

## **From Microfinance to m-Finance**

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In some countries it can take years to get a new telephone line installed. In 1990, there were just 10 telephone lines installed for every 1000 people in the Philippines. In Kenya, the ratio was 7 per thousand. In India, 6 per thousand. Compare that with the United Kingdom with 441 lines per thousand in 1990, or the United States with 545.<sup>1</sup> For decades, public sector telephone companies in developing economies seldom had incentives or budgets to rapidly expand land line networks, and the private sector has had even less motivation to serve the costly-to-reach.

The advent of mobile telephones has changed the equation. Mobile technologies allow countries to leapfrog over existing technologies, and they are leaping quickly. In 2006, an industry association counted 800 million telephones sold over the prior three years in developing countries.<sup>2</sup> In January of this year alone, Indian companies added 7 million

new subscribers.<sup>3</sup> With cheap mobile telephones widely available, 40 percent of the population of the Philippines now has a telephone and over 200 million text messages are sent daily -- at just 2 cents a message.<sup>4</sup> In Africa, cell phone penetration jumped from 2 million subscribers in 1998 to 82 million by 2004, and the market continues to expand rapidly. One estimate places penetration in Africa in mid-2007 at 160 million subscribers.<sup>5</sup>

The spread of mobile technology offers more than a cheaper way to provide telephones. The technology also involves, in part, an expansion of human interaction, changing the nature of interaction as well as its level. The “mobile” element allows you to call your spouse when you’re stuck in traffic and running late; to keep track of your teenagers when they go out with friends; to form a potentially life-saving link in the case of natural disasters, like earthquakes or floods; and, in more normal times, to reach colleagues, whether they’re at work or about town. In these and myriad other mundane ways, mobile technology makes communication more flexible, reliable, and cheap.

As the technology has spread, it took little time before thoughts turned to whether mobile telephones could have explicitly economic applications. Muhammad Yunus pitched his plan to sell mobile telephones to “telephone-ladies” in rural Bangladesh as a way to multiply the reach of a single phone (the purchasers then rented air-time to their neighbors).<sup>6</sup> Today, nearly half of Bangladesh’s villages have mobile access via a telephone-lady and over a quarter million phones have been sold under the program.<sup>7</sup> Yunus has spoken often of how the technology could allow villagers to obtain better information on prices in local markets and thus to improve their competitive positions when dealing with traders. In this vision, access to phones increases earning capacity which in turn makes access to Grameen Bank loans more powerful. In a similar way, a Vodaphone study noted that “62 percent of small businesses in South Africa and 59 percent in Egypt said they had increased their profits as a result of mobile phones, in spite of increased call costs.”<sup>8</sup>

Others are going much further in coupling telephones and banking. Mobile telephones have been imagined as devices to complete banking transactions directly. M-Pesa in Kenya is one example (discussed by Nick Hughes and Susie Lonie in this volume), joining similar innovations like G-Cash and SMART Money in the Philippines and Suvidha/BEAM in India.<sup>9</sup> It is easy to see the appeal: a Finmark Trust report shows that one third of people in South Africa and Botswana who lack bank accounts, for example, nevertheless own a mobile telephone or have access to one (FinMark Trust 2004 and FinMark Trust 2005a). Many of the unbanked are poor, and mobile technology offers the possibility of both filling financial gaps and improving the economic lives of customers. The appeal of these “m-Finance” initiatives will grow with the spread of phones.<sup>10</sup>

The core of businesses like M-Pesa rests with facilitating financial transactions via mobile telephones. In the most common application, microfinance customers can pay loan installments via telephone by entering a code that transfers funds from a personal account to the bank’s account. But transactions can also flow between customers directly--as long as the two parties are in the M-Pesa network (or have access to someone who is). Someone can, say, send money to an uncle who is not in the network by sending

a code to the uncle. The uncle takes the code to a local shopkeeper who is in the M-Pesa network and the shopkeeper transfers the funds. In Kenya, these transactions are facilitated by mobile phone agents in commercial areas.

Banking via mobile phone thus offers features of automatic teller machines, internet kiosks, and point-of-service devices like debit cards—technologies that collectively represent a new wave of devices to bank low-income households. While the focus below is on mobile phones, the other technologies can provide simpler solutions, though less powerfully. Debit cards, for example, do not require owning a mobile telephone yet offer ways to pay bills, make purchases, and save. ATMs offer cash without requiring human interaction of any sort. Internet kiosks, which are usually manned, can be a platform for a range of financial transactions but are only available in fixed locations.

Turning to mobile telephones, the m-Finance appeal rests on two possibilities. The first is that mobile phones will allow banks to do their existing business more cost-effectively. By cutting costs, the technology can make it feasible to reach a broader population. The second and more interesting possibility is that mobile phones and related technologies will alter the nature of banking relationships themselves. Doing so will mean going back to basics and rethinking assumptions about the financial demands of poor households.

## THE HUMAN TOUCH

Robert Annibale, the head of Citigroup's Microfinance Group, often notes that there are two populations in the world who routinely meet with their bankers: the very rich and the very poor. The very rich are served by private bankers ready to invest in maintaining the relationships critical to keeping privileged customers happy. The very poor, meanwhile, have microfinance.<sup>11</sup> The typical mode of microfinance has been highly hands-on. As first rolled out at Grameen Bank, Bolivia's BancoSol, and at replicators worldwide, customers meet with credit officers in groups each week or two. Group meetings stretch across an hour. Interactions are face-to-face, and customers who come up short on their required payments must deal directly and immediately with their neighbors and the bank's representative. When loans are successfully repaid in full and new loans are made, the group too shares in the celebratory moment. It is a model built on a high level of "touch". Day by day, loan officers spend their discretionary time dealing with problem cases and resolving disputes. In this way, reality departs sharply from the economic theorist's caricature, in which the loan officer is simply an enforcer of optimized loan contracts: through the economist's lens, the loan officer is a tough guy who makes sure rules are followed. In reality, the loan officer also plays the roles of social worker, book-keeper, mediator, detective, and coach. It is high-touch work.

Banking by mobile telephone—or leaning heavily on related technologies like automatic teller machines and internet kiosks—is low-touch. A big question for technology enthusiasts is whether much is lost in translation. It may be that the high degree of human touch, while valued by some, doesn't ultimately contribute much to successful microfinance. Perhaps people are happier without the group microfinance meetings and

prefer greater anonymity. Perhaps that's not true (i.e., touch matters), but, all the same, gains in service quality due to the technology outweigh losses. Or there may be hybrids in which traditional banking models are combined with m-Finance.

## RE-IMAGINING MICROFINANCE

Truly imagining the potential for m-Finance means re-imagining microfinance. Muhammad Yunus created a narrative which helped to launch microfinance and, in many ways, still guides efforts. The narrative rests most fundamentally on “microcredit for micro-enterprise”: small loans to support the small businesses of poor entrepreneurs. A first step in assessing possibilities for m-Finance is to open that box. A growing pile of evidence shows that microfinance customers (including Grameen Bank borrowers) use loans to meet widely-ranging needs; the list includes paying for health emergencies, school fees, and putting food on the table.<sup>12</sup> m-Finance holds the potential to create financial products that better fit with these needs—as well as to create more flexible products to finance small businesses.

With m-Finance, for example, it would become easier for the microbank to extend emergency loans to its clients. Consider a medical emergency which necessitates that a family rush to a hospital in the city--where the microbank does not operate. Without m-Finance, the family might have to take an emergency loan from a money lender (who might exploit the circumstances) or to lean on relatives. But with m-Finance the family can get the loan or draw down savings while in the city, assuming that their credit history is fine.

This simple example points to a larger way that m-Finance can expand the nature of microfinance. The leading microfinance models have been highly atomized: dominated at first by nongovernmental organizations which seeded village-based or neighborhood-based organizations. Even as for-profit organizations have edged in, the community focus remains. If a villager wants a loan, most often they must get it from their village organization. If they want to save, they must also do it locally. Loan officers come to the villages at set times and carry out transactions locally. Unless you have made arrangements beforehand, if you are out of town, you are out of luck.

M-Finance can increase the reach of microbanks. Imagine a case where a microbank has financed a local retail shopkeeper. Once a week he needs to go the city to make wholesale purchases. Given that the microbank is in the village, he must carry cash into the city. Lack of security makes it expensive to carry cash, though. Moreover, his transactions will be limited by the amount of money he has in his pocket. With m-Finance he could go to the local branch of a bank in the city to withdraw cash (as long as it is a part of the m-Finance network). Or, more simply, he could get cash from a networked shopkeeper. In the same way, he could deposit surplus cash while in the city before heading home.

Consider the story of Ram, who at age sixteen was helping his father on the family farm in rural South India. The farm is just a tenth of an acre, and income from the farm could not support the family, especially with the prospect of the upcoming marriage of one of Ram's sisters. One day in the village, Ram met an old friend, Shyam, who told him about the opportunities selling ice cream on Juhu beach, a major tourist attraction in Mumbai. Shyam promised to help Ram to get set up, but Ram needed an initial investment of Rupees 10,000 (approximately \$250). The local money lender refused to lend, fearing that Ram would run away with the money. An uncle could not help either. But the uncle introduced Ram to his employer, and after some persuasion the employer lent Ram the money on the condition that the loan be repaid within the year in ten monthly installments. Ram agreed and set off for Mumbai. Today, he is a successful ice-cream vendor; he has re-paid the initial loan and sends money regularly to the family by post office money order.

Now consider the story with m-Finance. With the ability to transfer funds by telephone, Ram could remit back to the village instantly, safely, and more frequently. He might also become a viable prospect as a microbanking customer in his village. Thus, he might be able to get a loan in the village where his information networks are strongest—but could repay the loan from Mumbai. Similarly, m-Finance could create new business opportunities for villagers. Consider a village artisan who sells her produce in the local village market. She has secured a loan from a local microbank and wants to expand her business, but the lack of a marketing infrastructure prevents her from expanding her business to urban centers where profit margins are much higher. The local microbank hesitates to lend money to the entrepreneur even though they know from past experience that she is reliable. A big constraint for the microbank is imposed by the requirement of weekly meetings and repayments. With m-Finance, however, the entrepreneur can repay from a distance, at least for part of the time, by making repayments from afar. She can thus earn extra profit while maintaining good standing with the microbank.

In similar ways, m-Finance can facilitate internal remittances. While international remittances get increasing attention, within-country remittances also play important roles in poverty reduction. The Coalition for the Urban Poor (CUP) in Bangladesh, for example, estimates that migrant workers in Dhaka send approximately 60 percent of their income to relatives.<sup>13</sup> The flows form a significant part of household budgets and support education, crisis management, and the other exigencies of daily life. Many migrant workers, though, lack access to formal banks offering remittance services and must rely on informal mechanisms which tend to be time-consuming and insecure.<sup>14</sup> m-Finance can fill the gap by providing cost-effective, secure and fast remittance services as a matter of course.

Opening these boxes will be made easier by the shift away from the practice of “group lending” in microfinance. In South Asia, especially, loans are delivered through groups—particularly amongst poorer households who typically borrow smaller loans—but rigid adherence is softening.<sup>15</sup> The shift away from groups stems from the stresses attached to group guarantees, coupled with the fact that group meetings consume time. In regions with low population density groups may also be costly to attend: one microfinance

initiative in China eventually closed as customers dropped out due to the high costs of group meetings.<sup>16</sup> Grameen Bank has sworn off the idea of holding customers liable for the troubles of fellow group members. So has ASA, a large competitor in Bangladesh. BancoSol now has almost no loans under group guarantees. CARD in the Philippines is also now experimenting with dropping group guarantees. The trend is toward individual loans with individual responsibility for repayment, and this opens possibilities for m-Finance given its personalized, individualized mode.

That said, group meetings have advantages. The meetings can be social occasions, and the groups can offer support to customers—economic, emotional, and strategic. The meetings may also be venues for training and for marketing new products. The public aspect of loan repayments may also help ensure timely repayments. The local elements and the use of groups also allow loan officers to efficiently acquire “soft information” on customers: Who is energetic? In a stable family relationship? Sensitive to peer pressure? Entrepreneurial? Shady? Having a hard week? Over-extended? The shift to m-Finance facilitates easy access to “hard information”—especially on the history and timing of credit and saving transactions—but at the expense of these kinds of soft information. One question is whether the hard information, once fed into credit-scoring models and the like, can adequately substitute for the soft information. Or whether it’s possible to create structures in which m-Finance is integrated with traditional modes of microbanking—so that important aspects of “touch” (and soft information) are retained.

The regular repayment schedules favored by most microbanks have advantages, but they add to costs. Most microbanks insist on frequent meetings (and frequent repayments of loan installments) in order to closely monitor clients, provide necessary training and to pick up ‘early warning signs’ of trouble. But, to the extent it is needed, the monitoring is most helpful in the early phases of relationships. One possibility is to phase in m-Finance gradually, such that successful clients “graduate” to individualized mobile phone-based operations.

M-Finance also permits the possibility of less frequent repayment schedules. Research shows that low-income borrowers tend to prefer to synchronize the timing of loan repayments to the timing of income inflows.<sup>17</sup> So far it has proved costly for the microbanks to provide fully customized services to its clients, but with m-Finance it becomes easier. For example, a fruit vendor with a daily flow of income might prefer to repay loans in small bits on a daily or weekly basis. With m-Finance technology he can do so, repaying in whatever form he likes (daily, weekly, etc) as long as the microbank’s targets are met on time (say, that a given amount be cumulatively repaid monthly by a given date). Alternatively, he could save the income in a personal account and simply transfer the full amount to the microbank at regular intervals.

An additional prospect for m-Finance is that the telephone can be used to remind customers of upcoming deadlines—an application that does not rely on the other parts of the banking infrastructure. Customers can be aided in saving through friendly reminders, for example. Or they can be advised of upcoming dates for loan repayments, payment of insurance premiums, utility bills, etc. In a pilot study in the Philippines, a simple

reminder to save appears to be making a positive impact on accumulated savings. In this example, mobile telephone technology replaces the human touch—and may even be superior to it.

## EXPANDING ACCESS

The promise of m-Finance to expand to the unbanked rests in large part on the specifics of the business model. In the case of M-Pesa in Kenya, the partner microbank has not yet developed a back-end operation that allows m-Finance transactions to be handled automatically and electronically. Cost savings (and functionality) are thus limited. But cost savings are one of the big promises of m-Finance. Developing workable business models has been challenging for microbanks (even for organizations relying in part on subsidy), and the future of m-Finance will rise or fall with its cost implications.

Microbanks have found that the costs of high-touch operations for traditional microbanks have been hard to spread over small-sized loans. Interest rates thus have often been high (often 30 percent per year and higher), especially for institutions serving the poorest customers. In *The MicroBanking Bulletin*'s latest data on 386 microbanks, personnel expenses account for more than half of all operating costs. Moreover, personnel costs (expressed as a fraction of assets) are 50 percent higher (12.2 percent versus 7.9 percent) for microbanks focused on the poorest customers versus those focused further up market.<sup>18</sup> A hope with m-Finance is to speed up routine processes so that field staff can focus more heavily on problem areas and new opportunities. A second hope is to cut the costs of dealing in small quantities.

A third hope is that m-Finance can help expand operations in remote or sparsely-populated rural areas.<sup>19</sup> But one piece of evidence from the M-Pesa experience offers a cautionary note about outreach to poorer customers. We begin by noting that, at present, the charge for sending a text message by telephone is 5 Kenya shillings. Customers must also pay the bank a fee of 30 shillings per transaction. Consider the case in which a typical small loan of 20,000 shillings is repaid weekly over a year in 400 shilling increments. The cost of each transaction for the customer is thus 35/400 shillings, or nearly 10% of the loan size. The customer pays interest on top of these fees. The big question here is whether the automation inherent in m-Finance can eventually bring a compensating drop in interest rates. Or if the added convenience makes the extra cost worthwhile.<sup>20</sup> If not, shifting to m-Finance could screen out poorer customers.

M-Finance will not undo all the trade-offs of microfinance as practiced today. Outside of South Asia, microfinance fails to reach very poor households in substantial numbers. Despite innovation, costs (and thus interest rates) remain relatively high, particularly in Latin America. Still, microfinance proves helpful for customers, even if it is not the panacea that its most ardent advocates promise. M-Finance has the potential to take microfinance beyond the bounds of villages and neighborhoods and create banking services that move with customers. And it can be a platform for developing new products like emergency loans and flexible savings accounts. The potential for these applications



is ample, as is the demand. M-Finance, like microfinance, will only succeed, though, if it rests on a deep and realistic understanding of the financial needs, constraints, and opportunities of poor households.

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<sup>1</sup> United Nations Development Program, Human Development Report 2006. [hdr.undp.org/hdr2006/statistics/indicators/120.html](http://hdr.undp.org/hdr2006/statistics/indicators/120.html).

<sup>2</sup> GSM Association, 2006. GSM Hits Two Billion Milestone.” London: GSM Association. 16 June.

<sup>3</sup> Gautam Ivatury. Interview in *CGAP Portfolio*, March 2007.

<sup>4</sup> Owens, John and Bantug-Herrera, Anna. “Catching the Technology Wave: Mobile Phone Banking and Text-a-Payment in the Philippines.” Chemonics International. Available at:

[http://www.microfinancegateway.org/files/32768\\_file\\_GCASH\\_focus\\_note\\_final.pdf](http://www.microfinancegateway.org/files/32768_file_GCASH_focus_note_final.pdf)

<sup>5</sup> Kabir Kumar, Consultative Group to Assist the Poor, interview (April 26, 2007).

<sup>6</sup> Knowledge@Wharton, “Microfinance 2.0”, *Forbes*, April 10, 2007

<sup>7</sup> Yunus, Muhammad. “Grameen Bank At A Glance.” February 2007.

<http://www.grameen-info.org/bank/GBGlance.htm>

<sup>8</sup> Vodaphone, “New research reveals economic and social benefits of mobile communications in Africa” (Press release). March 9, 2005. Available at: [http://www.vodafone.com/start/media\\_relations/news/group\\_press\\_releases/2005/press\\_release09\\_03.html](http://www.vodafone.com/start/media_relations/news/group_press_releases/2005/press_release09_03.html)

<sup>9</sup> Nick Hughes and Susie Lonie, “Banking on Handsets: How a Global Telecommunications Company, a National Bank, and Local Microfinance Institution Together Turned Cellphones into 24-Hour Tellers for the Poor in Kenya.” *Innovations*, this issue. See also the Safaricom website (<http://www.safaricom.co.ke/m-pesa/>) and [www.financialdeepening.org](http://www.financialdeepening.org).

<sup>10</sup> A rich survey of current trends in M-Finance, with an eye to regulation, is available in David Porteous, “The Enabling Environment for Mobile Banking in Africa: Report Commissioned by Department for International Development (DFID).” Bankable Frontier. Available from:

<http://www.bankablefrontier.com/assets/ee.mobil.banking.report.v3.1.pdf>.

<sup>11</sup> To be precise, when the very poor have bankers, they are often from microbanks; microfinance today reaches only a small share of the global poor and, by one count, just over 100 million customers worldwide. Sam Daley-Harris (2006). *State of the Microcredit Summit Campaign 2005*. Washington, DC: Microcredit Summit Campaign

<sup>12</sup> See, for example, Stuart Rutherford, “Uses and users of MFI loans in Bangladesh,” MicroSave Briefing Notes on Grameen II #7. 2006. Also: Don Johnston and Jonathan

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Morduch, “Microcredit versus Microsaving: Evidence from Indonesia,” paper presented at World Bank Conference on Financial Access, March 2007.

<sup>13</sup> See <http://www.asia2015conference.org/pdfs/Deshingkar.pdf>.

<sup>14</sup> ICICI bank is conducting a household survey in several states in India to understand the extent of internal remittances and develop appropriate financial services. (<http://www.asia2015conference.org/pdfs/Deshingkar.pdf>)

<sup>15</sup> Beatriz Armendáriz and Jonathan Morduch (2006). *The Economics of Microfinance*. Cambridge, MA: MIT Press.

<sup>16</sup> Albert Park and Changqing Ren, ‘Microfinance with Chinese Characteristics’ *World Development* 29(1): 3 - 62, 2001.

<sup>17</sup> Armendariz de Aghion, Beatriz and Jonathan Morduch, 2000. “Microfinance Beyond Group Lending,” *The Economics of Transition* 8 (2) 2000: 401 – 420.). Shamika Ravi (2007), “Repay as you Earn”, Indian School of Business, draft manuscript.

<sup>18</sup> MixMarket, “Benchmark Tables,” *Microbanking Bulletin*. Autumn 2006. Available at: <http://www.mixmbb.org/en/>.

<sup>19</sup> Mitchell A. Petersen and Raghuram G. Rajan, “Does Distance Still Matter? The Information Revolution in Small Business Lending,” *Journal of Finance*, 57(6): 2533-2570. December 2002.

<sup>20</sup> The example draws from our reading of the terms and conditions of the Safaricom/M-Pesa contract, described at [http://www.safaricom.co.ke/m-pesa/default2.asp?active\\_page\\_id=262](http://www.safaricom.co.ke/m-pesa/default2.asp?active_page_id=262) (accessed May 4, 2006).