funds for both wholesale finance and operating costs, and the need for more sustainable, commercial sources of finance (such as local banks and the capital markets)

- The absence of consistent, sector-wide operating standards and business practices that are sustainable enough to stand up to external scrutiny by potential commercial investors and partners.

- Fragmentation within the sector, and a lack of strong relationships with organizations outside the sector

- Technical challenges and high transaction costs that make it too expensive to reach, in a sustainable manner, poor people in urban, peri-urban or rural areas who are not yet served by microfinance

- The need for flexibility to offer diverse financial services that meet local needs and priorities.

After much research and discussion, the MFT decided that technology could help alleviate some of these problems by providing a secure, low-cost, and reliable means of capturing transaction data and then transferring that data in a consistent, standardized manner to MFIs. Such a system could, they reasoned, improve operational efficiencies, decrease transaction costs, and enable sustainable outreach to underserved populations. The team also believed that if more reliable data could then be shared, in a standardized way, with other financial providers, issues related to capital investments, fragmentation, and the potential for more diverse portfolios could also be addressed, in part.

In essence, the team envisioned a "data transaction backbone" that would link microfinance clients to their financial institutions - and beyond. Since efficient, reliable data capture - even in remote and rural areas - was both the most critical, and the most challenging, element in the backbone, the team decided to build this first module. The resultant technology was known as the Remote Transaction System or RTS.

PoS device, RTS server, and RTS console

Technology Development and Deployment in Uganda

The RTS was designed to process loan payments, savings deposits, withdrawals and transfers. It is based on a combination of smart cards, point-of-sale (PoS) terminals, a transaction server and connectors that send data directly to the MFIs' accounting and general ledger systems. Clients are given smart cards that contain their savings and loan account balances. When ready to make a payment, the client inserts her smart card into a PoS terminal, which captures the transaction data, updates account balances on the smart card, and prints a receipt. Cash is exchanged between the client and the person responsible for the PoS terminal. Later in the day, all transactions saved on the PoS terminal are uploaded via the cellular network to the MFI's accounting systems where the transactions are reconciled.

Once the MFT committed to building the RTS, they needed to select a country where they could test the solution. The group settled on Uganda because it had many of the essential ingredients for scale – a large number of micro-entrepreneurs, a friendly legal and regulatory environment, and several providers of microfinance with long and successful track records. Uganda also posed many of the infrastructure challenges that confront any provider of technology services in the developing economies, obstacles such as frequent power outages, unreliable telecommunication services, limited technical support, and high levels of illiteracy.

Three Ugandan MFIs agreed to participate in the pilot. Two of the institutions provide loans through a group lending or "village banking" methodology. The third MFI offers loans on an individual basis. The RTS was used differently in each institution, thereby testing three distinct business models. At the conclusion of the pilot, a detailed financial analysis was run on all three models. Two of the models showed a positive value for the MFIs.

Three Overarching Conclusions

Detailed results from the pilot study can be found in a number of articles and technical documents on the web and will not be discussed in detail here. What is more significant for the purposes of this paper are the meta-lessons that have arisen from a combination of results from the pilot in Uganda, similar initiatives conducted in other parts of the world, and analysis of both the microfinance and finance industries. Together these conclusions pushed the team to think in new ways.

First Conclusion: Technology combined with business process change brings the greatest return

One of the powerful lessons that emerged from the pilot projects is that overlaying a new technology solution on existing business processes, without first rethinking those procedures, can increase, rather than diminish, the cost and complexity of doing business. Information technology provides the opportunity to update and innovate business processes. Through such innovation, technology can become a lever in creating the potential for an industry to achieve dramatic increases in scale.

The value that technology delivers when it is used as a catalyst for change and an enabler of new business models has been seen repeatedly. Within the financial sector there is a striking example of this principle. When credit cards were first introduced in the United States, merchants called an 800 number to verify funds before accepting a credit card payment - a process that could take 5 minutes or more. It is not surprising that this innovation did not take off. It was only when technology reduced the card authentication and authorization processes to less than a minute that credit cards became a widespread phenomenon. Additionally, as credit card usage began to soar, the business models for financial services began to change. The technology enabled dramatic scale, data mining, and improved the industry's ability to manage risk. In essence, the business models and the underlying technology evolved together to create what has become an industry that transacts more than a US$2 trillion per year.

The striking differences between the return on invesment (ROI) that was calculated for each of the three business models in the pilot also support the conclusion that business process change and the implementation of new technology should proceed in tandem. When this was not done, the quantitative and qualitative benefits of the RTS were severely compromised. One of the pilot institutions used to automate and alter only one portion of its data acquisition process. Clients were completely unaffected by the introduction of the RTS and their group meetings proceeded in exactly the same way they had before. The scale of transactions captured by the RTS device was not sufficient to justify replacing manual data entry with electronic data capture. Financial analysis of this approach showed that the introduction of the RTS generated no return to customers, limited value for internal staff, and an actual cost increase for the implementing MFI.

Part way through the pilot, a second MFI realized that if it did not re-engineer its business processes that the RTS would increase - not reduce - its operating expenses. The technology would also make group meetings much longer. On the other hand, if the institution did re-engineer some key business processes, then the RTS would provide significant value to all members of the value chain – the clients, staff, and the MFI itself. This institution had been reconciling its accounts on a monthly basis. With the RTS, the management could have daily updates on activities in the field, and they could track their loan portfolios on an individual client basis. Previously the institution had only been tracking loans on a group basis, and had virtually no visibility to client savings.

Based on this information, this institution made an attempt to proceed with process change. A consultant was hired to assist them. Subsequent financial analysis, which included expenses only, showed that there would be a cost improvement with the RTS over manual data capture. The pilot did not proceed long enough to determine what the qualitative benefits would be to the institution of improved business processes such as collection of individual data, more effcient group meetings, and access to more timely information. At the conclusion of the pilot, this institution decided that it did not have the internal will to shift to tracking loans on an individual basis. As a result, the institution stopped using the RTS technology and reverted to its prior practices.

The third MFI, which engineered a new business approach to leverage the RTS, demonstrated the greatest return for all constituents - customers, agents, and the MFI. In this model, PoS terminals were given to merchants, such as gas station franchisees. These merchants thus became "agents" of the MFI. Clients that visited a local agent did not have to travel as far to make loan payments or deposit money. The client transacted, and exchanged cash, directly with the local agent, who acted as a virtual extension of the MFI.

Although it was expected that clients would benefit from this model, due to the increased flexibility and reduced costs associated with banking, one surprising result was the finding that clients are actually the greatest beneficiaries of this model. Experience and surveys consistently report that women are very likely to have their earnings taken from them by family members at the end of the day, or they find that their funds are spent in unplanned ways. The ability to easily stop at a virtual bank on a frequent basis has the potential to dramatically increase the amount of savings. If the clients avail themselves of this opportunity, it would have dramatic impacts on their financial stability and on the funds that the MFI has to make additional loans.

Since the agents receive a fee for providing a transaction service, they are also beneficiaries of this model. The analysis indicates that an agent in Uganda can have an attractive side business with between 400 and 500 regular clients that transact twice a month. And the MFI shows a positive ROI on their investment after the solution has been rolled out to more than 20,000 clients. Analysis indicates that extending the reach of microfinance into rural areas through these virtual agents will be much less expensive than the current branch model.

Only the agent model, which pushed beyond existing business practices, showed a positive return for all participants.

Second Conclusion: Emerging markets require innovative, appropriate technologies that are designed for scale

Emerging markets require creative technology solutions that are tailored to their unique, and often challenging, needs – environments where telephone connectivity is erratic, electricity sources unreliable, technical support limited or non-existent, and much of the customer base illiterate. Innovation should find a balance between the best that technology has to offer and the constraints of the local context. It also needs to find a balance between simply adhering to existing business practices and driving toward business model innovation, as was discussed earlier. Taken together these conflicting forces provide a serious challenge, and must be present during the entire design, implementation, and redesign processes.

One lesson that continually surfaced in the Uganda pilots was the importance of making smart decisions about distinguishing between technology solutions that were "appropriate" and state of the art technology solutions that were of little or limited practical use. While technology innovation is necessary, it is equally important to innovate solutions that are informed by the user's local environment. It is far better to provide a solution that can be used rather than one that is optimized for flexibility and always-online infrastructures, the criteria often used for mature market products. The total cost of the solution and the capabilities of the local markets must be part of any design criteria. The team that developed the RTS thought they understood these issues as they began to develop their solution, which was designed and developed specifically for conditions in Uganda.

Since most MFIs cannot afford expensive solutions, the RTS was architected for low cost. It must be remembered that the total cost of a solution includes all the hardware to run the solution, the technical support team required to maintain the solution, and the cost of all required infrastructure elements. All of these costs were considered in the RTS design. That is why the transaction server runs on a standard PC and requires limited technical support. At the same time that the solution was designed for the Uganda context, the development team also ensured that the software adhered to technology and financial industry standards so that it could scale and eventually help MFIs share data with other financial service providers or capital markets. The RTS traded end-user flexibility for reliability, speed, and minimal training requirements, all of which are more important in the Ugandan context. Thus the RTS is a true blend of the core elements that would be expected in any enterprise software solution, with alterations required to maximize the effectiveness of the solution in less robust environments.

With all of these considerations integrated into the design of the RTS, the team expected their solution to work well when it was introduced into the three pilot institutions. They were wrong. They did not understand the depth of their mature market bias or their lack of awareness about how things really work in Uganda. The information the team had received during their assessment visits did not match the realities that were uncovered as they began to test their solution at the local level. The management of the MFIs were often just as surprised by unfolding events as the RTS team. As a result, several disconnects occurred between what the RTS developers and management of the pilot MFIs initially expected the RTS to achieve versus what the pilot institutions actually were able to use.

Uganda, like many countries in the developing world, is experiencing rapid growth of cellular and wireless telephone networks. As a result, the RTS developers originally believed that there was enough cellular connectivity to allow an always-online solution that would transmit data to and from the field. When the RTS was first implemented the developers learned that, in Uganda, voice traffic takes priority over data traffic. Thus they found that although the Ugandan cellular network had a large footprint over the country, it could be very unreliable. To respond to these concerns, the RTS developers engineered an offline mode for the RTS as well. This change sped up the collection of data and lowered the effective transaction costs of the calls, alterations that dramatically improved the financial sustainability of the solution. Although the final solution was an improvement in many ways, the realities that drove the change were unexpected, and they added a tremendous element of redesign.

Prior to designing the RTS solution, the RTS team and microfinance management and staff had dissected each institution's operational procedures in excruciating detail. All the elements of the group payment process were discussed and documented. Resultant flow charts were transformed into production specifications, and ultimately, product design. It was not until the RTS was in the field that a number of inconsistencies between what the team had been told and what was actually occurring emerged. In one case, a payment that was collected during each group meeting was not included in the design criteria because the MFI didn't track it on their books. The group did track this payment. But without a way to account for those collections electronically, both the old processes and the new electronic processes would have to co-exist, a solution that would add complexity rather than reduce it. To overcome this obstacle, a combination of technical and business re-engineering was required.

Initially the goal of the RTS developers was to enable the pilot institutions to conduct "real time reconciliations," which means updating the accounts of these institutions as soon as financial transactions occur. As mentioned earlier, the business practices of the cellular provider made this impractical, so the RTS was switched to an offline mode that updated the MFIs' MIS once a day. Even this frequency was too much for one of the MFIs to handle at first and its accounting staff requested that all the transactions be held on the RTS server until the end of the month when they would be ready to reconcile their accounts. Belatedly, as staff and management of the pilot institution realized that the capability of the RTS exceeded their existing practices, they were confronted with a dilemma. Would they change their business practices and start more frequent reconciliations to take full advantage of the benefits of the RTS or would they

change the RTS, thereby eliminating many of the gains the technology offered?

These examples demonstrate the importance of finding a balance between product innovation, local realities, and business process change.

Third Conclusion: The cost associated with building the infrastructure to support this enabling technology is too high for MFIs to go it alone

The highest capital costs of implementing the RTS solution are to be found in the PoS terminals (US$700 each) and smart cards (US$3.00 to US$5.00 each). During the Uganda pilot, blank cards were procured in India for approximately US$1.15 per card. These cards were then shipped to Uganda where they were printed locally. Printing costs ran as high as US$4.00 per card. To minimize the cost of printing, a local IT company was encouraged to provide card printing services. Through this partnership, the total card cost was reduced to less than US$3.00 per card. If the local company could print even greater quantities of cards this price would drop even more. Further, if the cards could be purchased consistently in batches of 10,000, the total price could drop below US$2.00 per card. These differences have a tremendous impact on the point at which the total solution returns a positive ROI for participating MFIs. The same dynamic exists with the PoS devices, which can cost less than US$500 when purchased at volume.

The local IT company that started providing card printing and procurement services was also empowered to handle server management and technical support for the participating microfinance partners. If three or more MFIs utilized this application service provider (ASP) to manage the technical support and card related aspects of their RTS deployment, a sustainable, self-perpetuating model would be established in Uganda. Each of the participating MFIs pay service fees that enable them to realize a benefit from the RTS. These fees would be a fraction of the cost that the institution would incur if it had to build these capacities internally. The ASP would then have enough business volume to not only sustain its RTS-related operations, but to grow its RTS business in Uganda and the surrounding region. However, if only one institution in Uganda participates, then the sustainability model is no longer supported until that institution has a very high volume of smart cards in circulation.

In Uganda, the model that showed the greatest potential and return was the agent model in which merchants were designated as virtual bankers. The acquisition, training and support of agents represents a significant cost centre, particularly as the agent network grows. However, the model becomes more attractive to clients when there are more points of access at which they can perform financial transactions. This puts a MFI in a difficult position because it is to their benefit to build the network, but as the network grows their cost savings decline. In industrialized countries, this Catch-22 was overcome by banks recognizing that it was in their interest to share the cost of these infrastructure elements. Today, credit card clients in most countries can use their cards in any bank's ATM or merchant machines. The same type of cooperation is probably required at the microfinance level, if institutions want to build sustainable ways to extend their points of presence in remote and rural areas.

Although history and economics suggest that collaboration is critical to deploy the type of solution piloted in Uganda in a sustainable manner, cooperation is often resisted. The MFIs and local banks fear that their competitive advantage will be lost. This attitude was present in Uganda at the start of the pilot. The RTS was designed for cost reduction and thus it was anticipated that the participating MFIs would share one RTS server, connect their back-end systems through one generic connector, and adapt their business process to a common PoS interface. This approach would dramatically reduce costs associated with the design, deployment, enhancement and maintenance of the solution by more than a factor of three. However, when this approach was discussed with the participating MFIs, they all baulked. Each of the institutions wanted the RTS designed to meet their individual, and unique, business and MIS requirements. There was insufficient time or proof to convince them otherwise. The RTS team capitulated and created three distinct RTS servers, three separate connectors, and two PoS interfaces, which significantly increased the complexity and cost of the work in Uganda. The results of the pilot now clearly demonstrate that the original objective of a standardized core solution will be a requirement if the microfinance industry is to reach scale through this type of technology innovation. Creating separate solutions for each institution is neither sustainable nor scaleable.

Shared Infrastructure: A Requirement for Scale

The conclusions of the pilot have led several of the participants to realize that the possibility and opportunity for integrating technologies that will help microfinance achieve scale will only be sustainable when there is a large enough volume of participants in the system. Only through shared infrastructures and common standards can the costs of providing financial assistance to a dramatically larger client base be realized. Such sharing is required to increase the number, and reduce the costs, of access points through which clients can obtain financial services. It is also necessary if MFIs are going to be able to obtain and report the consistent, high-integrity data that will be required by capital investors or credit reference bureaus. The advent and growth of VISA is a prime example of the level of collaboration and technical sophistication that is required to achieve dramatic scale and commercial value for the entire value chain.

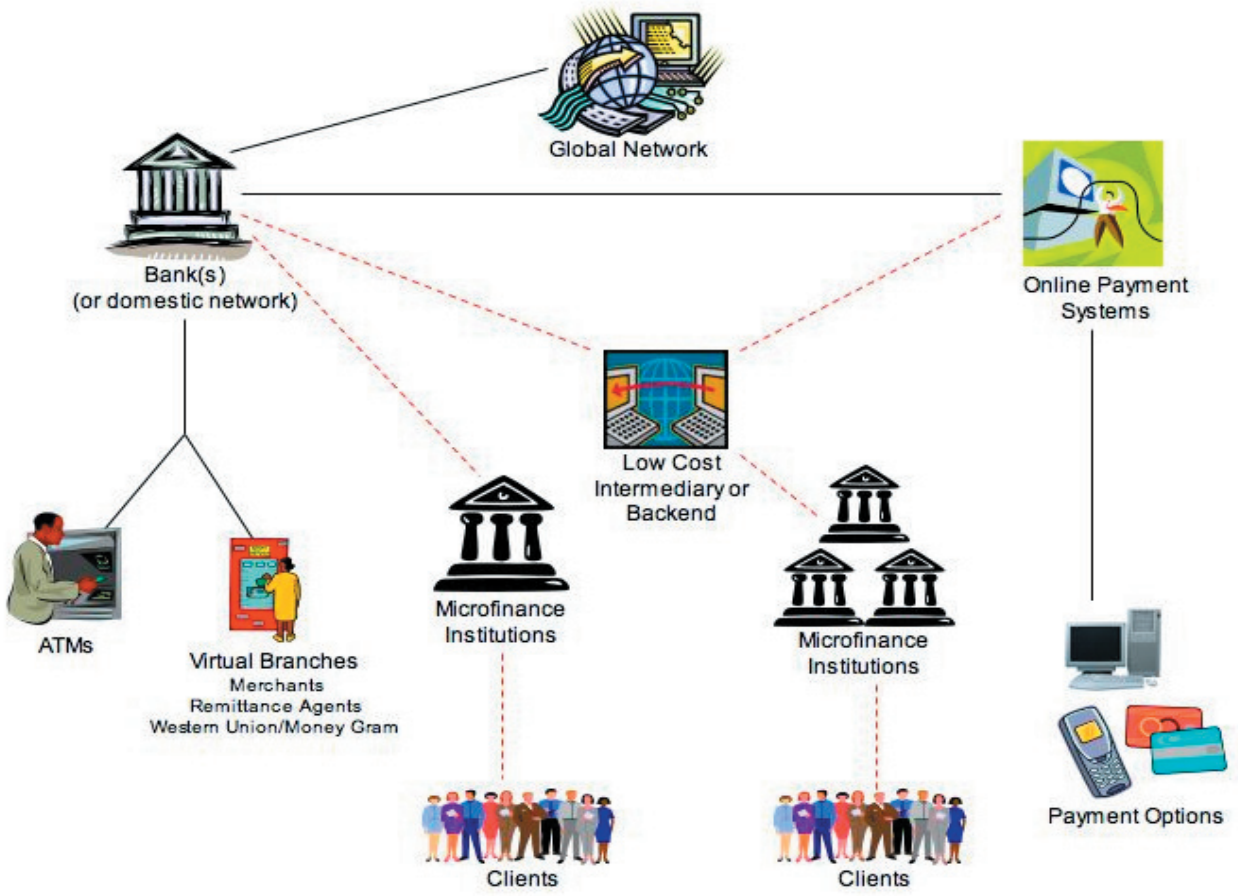
According to a recent survey conducted by ACCION International, for many microfinance players, like those participating in the pilot project, technology is viewed primarily as a means to control costs and increase efficiency. Whether these same MFIs also see technology as a means to achieve significant scale is less obvious, particularly if reaching that scale requires changing existing business operations and

procedures, standardizing the collection of customer data, building networks of non-exclusive external agents, and-sharing technology infrastructures. What the pilot project suggests, however, is that without steps like these, it is unlikely that small, customized investments in technology will achieve greater scale of the microfinance industry.

Self-contained organizations that are not interested in sharing information, standards or solutions do not, and, more importantly, cannot scale. Those very walls that they have built, literally and metaphorically, around their business operations are unlikely to allow for the evolution of a fluid financial system that expands across and interlinks a multitude of players. While very few MFIs have been able to reach one million customers, the likelihood of true scale, that is scale that reaches hundreds of millions, or billions, of customers is unachievable while those walls still stand separating MFI from MFI.

Even in the developed world, the financial sector only reached significant scale and outreach when its financial actors agreed to coalesce around a number of shared standards that allow information to be passed uniformly from one system to another. A primary example of this is seen in the evolution of the financial services industry in the United States. In the 1950s, the US consumer finance market in many ways resembled the microfinance industry of today. Average loan sizes were around US$300, repayment rates ran as high as 96%, credit decisions and processing involved significant person-to-person interaction, market penetration was rather shallow, and transaction costs were high.

So what happened to spur the dramatic growth in scale of financial services in the United States? The simple answer is a combination of new customer-focused products, new business models, and new enabling technologies. Term loans were replaced with credit lines that gave customers more power to decide why, when and how much to borrow. Face-to-face credit decisions gave way to massive credit card "drops." Banks developed strategies for managing and assessing the risks of these more "impersonal" credit decisions. Business models changed to allow cooperation and competition to co-exist as financial actors built shared infrastructures to reach a growing customer base. Banks shared the costs of those infrastructure elements, including technology investments that were too expensive for any single player, yet continued to compete on differentiated services. This breaking down of walls between the banks in turn permitted shared technologies to be built that could enable a scaling up of the industry while also improving the services delivered to a rapidly growing customer base.



In many ways, today's microfinance industry seems eerily reminiscent of the early stages of the credit card market in the United States when each bank was attempting to issue its own cards, develop its own exclusive network of internal and external agents, and invest in its own technologies to serve this new market. Like those banks of yesteryear, it is not unusual to see today's microfinance actors resist collaboration

and external agents, and invest in their own technologies to serve this new market, even when doing so is likely to significantly lower costs. In the pilot projects this was manifested in the participating institutions' resistance to sharing RTS servers, demand for customized connectors to link to their individual MIS, desire for uniquely designed and printed smart cards, and apparent disinterest in developing a network of shared external agents within the Ugandan microfinance community.

To some extent this preference found in the microfinance industry for customized, rather than standardized, solutions can be directly traced to the donors' doorsteps. A possible unintended consequence of some donors' strategy of funding "microfinance champions" and "innovation leaders" has been to foster a mindset among MFIs to go their own way, to value customized solutions over standardized solutions. Yet, the need for standardization continues to surface in this industry – be it to standardize financial and accounting practices, standardize social impact measurements, or, as here, to standardize business processes and operations for capturing individual customer data. As has been noted by others, individual rural financial projects should be pursued with a financial systems perspective in mind. This implies that horizontal and vertical integration needs to be fostered within a decentralized, rural financial system. This kind of up, down, and sideways integration requires not only standardization, including technology standardization, but more importantly, building cross-sector relationships under which the system will operate.

In short, it means building an ecosystem, much like the ecosystem seen in the natural sciences, where a web of interconnecting relationships exists. Implementing this vision, by definition, is complex and costly. That is why industry and sector solutions, at least at the national level, are necessary, rather than institution-by-institution solutions. For those who have a stake in the growth of the microfinance industry, it is time to start developing incentives that encourage integration and sharing within the microfinance industry. There is much room to direct support into research and development of innovative technology solutions that encourage cooperation and collaboration, rather than customization, among industry participants. Other investments worthy of donor support are shared infrastructures that decrease per unit costs for all participants, start-up capital for entrepreneurial businesses that are willing to provide technology services, and grants for those MFIs that are interested in participating in such ventures. There is also a growing need to identify and then remove those legal and regulatory roadblocks that impede the expansion of telecommunication services into rural areas, frustrate the capture of microfinance transactional information (including the credit histories of micro-entrepreneurs), or limit the sharing of that financial information with central switches, credit reference bureaus, and bank regulatory authorities.

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[1] McKinsey & Company, 2005

[2] The Microdevelopment Finance Team (MFT) included individuals from Accion International, Bizcredit, FINCA International, Grameen Foundation USA, Freedom from Hunger, Global eChange, PRIDE AFRICA, and Hewlett-Packard Company

[3] Complete details on the RTS technology can be found on the web. Refer to www.sevaksolutions.org for operational guides, technical documentation and other material about the RTS. Executable and source code are available at rts.dev.java.net.

[4] Refer to www.sevaksolutions.org for a case study and the complete financial analysis of all three models tested in Uganda.

[5] Nocera, Joseph. A Piece of the Action. New York: Simon & Schuster,1994.

[6] Initially, banks issued their own credit cards for use within exclusive merchant agent networks. This exclusive strategy, however, dampened any chance to get to scale as it was proving unsustainable for the issuing banks. Bank of America finally broke this logjam when, under the leadership of Dee Hock, it developed the VISA model – a shared network owned now by more than 20,000 member banks from around the world. Within the VISA model, member banks agreed to establish a common architecture with standards adhered to by all members that would permit shared technologies to be developed that could settle financial transactions among a large number of merchants and banks.

[7] When credit cards first were issued, it was not unusual for bank authorizations to take as long as five minutes. Now, with advances in technology, most credit card authorizations in the United States rarely exceed more than seven seconds.

[8] Zeller, Manfred, Paving The Way Forward For Rural Finance: An International Conference On Best Practices, June 2003, "Models of Rural Finance Institutions, p. 29.

About MicroCapital
MicroCapital is a news and research initiative on international microfinance investment housed in Prisma MicroFinance, a for-profit microfinance institution (MFI). Since microfinance is currently dominated by governments and charities, objective information with a business orientation is scarce and buried under academic jargon. We seek to provide candid information on microfinance as an emerging investment class. Feedback is welcomed. Special thanks to Sonia Weiss and Robert Southern for this publication.

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