

## Notes from the Field

# Mobile 2.0: M-money for the BoP in the Philippines<sup>1</sup>

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### Abstract

*This paper explores the reach and use of m-money among the bottom of the pyramid (BoP) in the Philippines using survey data from LIRNEasia's 2008 Mobile 2.0 surveys. It looks at m-money's potential and actual use for remittance among internal and external migrant workers and their families. The results are triangulated with focus group data and literature on mobile and electronic money, and framed using Van Dijk's (2006) Stages of Access to digital technologies. Although usage of m-money among the BoP remains low, the ICT infrastructure for this is in place. Compared to other Asian countries where the survey was also conducted, Filipinos are more familiar and have higher trust in mobile electronic transactions. Managing their resistance to change from current offline remitting practices remains a challenge.*

### Introduction

Electronic money (e-money) refers to "stored value or prepaid payment mechanisms for executing payments via point-of-sale terminals, direct transfers between two devices, or over the computer networks, such as the Internet. Stored value products include hardware or card-based mechanisms (electronic purses or wallets), and software or network based cash (also called digital cash)" (Basel, 1998, pp. 3–4). While e-money's potential to improve efficiencies, reduce transactional costs, and bring new opportunities has long been recognized, renewed interest has been generated with new forms that are transmitted with the aid of mobile phones, or m-money. M-money involves "services that connect consumers financially through mobile phones. [It] allows for any mobile phone subscriber—whether banked or unbanked—to deposit value into their mobile account, send value via a simple handset to another mobile subscriber, and allow the recipient to turn that value back into cash easily and cheaply" (GSMA, 2009, p. 7). In this way, m-money can be used for both transfers and payments.

Interest in m-money in the field of ICTD concerns reaching the unbanked and people at the bottom of the pyramid (BoP). This includes the potential to provide the poorest with banking-related services through mobile banking (m-banking)<sup>2</sup> and mobile payment transfers (Soriano &

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1. This paper is a revised version of the paper presented at the International Conference on Mobile Communication and Social Policy on October 10, 2009, at Rutgers University. This work was carried out with the aid of a grant from the International Development Research Centre (IDRC), Canada, and the Department for International Development (DFID), UK. The Teleuse@BoP3 research cited was funded by IDRC, DFID, and Telenor Research & Development Centre Sdn. Bhd., Malaysia.

2. Distinction is made between electronic banking and mobile banking, as the former refers to "the provision of small banking products through electronic channels" (Basel, 1998, p. 3), while the latter offers financial services through mobile networks and mobile phones (Bångens & Söderberg, 2008).

## MOBILE 2.0: M-MONEY FOR THE BoP IN THE PHILIPPINES

Barbin, 2007; Bångens & Söderberg, 2008). This can be done by capitalizing on the rapid diffusion of mobile phones among social networks including the BoP (Zainudeen, 2008). Living in a cash-based economy, the poor receive irregular income from occasional jobs, farm produce, and “welfare” (Bångens & Söderberg, 2008). As such, the unbanked require efficient use of varying sources of cash inflows. Furthermore, their limited access to established financial channels exposes them to financial risks and less secure transactions.

Among the various income flows of people at the BoP, remittances could be the driver for m-money usage. One reason is the large amount of money going through remittance channels, which implies a potentially steady customer base. The World Bank estimates that the value of remittances in 2008 was US\$305 billion worldwide (BSP, 2009a). These were coursed mainly through various money transfer outfits (MTOs, with 55% market share) and Western Union (25% market share) (GSMA, 2008). Given the growth in mobile phone access and ownership among the poor, BoP mobile users who send remittances could then use their phones as a faster, less costly, and more secure alternative for moving their money. The next section elaborates on these possibilities.

### M-payment, M-money, and Remittances

#### *Models and Forms of M-payment Systems*

Recent investigations conducted by McKay and Pickens (2010) comparing the pricing of 16 branchless banking services in different countries, including the Philippines, with both commercial and informal means have found that the branchless banking is significantly less expensive. For a transactional value of \$23, branchless banking costs, on average, 38% less than commercial banks and 54% less than informal options for money transfer. They argue that this is possible because bank branches require considerable investment in infrastructure, equipment, human resources, and security. On the other hand, branchless banking leverages existing infrastructure (such as agent shops) and equipment (e.g., mobile phones). These are generally the kinds of arrangements and infrastructure that are more common in many developing countries around the world. As such, the primary challenge is finding how to further expand this service to the poor and unbanked.

Early forms of mobile payment services came in the form of remote micro payments for such services as top-ups, purchasing ring tones, accessing weather information, etc. Operators were able to collect from subscribers by directly debiting from customer’s airtime values. In more developed places, such as Hong Kong and Japan, near field technology also allowed mobile phones to be used to pay for toll booths, vending machines, tickets, etc. (Porteus, 2006). These kinds of technologies, though, require greater investment in the technology and infrastructure, and they may be difficult to apply in a developing country setting.

However, there are also innovative models of m-money services coming out of less developed countries. One popular example is Kenya’s M-PESA, a mobile phone-based money transfer service with limited bank involvement. It was developed by Vodafone and the Department for International Development (DFID) in 2003. It was originally meant to provide a service for microfinance borrowers to receive and repay loans via Safaricom’s network of airtime resellers. In South Africa, there were two models of potentially transformational m-banking services: MTN Banking and Wizzit (Porteus, 2007). Both services are “alliance banking models,” whereby a telecommunications provider or a third party “allies with a bank to provide a separately branded and marketed basic transactional account with a debit card” (ibid., p. 21). This then gives subscribers access to automated teller machines (ATMs) and point-of-sale (POS) networks, which are especially important when one wants to “cash out,” or convert m-money into real cash. Access to ATM networks would be beneficial, assuming there is wide penetration of ATM systems across a country. But in the Philippines, for instance, ATMs are equally limited by the reach of banking and information infrastructure.

The “ATM-mobile phone concept” was more recently applied in Thailand. DTAC partnered with Kbank for an “ATM-SIM” project that now boasts more than a million users, with 9 billion Baht (approx. US\$277 million) turnover every month. The ATM SIM is a SIM card tied to one bank account. It allows the user to do most of the things associated with an ATM while on the move: check balances, transfer money, receive notifications of transactions, and pay for services. One of the service’s biggest user groups is factory workers. By partnering with the factory’s HR department to offer ATM SIMs to all

employees, the factory workers then use it to send money to their relatives upcountry every payday.<sup>3</sup> This model works well in Thailand because it has a high bank penetration rate, even among the BoP.<sup>4</sup> Also, one advantage is that it deals largely with domestic remittances, so there are no disadvantages associated with hidden costs or losses due to currency conversions that foreign migrant workers have to consider.

### **M-money for Remittances**

While the Thai example provides a concretely successful model for using mobiles for domestic remittances, there are other reasons why m-money providers are encouraged to tap the remittance market in the Philippines. First, in contrast to other investment forms, remittances are relatively stable, even during economic slowdowns. Second, they are also expected to continue to increase as a consequence of globalization-induced labor migration (Maimbo & Ratha, 2005). These are supported by an Asian Development Bank (ADB, 2005) study where, contrary to the concept of remittance decay, international remittances sent by Filipinos and other Southeast Asian migrants have remained constant over time, regardless of the length of their stays overseas. In the Philippines, increasing remittance flows are expected to correspond to the increasing numbers of overseas foreign workers (Nakanishi, 2009). The government Commission for Filipinos Overseas estimated that more than 8.2 million Filipinos worked abroad in 2008, and that they remitted approximately US\$16 billion that year (Bird, 2009).

Most of these international remittances were being sent to urban areas, while at the same time, most of money flows going to rural areas were domestic transfers from urban areas (Pangilinan, 2007). This is explained by Ang (2007), who reveals that most overseas Filipino workers (OFWs) come from regions or provinces with lower poverty rates, such as the national capital region or provinces in

Luzon,<sup>5</sup> implying that poor people are less able to migrate to other countries (Pernia, 2006). This suggests that, between international and domestic remittances, it is the domestic remittances that are more relevant to the BoP. Hence, while the potential for m-money services includes the movement of money from foreign countries to home countries, more significant to the BoP, just as it was in Thailand, would be the movement of money from the seemingly rich urban areas to poorer regions in rural areas within the country.

In moving money, senders seek the most affordable and convenient channel. Further, the importance of physical infrastructures may diminish as more money transfer outfits consider new technologies, such as the Internet and mobile phones, to be workable alternative channels (ADB, 2004). This new landscape has made m-money a viable option to consider. A case in point is that of Filipino migrants, whose high SMS usage (ADB, 2005) has been capitalized on by telecom companies and banks that offer mobile-based financial services, including m-money. Notwithstanding their preference for existing formal and informal channels,<sup>6</sup> the migrants use SMS to inform their recipients of their remittance.

While there is a growing amount of research into the use of mobile phones for financial services, attention has been mainly on application design and adoption. Issues relating to financial needs and the measurement of impacts have been comparatively neglected (Duncombe & Boateng, 2009). Because of this, the next section looks at m-money innovations in the Philippines for tapping the remittance market, as well as what they can mean for the BoP. It applies Van Dijk's (2006) stages of access to digital technologies to the potential adoption and use of m-money for remittance among the BoP (see Figure 1). The discussion is based on the results taken from LIRNEasia's 2008 Teleuse@BoP3 survey findings,<sup>7</sup> as well as from

3. Sambadaraksa, D. (personal communication, March 30, 2010).

4. Thailand stands out among the countries LIRNEasia has studied. Only 28% of its population lives on less than US\$21/day, and 84% of the population has access to a bank account. Mobile penetration is also reported to be at 124%.

5. More than 50% of international remittances in 2004 went to only three of the 16 regions, the National Capital Region, Central Luzon, and Southern Tagalog, all of which are already the most developed in the country.

6. Formal channels include banks, nonbanks, and money transfer agencies/remittance agencies. Informal channels include courier service/door-to-door, and hand-carried cash brought home by relatives or friends (Maimbo & Ratha, 2005).

7. The survey was conducted in six countries, with an aim to enable "more people at the BoP to join the information society" (LIRNEasia, 2008, p. 4). In the Philippines, it had 800 respondents nationwide who belonged to SEC E. This sample had, on average, a household monthly income of US\$126, four household members, and one mobile phone.

## MOBILE 2.0: M-MONEY FOR THE BoP IN THE PHILIPPINES

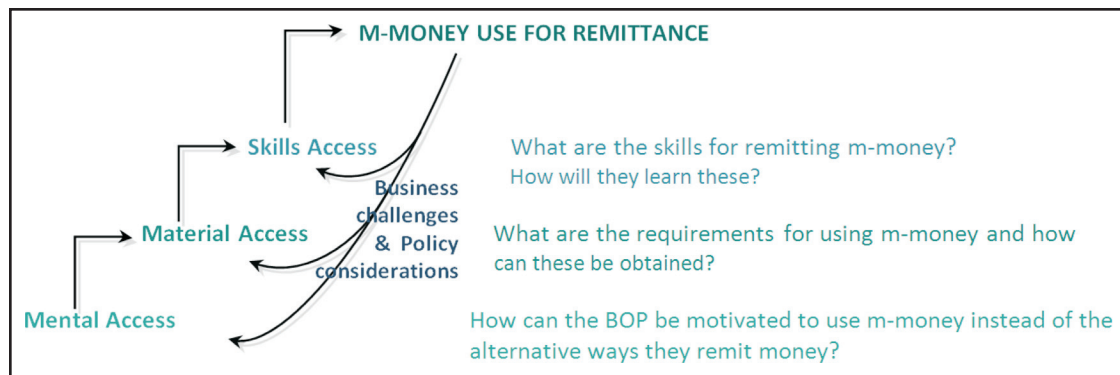


Figure 1. Stages of Access to M-money for Remittance.

CKS Consulting Pvt. Ltd.'s 2009 "Teleuse@BoP3: A Qualitative Study."<sup>8</sup> Provided at the end are business and policy recommendations on how to expand access and use of mobile money for remittance among the BoP.

In applying Van Dijk's framework, this study looked at three issues that the BoP have to overcome to use m-money for remittance: mental access, material access, and skills access. Data for this were based on surveys that LIRNEasia conducted in 2008, along with subsequent qualitative focus group discussions in 2009.

Mental access looks at the BoP's interest in using m-money and their awareness that remittances can already be sent through mobile phones. For service providers and policy makers, it is important to know the factors that motivate the use of these alternatives, as opposed to the traditional ways of remitting money.

As demand for the service is established, the next issues for the BoP are securing the necessary materials and skills to use m-money. Crucial here are mobile phone ownership, the accessibility of service support structures, the required skills, and the manner of obtaining them. Material access is then based on the BoP's access to mobile phones that are m-money capable. Issues include the service's affordability to the BoP and the availability of the service (and supporting infrastructure) in all areas.

The supporting infrastructure would include facilities for both enrolling in the service and cashing out money.

Skills access identifies the capability of people to send m-money. Since the process is similar to texting and the users' past experiences with e-loading or top-ups, people's capabilities to send SMS and pass loads are important indicators.

Finally, a description of their current usage will illustrate the factors necessary in expanding uptake and regular use. This includes determining who uses m-money, for what purpose, how much they send or spend, and how often they do so. Along with its use, it is also important to find out how trust in the system can be enhanced.

From these, the paper will then discuss the business challenges and policy considerations relevant to offering m-money and its innovations. These considerations are important for every stage, especially when introducing innovations for increasing usage among the BoP.

### Expanding Use of M-money to the BoP in the Philippines

Two kinds of m-money platforms are presently available in the Philippines: SMART Money and Globe GCash. Introduced in 2001, SMART Money is issued by the Banco de Oro (BDO) Universal Bank, in part-

*The respondents came from urban and rural areas, and had all used a phone (regardless if they owned it or not) in the three months prior to the survey.*

*8. This study complements the Teleuse@BOP3 survey findings, and it was conducted in the same six countries. The Philippine sample consists of four respondents from the urban area (Metro Manila) and three respondents from the rural area (San Fernando, Pampanga). Both groups have one respondent who is an internal migrant, or who is related to a migrant worker.*

nership with SMART Telecom. It is a pre-paid debit card that can be accessed using an automatic teller machine (ATM), a credit card terminal, or a mobile phone. GCash, on the other hand, was introduced in 2004 by Globe Telecom and its fully owned subsidiary, GXI, Inc.<sup>9</sup> GCash functions as an electronic money transfer facility that turns a mobile phone into an electronic wallet.

Despite the absence of comparable figures with respect to m-money usage, indications of use can be garnered from the number of registered users, the value of transactions handled, and the amount of revenue generated from the service. For instance, the total value of remittances sent in 2006 using SMART Money was already around US\$28.9 million from abroad, while, within the country, it was US\$113.7 million (Proenza, 2007). On the other hand, in 2007, Globe Telecom increased its GCash user base to 1.4 million users from 1.2 million the previous year (Globe, 2008b, p. 61). By the end of the same year, they were already handling an average monthly transaction value of around PHP6.23 billion (US\$138M) (*ibid.*, p. 65).

This income and increase in user base may be due to various applications with which m-money can be transacted. With GCash or SMART Money, consumers can already purchase goods and services over-the-counter or remotely, pay utility bills, purchase airtime credits, and send international and domestic mobile remittance (m-remittance) (Proenza, 2007, Mendes et al., 2007). It has even led to a Filipino version of e-commerce that combines the use of online social networks with m-money transactions (Alampay, 2008). Another major user base would be e-load dealers and their retailers. The easy payment system it facilitates allows them to buy their load from retailers without meeting face-to-face (Soriano & Barbin, 2007, p. 160). Also, in the Philippines, e-loading is the preferred method for prepaid users, who comprise more than 95% of the market. While this reflects the transaction demand for m-money and m-banking, Proenza (2007) explains that the demand has still been predominantly from high-income urban dwellers, largely because they are easier to reach.

The challenge, then, is to expand m-money usage to lower income, rural dwellers—in particular, users from the BoP. If the technology for remittances were used, the potential demand could come from people who have relatives working abroad, or from people who have migrated internally to other regions in the country.

In a survey of the BoP that LIRNEasia conducted in 2008 (n=800), 9% had relatives working abroad, and 13% had migrated internally to other regions of the country. Of them, 61% sent money<sup>10</sup> (n=172 working away from hometown) (LIRNEasia, 2008), while a majority (71% of external migrants, n=74; 55% of internal migrants, n=103) of respondents who have family members working away from home received financial support on a monthly basis. A considerable number still use traditional remittance channels. According to the Filipino National Statistics Office (NSO, 2007), of remittances sent, 77% are coursed through banks, 14% go through door-to-door services, and 9.2% are sent informally through the agency, local officers, friends, co-workers, or other means. More recent reports from the BSP say that the number of Filipinos who send remittances through informal channels has been going down, and they estimate this figure to have been only 5% in 2008 (Gonzales, 2009).

Given this, how can people at the BoP be convinced by its advantages to use m-money, instead of the traditional and informal methods mentioned?

## Mental Access

Almost a quarter of the BoP (23%, n=800) were found in LIRNEasia's survey to be aware that financial and banking services can be accessed through mobile phones, and 41% of them knew sending or receiving money through ICTs was possible. Moreover, 38% who were unaware of the service (n = 469) expressed interest in using m-money transfers (LIRNEasia, 2008).

However, the BoP's reasons for not using payments through telephones or computers (see Table 1) reflect barriers to subsequent usage of m-money. In particular, the biggest challenge is explaining how it works, how it is used, and the benefits that could

9. GXI is registered with the BSP as a Money Transfer Outfit/Remittance Agent, falling under the third classification of e-money issuers (EMI-others) recognized by the BSP. The other two types are: 1) a bank and 2) a nonbank financial institution recognized by the BSP (BSP, 2009b).

10. The average amount sent among OFWs is \$90 per month, according to 58% of the respondents who have household members working abroad.



## MOBILE 2.0: M-MONEY FOR THE BoP IN THE PHILIPPINES

Table 1. Reasons for Not Using Payment Services Over the Telephone or Computer (n=294).

Reason	Percentage (%)
I do not know how to use it.	56
It's not applicable to me.	16
I do not own a telephone or computer.	10
My telephone does not have that capability.	9
It is too expensive.	9
These are not reliable/trustworthy.	4
I am satisfied with my present mode of obtaining such service.	1

Source: LIRNEasia survey (2008).<sup>11</sup>

be gained by using the technology. For instance, the fact that it can be used for basic financial transactions like purchasing and paying bills should make it already useful and relevant to a majority of them. Also, the technology is simple enough that it can be used in any basic mobile phone that is SMS-capable.

Only a few of the respondents actually had issues with m-money's trustworthiness (4%), which could have been a factor in their decision to not try the mobile channel. Their trust may have to do with Filipinos' high use of SMS and e-loading, which makes them highly exposed to electronic exchanges. Their experience has been very positive, as is reflected in their high trust rating of e-loading (4.63)<sup>12</sup> in the survey (LIRNEasia, 2008). This high trust makes the Philippine market feasible for m-money services, as the concept of transferring information and monetary values are somewhat similar.

However, in the case of remittances, respondents from the focus group discussions (FGDs) perceive that the different and often informal ways of sending money were more "trustworthy" than their own ability to send m-money. Although younger people were more interested in m-money than those older than 35 years of age, collectively, respondents were open to using the service. However, they "will need to see the service do very well, prove its reliability, have to be recommended by their social networks and competitively priced" before they will use it (CKS, 2009). This is similar to the usual concerns for sending money home, namely: security of the trans-

action (that it gets home), excessive fees,<sup>13</sup> and how much time it takes to receive the money (Comminos et al., 2009). The popularity of Western Union's remittance delivery indicates that it addresses these concerns, along with the BoP's preference for having remittances delivered at home to save time and travel costs (CKS, 2009). Hence, to be considered an alternative remittance channel, m-money services have to assert their added value and better quality of service to the BoP.

For subscribers, the benefits that mobile currencies provide include savings in cost, time, and security. Some studies have estimated that the advantage of using SMS payments instead of over-the-counter transactions would be around PHP206 (roughly US\$4.50), when one considers the cost of travel, and the opportunity cost of time spent for the transaction (Owens, 2006, p. 6). This is aside from the safety it provides, given the risk of burglary or theft. The box below illustrates such savings:

### BOX 1: The Common Remittance Process

To understand the potential of m-money for remittance purposes, one must first understand the nature of domestic remittances among the poor. Take the case of Ms. A, who works as a domestic helper in Manila and sends money back to her parents monthly:

11. These answers came in response to a multiple-response question.

12. Where 1 means "I distrust this method completely," and 5 means "I trust this method completely," respondents were asked to rate their degree of trust in top-up methods used: top-up cards, electronic reloads, load transfers from others, and SMS top-ups.

13. Fees are dependent on access to bank accounts, the speed of transfer, the destination, amount, exchange rates, etc. (Comminos et al., 2009).

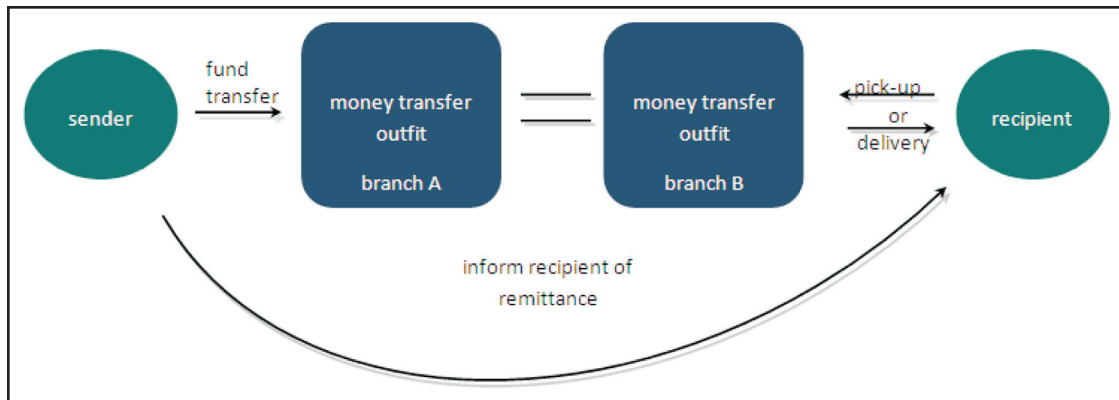


Figure 2. Sending Local Remittance Through Traditional Channels (MTOs).

*I send PHP2,000.00 per month to my mother through Cebuana Lhuillier [a pawnshop]. The first time I sent money through them, I was asked for some identification. I provided my postal ID, after which they gave me a customer ID that I could use for future transactions. For every remittance I send, I provide the name of the person, and their address. For every transaction I do, they provide a control number. I pay a fee of PHP70 per PHP1,000 I send. So every month I pay PHP140. I call my mother to inform her of the control number. I also text her the control number to make sure she gets it correctly. She can then collect the money from her end by showing her ID (I think she will also get a customer ID once she's been a client before), and the control number. Without the control number and ID, she will not be able to get the money. It costs PHP15 to travel to get the money, and another PHP15 back.*

In the case above, one can see that for every PHP2,000, they spend about PHP195 (PHP140 fee; SMS/call, PHP10; sender transport, PHP15; receiver travel, PHP30). This translates to almost 10% of the transaction value. One can assume that travel expenses vary depending on the distance relatives are from the town centers.

Monetary savings are evident with m-money, as the sender and recipient collectively save up to PHP170.<sup>14</sup> Assuming that the sender did her cash-in at Globe Wireless Centers for free, she only needs

to spend an additional SMS fee of PHP2.50 to send the remittance through mobile. The recipient, however, only needs to pay a minimum of PHP20.00, assuming that she went to a partner center charging a 1% cash-out fee. Once in the cash-out center, the recipient has to reply with her MPIN to a system-generated SMS initiated by the cashier that costs PHP2.50 worth of airtime load. The said SMS is an additional security measure to ensure that the person doing the cash-out is the same owner of the GCash wallet/mobile number.

Evidence of trust in the technology and its security is seen by the fact that some people send their transaction details and control numbers via SMS (see the story in Box 1). These people argue that such a method might be safer than having it written on paper, which may be misread, inaccurately written, or lost. This was mentioned in the qualitative investigation conducted by LIRNEasia on Teleuse@BoP3:

[R]espondents in all these countries did not hesitate in sending their transaction identity numbers for remittances over an SMS. In [the] Philippines, Thailand, Sri Lanka as well as Bangladesh, migrant workers do not hesitate in sharing the important details of transactions via text messages or calls to their family members in their country of origin. They in fact, prefer it, so that the written record remains conveniently at hand and does not fall in wrong hands, which could happen if they were written in paper. (CKS, 2009, p. 88)

Sending remittances, whether locally or internationally, requires that the sender eventually commu-

14. This assumes cash in/out centers are easily accessible, just like e-load centers that are five minutes away, on average.

**MOBILE 2.0: M-MONEY FOR THE BoP IN THE PHILIPPINES**

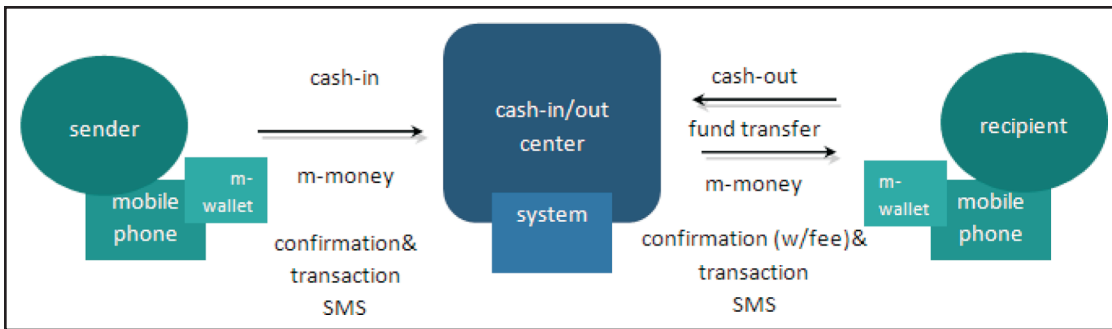


Figure 3. Sending Local M-remittance Through Cash-in/cash-out Centers.

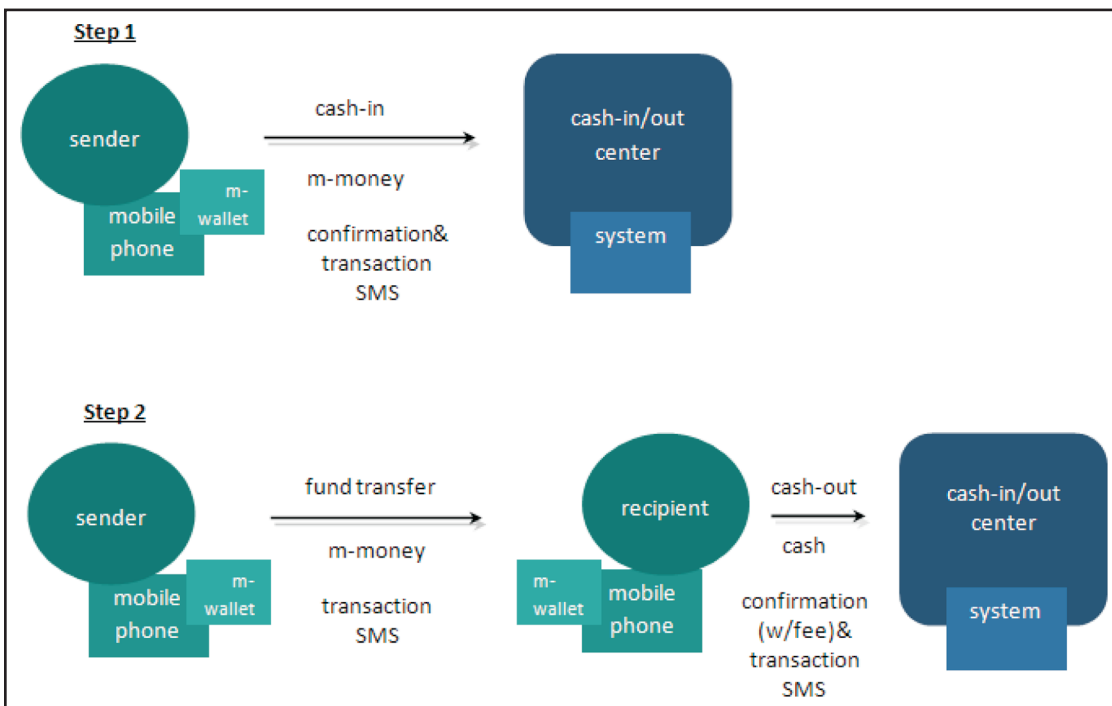


Figure 4. Sending Local M-remittance Through Mobile Phones.

nicate with the recipient that money was being sent. This could either be through a call, an SMS, or an e-mail message.

From an information systems perspective, this process is simplified with the m-money platform, because the responsibility of informing the recipient shifts from the sender to the m-money service provider, eliminating the costs of calling and texting recipients regarding their remittance (see Figures 3 and 4). It is the information system that automatically sends confirmation texts to both sender and recipient at the same time the m-currency is trans-

ferred, indicating the success of the transaction. Moreover, it makes sending money more flexible: Senders can cash-in money in bulk, and then send money in increments, anywhere at any time, provided that it is within the limits of maximum number of transactions allowed per day. This reduces the traveling expenses and time spent when sending money through money transfer organizations.

In theory, a person may no longer need to cash out, once m-money is accepted as a currency, as is happening in some online social networking bazaars (Alampay, 2008). However, for poor and more rural



areas, cash is still the only acceptable currency in use. Also, depending on the agent of choice, there might be slight variations in the process, including variations in the actual fees charged.

Table 2 shows that the fees for sending money depend on the available partner centers in the area; for example, a sender may cash-in at a center charging a 1% transaction fee, while the recipient may cash-out at a partner center charging 5%. Compared to other remittance channels, fees for m-money services occur both at the first and last mile of the process, a feature that may not appeal to most recipients, as they are used to the sender shouldering all of the transaction costs. Therefore, it is important to explain to customers that, upon adding all the fees, m-money services are still cheaper than other existing channels.

Based on price rates alone, the BoP may still use their existing remittance channels in the event that the closest m-money center to them would be the one that charges a 5% transaction fee. Otherwise, price rates should serve as one of the incentives for shifting to m-money for remittance.

However, even with the relatively low transaction costs, the proportion of SMART and Globe subscribers using SMART Padala or GCash remains small. Of the 25 million SMART subscribers, 7 million have activated SMART Money SIM cards. Of those, only 500,000 are active users. Globe, on the other hand, has 1 million activated GCash SIM cards from its 19 million subscribers (CGAP, 2008).

## Material Access

The perceived ubiquity of mobile phones among all segments of society, including the BoP, has been the rationale for considering applications of the technology for the unbanked.

LIRNEasia's survey confirmed that the BoP has easier access to mobile services than banking and financial services. In the survey, only 13% of the BoP ( $n = 800$ ) reported having a bank account, and only 1% had access to a credit card. This contrasts with the 1.36 mobile phones per household average for the same sample. Hence, the availability of mobiles in the hands of the BoP makes the service more feasible.

Still, reasons cited in the LIRNEasia survey (refer to Table 1) show that fees and issues of phone/computer ownership still hinder some users in

accessing telephone- and computer-based payment services (10% and 9%, respectively,  $n = 294$ ). There are also those who think their phone is not capable of using m-money applications (9%,  $n = 294$ ). In reality, however, such capability is not dependent on the mobile phone itself, but on the SIM card. While m-money for remittances in the Philippines is an SMS-based service applicable to any mobile phone with an SMS feature, it is limited to the two telcos who are providing m-money services—Globe Telecom (GCash) and SMART (SMART Money and SMART Padala). M-money services are exclusive to the subscribers of said telcos, and cross-network money transfer is not possible. In theory, using m-money may also be possible with shared handsets; however, this would also have implications with respect to the privacy and security of transactions.

To use m-money, the BoP nonsubscribers have to either switch to another network (and purchase another SIM card) or use two SIM cards, wherein one will be used for m-money transactions. This is common practice in the Philippines, as among the countries surveyed, it had one of the higher reported multiple SIM use rates (16%,  $n = 506$ ). It was noted that one BoP user who was interviewed reported using one number/network for regular SMS-communication and another provider whenever she calls once a month to coordinate her remittance (LIRNEasia, 2008).

Besides access to any basic mobile phone, the use of m-money for remittance also requires access to support structures, such as cash-in/cash-out centers and physical establishments for enrolling in the service. Cash-in/cash-out centers are somewhat similar to money-transfer organizations (MTOs). They are physical outfits that convert cash to m-money (cash-in) and vice versa (cash-out); they may also facilitate the mobile fund transfer from the sender to the recipient. This is because there are two ways to send m-money using the mobile platform—through the cash-in/cash-out center (see Figure 3), or through the mobile phone (Figure 4)—both, however, require cash-in transactions prior to the transfer of funds.

The Globe GCash service conducts both transfer methods under the same brand. SMART, however, markets each process under a different brand: SMART Money allows for phone-to-phone transfers (Figure 3), while SMART Padala uses the cash-in/cash-out system (Figure 4). A SMART Money card

## MOBILE 2.0: M-MONEY FOR THE BoP IN THE PHILIPPINES

Table 2. Comparison of Fees for Remitting M-money and Traditional Modes.

		Cash-in	Sending Remittance	Cash-out	Total (Price range)
M-money	GLOBE GCash	Globe Wireless Center (no fee) Partner Center 1 (1% or Php 10) Partner Center 2 (5%)	Php 2.50 per SMS	(+ confirmation SMS: Php2.50) Globe Wireless Center or Partner Center 1 (1% or Php 10) Partner Center 2 (5%)	Php 15 to 105
	SMART Money	SMART Wireless Center and other Partner Centers (no fee)	Php 2.50 per SMS	SMART Wireless Center or Partner Center 1 (1%) Partner Center 2 (5%) BDO/ EPCI ATM (Php 3) Express/ Megalink ATM (Php 12)	Php 5.50 to 55
	SMART Padala	—	SMART Wireless Center or Partner Center 1 (1%) Partner Center 2 (5%)	SMART Wireless Center or Partner Center 1 (1%) Partner Center 2 (5%) BDO/ EPCI ATM (Php 3) Express/ Megalink ATM (Php 12)	Php 13 to 100
Pick-up Remittance	Western Union	—	Php 65	—	Php 65
	Cebuana Lhuillier	—	Php 60	—	Php 60
Delivered Remittance	LBC Peso Pak 24hr Door-to-door	—	Php 140	—	Php 140
	LBC Peso Pak 48hr Door-to-door	—	Php 95	—	Php 95

Total fees are computed based on the price rates retrieved from respective Web sites and e-mail correspondences.<sup>15</sup> Note that LBC, Western Union, and Cebuana Lhuillier offer different ways of remitting money. They are not limited to delivery or pick-up remittance. For purposes of this paper, one method and price rate per MTO was regarded as sufficient.

15. E-mail correspondence with: Diana Bonghanoy, quality relations specialist; Cebuana Lhuillier; Don Nino Santos, GCash Services; and Lei Madrid and Yani Mallari, SMART Customer Care. Western Union's fee was verified through correspondence with their customer service representative.

allows users to withdraw credit or charge purchases through any MasterCard terminal. It also allows users to send cash credit from one's SMART Money account to another person's SMART Money account using their mobile phone (Proenza, 2007). Besides this, both Globe and SMART operate in partnership with other agents (called partner centers), such as convenience stores and pawnshops. This helps to increase their reach to all groups, but particularly to those in rural areas who have problems accessing financial institutions.

While accessibility generally overrides cost concerns when sending remittances, as exemplified by the BoP's preference for the Western Union Delivery Service, cash-in/cash-out fees are a concern, because this sector relies heavily on cash for their expenses. Hence, having limited network/outlets accepting m-money for transactions is a problem. With less than 1% of the 1 million merchants selling airtime registered to perform this function, the mobile transfer process now becomes similar to the pick-up remittance process: Recipients have to go to physical institutions to use the money (CGAP, 2008). These alternative options provide customers not only with convenience, but also choice. What is important, however, is greater transparency with respect to rates, as fees may vary depending on the "partner" used. Also, choice would still be more limited in rural areas.

Other barriers to using the technology include: 1) the BoP's access to acceptable identification documents (such as the formal home address required for identity proof [CKS, 2009]) which are needed to activate an account or to change m-money to cash, and 2) the method of converting cash into electronic value and the other way around, as required by banking regulations.

### Skills Access

M-money services require SMS-related skills, as well as informal financial skills similar to receiving or sending remittances through the usual platforms.

With 99% of the BoP respondents being knowledgeable in using SMS, and 98% saying they write their own SMS (LIRNEasia, 2008), coupled with the considerable number who have sent remittances, it is surprising that 56% of the BoP still state that their primary reason for not using such services is that they don't know how to use the service (see Table

1). This is true with respect to both internal and external migrants.

Part of the reason stems from the older age groups' perception that using m-money requires other sets of "soft skills" acquired from using computers, bank ATMs, and other automated systems, none of which are prominently available to them (CKS, 2009). Although cash-in/cash-out centers and customer service hotlines technically serve as information hubs for potential users of m-money, the BoP still depend on their social networks for information inputs. However, they also exercise a great deal of individual decision-making through their reliance on information on the Internet. Respondents rely on their friends and other contacts in their social network for their information, but they have also begun to use the Internet effectively (*ibid.*, p. 109). This implies that the speed of adoption could be exponential once a member of a social network becomes convinced and learns the process.

Credibility comes into play when respondents are dealing with important business-related issues on their mobile phones, when financial transactions are being carried out, or when new services are experienced (*ibid.*). In most countries, people still prefer face-to-face transactions to ensure that transactions occur "effectively." It is not that they distrust mobile phones, but that they find it difficult to imagine how transactions can be done over the phone. This is the challenge that mobile currencies have to overcome: demonstrating that such a service can work and that, perhaps, when dealing with "larger" amounts, the BoP has to weigh the risks a bit differently.

### Conclusions

Given the dearth of studies that analyze how mobile phones are interrelating with the preexisting informal practices that the poor favor (Duncombe & Boateng, 2009), this study looked at how m-money can substitute as an alternative remittance channel for long-established ways that the poor remit money to their families.

In particular, this research has shown that the feasibility of tapping Filipinos at the BoP to use m-money for banking and remittances is highly encouraging. A large percentage of them have relatives working abroad or in other parts of the country, and based on the LIRNEasia survey, only 13% of

## MOBILE 2.0: M-MONEY FOR THE BoP IN THE PHILIPPINES

the BoP have bank accounts. However, despite the application's obvious relevance to many Filipinos at the BoP, and their knowledge of the financial services offered through mobile phones, only 1% of the BoP have used it for banking services, and only 5%<sup>16</sup> have made payments or received money through this method. The challenge is increasing these numbers.

This low usage can be overcome. As McKay and Pickens (2010) note, one should start with existing infrastructure and equipment in the community. Personal phone ownership among Filipinos is high, and when informed of the possibility of using mobile phones for remittances, they have indicated interest in using the application. While some of the BoP don't have personal mobiles or mobiles that provide the service, this can be overcome through strategies of multiple SIM use and sharing. Likewise, there also exists a complementary social infrastructure of shops and top-up venues that predominantly service the prepaid user market.<sup>17</sup>

Because of this prepaid-loading infrastructure, Filipinos now also have the requisite skill set to build upon. Filipinos generally have good knowledge of SMS and electronic reloading, high use rates, and trust in the practices' soundness. They also have better awareness, in comparison with counterparts in South Asia and Southeast Asia, regarding the capability to send money (41%) and perform banking (23%) using the phone.

In using Van Dijk's stages of access to digital technologies to frame the problem of adopting m-money for remittances at the BoP, what has become apparent is that the challenges that need to be overcome do not actually present themselves in stages. In this particular case, for instance, many Filipinos already have access to the technology and the needed skills, but many have still not overcome the "mental stage" and motivation to try a new way of sending remittances.

### Business Challenges

The main challenge for m-money usage is largely a "mental" one, since availability of mobiles and the skills necessary for using them are generally present, even among the BoP. As a country with a long his-

tory of migrant labor, it already has an ingrained network and system for sending money home.

The limited awareness of the BoP raises challenges concerning the businesses' way of positioning their m-money product. They face competition from other fund transfer agents—pawnshops offering remittances, as well as existing MTOs. People at the BoP are used to, and are more comfortable with, entrusting their money to 1) a pawnshop-MTO or 2) a friend/relative visiting the place of their recipient (CKS, 2009). Telco-bank partnerships have to stress their comparative advantage by raising awareness of the benefits of m-money and the security of its system.

Awareness among the BoP must be tracked on two levels: knowledge about the application, and knowledge of how to use it. While awareness is high in both categories in comparison with other countries that LIRNEasia surveyed, a majority of the Filipino BoP remain unaware.

Marketing m-money has largely been focused on international remittances. But as this paper has shown, domestic remittances are more significant to the BoP. This is because the flow of international remittances has tended to go to more affluent segments of the population, whereas domestic remittances flow from urban areas to poorer provinces. Furthermore, there is minimal transactional cost savings with international remittances, since most of them are all linked to formal banking channels, and may be dependent on banking regulations in both remitting and receiving countries. In some cases, clear savings in transactional fees are already apparent.

With domestic remittances, however, more direct transfers are possible. They do not necessarily need to go through formal financial channels, and there are greater cost savings from fees (see Table 2). In fact, domestic m-money transfers have had larger volumes in terms of transactions and amounts.

Developing the needed skills and confidence is also a barrier to overcome. The existing procedures for using m-money should be reviewed with the BoP in mind. An example would be the system-generated text messages for m-money; considering the literacy level of the BoP, the structuring of messages should be easy to understand, with options to

16. Two percent of the BoP regularly do this, and 3% have done it, but do not do so regularly.

17. More than 95% of the Philippine mobile market is made up of prepaid subscribers.

have it sent in the native language or dialect of the BoP to facilitate ease in use. Moreover, encouraging use of this system would require considering how people at the BoP gain skills to use new technologies and processes. In this aspect, social networks have an important role to play in encouraging use based on the experience of individuals within the network. Encouraging large firms, especially the telecommunications and m-money providers, to pay salaries through mobile money services could be one way of increasing usage, similar to the DTAC case with factory workers in Thailand.

Limited cash-out centers and retail outlets that accept m-money may restrict the attractiveness of using m-money, as recipients would still have to convert it to cash unless it were widely accepted. Pawnshops are heavily favored by the BoP for local remittances due to their minimal requirements, and because customers feel that they do not have to dress nicely to visit such venues (Iglesias, 2009). To address this, the m-money centers should provide helpful information on m-money use, and they should be designed to not be intimidating to BoP customers. In this, village convenience stores have proven to be valuable allies in the past, especially with respect to electronic loading. Similarly, cooperatives and microfinance institutions could be logical partners for providing monetary exchange services. If all these outlets could eventually be tapped as cash-in/cash-out centers, Filipinos would theoretically only be five minutes away from getting access to their remittance, and possibly, to other financial services.

## Policy Issues

The success of m-money in reaching the BoP is tied to the telecommunication policies that address the required infrastructure, available services, and applications. Crucial to this are banking policies that also affect the regulatory environment of m-money use. With m-money services offered by Globe and SMART, the Philippine Central Bank (BSP) is technically regulating Banco de Oro (BDO) (a bank), and G-Exchange (a money transfer agent), and not the telecommunication companies (SMART and Globe, respectively). In the case of G-Xchange, the company has been regulated by the BSP as a remittance

agent since its establishment in 2005.<sup>18</sup> It is covered by BSP Circulars, and it must comply with anti-money laundering laws. Among the regulatory implications of these laws is the need to verify the identity of the users, as well as limitations on the amounts that subscribers to the service can transact.

These policies would have implications on the BoP if they affected the amounts the poor were able to remit or restricted access to the service altogether. The LIRNEasia survey has revealed that the average money sent per month by external migrants abroad to BoP respondents is US\$90, an amount that does not exceed the AMLA monthly load limit of PHP100,000 set by the BSP. AMLA restrictions, then, may not be an issue for the BoP, since they do not move large values per month. They may, however, be affected by the know-your-customer (KYC) regulations for banking, as they may have difficulty in obtaining proper identification cards, documents, and other requirements that are not necessary to get a prepaid mobile phone line. The challenge for policy makers lies in encouraging access to said documents, which may also be beneficial for other activities.

Finally, protection of the customer is always an important policy consideration. Unless customers are assured that their transactions can be secure, they will not be convinced to opt for m-money as an alternative to the present modes that they use. In the Philippines, the BSP has already ruled that m-money is not considered a deposit; as such, it doesn't earn interest. Another implication is that it is not insured. Nonetheless, the Central Bank does require that the amount of m-money in circulation should always be backed up with an equal amount by its issuer. It also requires proper redress mechanisms to be put in place, along with secure information systems and records management.

With good policies, the Central Bank can not only encourage the use of m-money among businesses and consumers, but also, eventually, it can extend m-money's reach to the BoP. Still, even though m-money has not yet trickled significantly to the BoP, the BoP can already feel its impact. According to the Philippine Central Bank, m-money and the branchless banking services it has engendered now effectively compete with banks and money transfer agents, resulting in a 35% decline in the

18. *GXI was set up a year after Globe developed the GCash service.*

## MOBILE 2.0: M-MONEY FOR THE BoP IN THE PHILIPPINES

cost of these services (GMA News.TV, 2010). As such, even the BoP population who have not yet begun to use m-money for their remittances are beginning to see their transaction rates go down. ■

### References

- Alampay, E. (2008). Filipino entrepreneurs on the Internet: When social networking websites meet mobile commerce. *Science, Technology & Society*, 13(2), 211–231.
- Ang, A. (2007). Workers' remittances and economic growth in the Philippines. *DEGIT Conference Papers c012\_029*, DEGIT, Dynamics, Economic Growth, and International Trade. Available at [www.degit.ifw-kiel.de/papers/degit\\_12/C012\\_029.pdf](http://www.degit.ifw-kiel.de/papers/degit_12/C012_029.pdf)
- Asian Development Bank (ADB). (2004). *Enhancing the efficiency of overseas Filipino workers remittances*. Retrieved July 18, 2009, from [www.adb.org/Documents/TARs/PHI/tar-phi-4185.pdf](http://www.adb.org/Documents/TARs/PHI/tar-phi-4185.pdf)
- Asian Development Bank (ADB). (2005). *Workers' remittance flows in Southeast Asia*. Retrieved July 18, 2009, from [www.adb.org/Documents/Reports/workers-remittance/workers-remittance.pdf](http://www.adb.org/Documents/Reports/workers-remittance/workers-remittance.pdf)
- Bångens, L., & Söderberg, B. (2008). *Mobile banking—Financial services for the unbanked?* The Swedish Program for ICT in Developing Regions (SPIDER). Available at [http://www.spidercenter.org/files/m-banking\\_study.pdf](http://www.spidercenter.org/files/m-banking_study.pdf)
- Bangko Sentral ng Pilipinas (BSP). (2009a, March 30). The BSP international research conference on. Presented at the Edsa Shangri-la Hotel, Mandaluyong City, Philippines. Retrieved July 21, 2009, from [www.bsp.gov.ph/events/ircr/about.htm](http://www.bsp.gov.ph/events/ircr/about.htm)
- Bangko Sentral ng Pilipinas (BSP). (2009b). *Guidelines governing the issuance of electronic money and the operations of electronic money issuers*. Circular No. 649, series of 2009. Manila: BSP.
- Basel Committee on Banking Supervision. (1998, March). *Risk management for electronic banking and electronic money activities*. Basel. Available at <http://www.felaban.com/pdf/practicas/g.%202.pdf>
- Bird, K. (2009, March 30–31). Philippines: Poverty, employment and remittances: Some stylized facts. Conference Paper No. 11. *BSP International Research Conference on Remittances, The Macroeconomic Consequences of Remittances: Implications for Monetary and Financial Policies in Asia*. Presented at the Edsa Shangri-la Hotel, Mandaluyong City, Philippines. Retrieved July 21, 2009, from [http://www.bsp.gov.ph/events/ircr/downloads/papers/BSP\\_11\\_bird\\_paper.pdf](http://www.bsp.gov.ph/events/ircr/downloads/papers/BSP_11_bird_paper.pdf)
- Cebuana Lhuillier. (2009). *Rates and charges*. Retrieved August 26, 2009, from [www.perapadala.com/rates.asp](http://www.perapadala.com/rates.asp)
- CKS Consulting Pvt. Ltd. (2009). *Teleuse@BoP3: A qualitative study*. Colombo: LIRNEasia.
- Comminos, A., Esselaar, S., Ndiwalana, A., & Stork, C. (2009). *Airtime to cash: Unlocking the potential of Africa's mobile phones to bank the unbanked*. Unpublished paper. ResearchICTAfrica.net, Edge Institute. Johannesburg.
- Consultative Group to Assist the Poor (CGAP). (2008). *Notes on regulation of branchless banking in the Philippines*. Available at <http://www.cgap.org/gm/document-1.9.3143/Philippines%20Notes%20on%20Regulation%20of%20Branchless%20Banking.pdf>
- Duncombe, R., & Boateng, R. (2009). *Mobile phones and financial services in developing countries: A review of concepts, methods, issues, evidence and future research direction*. (Development Informatics, Working Paper Series No. 36). Institute for Development Policy and Management, SED, University of Manchester, UK.
- Globe Telecom Inc. (2008a). *Globe Telecom 2008 annual report*. Retrieved August 26, 2009, from [http://web.portal.globe.com.ph/globe/Globe\\_2008\\_Annual\\_Report.pdf](http://web.portal.globe.com.ph/globe/Globe_2008_Annual_Report.pdf)
- Globe Telecom Inc. (2008b). *Information statement of Globe Telecom Inc. pursuant to Section 20 of the Securities Regulation Code*. Retrieved August 26, 2009, from [www1.globe.com.ph/img/documents/GT\\_200820is\\_Def\\_full.pdf](http://www1.globe.com.ph/img/documents/GT_200820is_Def_full.pdf)
- Globe Telecom Inc. (n.d.). *GCash outlets in the Philippines*. Retrieved August 26, 2009, from <http://>



- site.globe.com.ph/web/gcash/29?sid=b7k41t1qd6ap61248673730194
- GMA News.TV. (2010). Stiff competition lowers remittance fees by 35%- BSP. Retrieved July 6, 2010, from <http://www.gmanews.tv/story/195355/stiff-competition-lowers-remittance-fees-by-35-bsp>
- Gonzales, I. (2009). Bangko Sentral sees rise in remittances. *Philippine Star*. Retrieved June 10, 2009, from [www.philstar.com/Article.aspx?articleId=454220&publicationSubCategoryId=205](http://www.philstar.com/Article.aspx?articleId=454220&publicationSubCategoryId=205)
- GSM Association (GSMA). (2008). *Introduction to MMT*. Available at [www.gsmworld.com/documents/GSMA\\_Introduction\\_to\\_MMT\\_0908.pdf](http://www.gsmworld.com/documents/GSMA_Introduction_to_MMT_0908.pdf)
- Iglesias, M. (2008, January 19). Filipinos send home money: From "Bayong" to texting. *Malaya Newspaper*. Retrieved June 17, 2009, from [www.malaya.com.ph/anniv/anniv3.htm](http://www.malaya.com.ph/anniv/anniv3.htm)
- LIRNEasia. (2008). *Teleuse@BoP3 survey findings*. Unpublished technical report.
- Luzon Brokerage Corporation (LBC). (n.d.). *Money remittance*. Retrieved September 9, 2009, from [www.lbcexpress.com/remittance\\_pirates.asp](http://www.lbcexpress.com/remittance_pirates.asp)
- Maimbo, S., & Ratha, D. (Eds.). (2005). *Remittances: Development impact and future prospects*. Washington, DC: The World Bank.
- McKay, C., & Pickens, M. (2010). *Branchless banking pricing analysis*. Consultative Group to Assist the Poor (CGAP). Retrieved July 21, 2010, from [http://www.cgap.org/gm/document-1.9.43876/Branchless\\_Banking\\_Pricing\\_Analysis\\_May\\_2010.pdf](http://www.cgap.org/gm/document-1.9.43876/Branchless_Banking_Pricing_Analysis_May_2010.pdf)
- Mendes, S., Alampay, E., Soriano, E., & Soriano, C. (2007). *The innovative use of mobile applications in the Philippines—Lesson for Africa*. Department for Infrastructure and Economic Development. Sida. Edita Communication, Stockholm.
- Nakanishi, A. (2009, March 31). Comments on: Philippines: Poverty, employment and remittances—Some stylized facts by Dr. Kelly Bird. *ADB BSP International Research Conference on Remittances*. Edsa Shangri-la Hotel, Mandaluyong City, Philippines.
- National Statistics Office (NSO). (2007). *2007 Survey on overseas Filipinos*. Retrieved August 26, 2009, from [www.census.gov.ph/data/sectordata/sr08353tx.html](http://www.census.gov.ph/data/sectordata/sr08353tx.html)
- Owens, J. (2006, March 21–24). RBAP text-a-payment & GCash cash-in/cash-out services. *Paper presented at conference Increasing the Impact of Microfinance in Asia*, sponsored by the Asia Microfinance Forum. Beijing. Retrieved July 20, 2010, from [www.bwtp.org/asiamicrofinance/documents/JohnOwensRBAP.pdf](http://www.bwtp.org/asiamicrofinance/documents/JohnOwensRBAP.pdf)
- Pangilinan, M. (2007, November 4). Views on RP economy are a-changing. *Philippine Daily Inquirer*. Accessed August 18, 2009, from [http://business.inquirer.net/money/features/view/20071104-98809/Views\\_on\\_RP\\_economy\\_are\\_a-changing](http://business.inquirer.net/money/features/view/20071104-98809/Views_on_RP_economy_are_a-changing)
- Pernia, E. M. (2006). *Diaspora, remittances, and poverty in RP's regions*. A research paper published by the University of the Philippines, School of Economics, Diliman, Quezon City, Philippines.
- Porteus, D. (2006, May). *The enabling environment for mobile banking in Africa*. A report commissioned for the Department for International Development (DFID). Somerville, MA.
- Porteus, D. (2007). *Just how transformational is m-banking?* Commissioned by FinMark Trust. Marshalltown, South Africa.
- Proenza, F. (2007, June 3). *Enhancing rural development through improved infrastructure and innovative information applications*. Philippine Country Report: Applications, FAO Investment Centre. Manila: FAO Investment Publisher.
- SMART Telecom. (n.d.). *Rates*. Retrieved June 21, 2009, from <http://smart.com.ph/money/consumers/Rates.htm>
- SMART Telecom. (n.d.). *Remittance thru SMART money* (English version). Accessed June 21, 2009, from <http://smart.com.ph/money/consumers/RemittanceENG.htm>
- SMART Telecom. (n.d.). *SMART padala domestic*. Available at <http://smart.com.ph/corporate/services/SmartPadala/PadalaDomestic.htm>
- Soriano, E., & Barbin, E. (2007). M-commerce for microfinance: The CARD-NGO and RBAP-MABS pilot study experiences in Dela Pena. In F. T. Diaz

## MOBILE 2.0: M-MONEY FOR THE BoP IN THE PHILIPPINES

- & P. H. Diaz (Eds.), *Philippine experiences on information and communication technologies for development (ICT4D)*. Taguig City, Philippines: DOST and International Development Research Centre (IDRC).
- Van Dijk, J. (2006). *The network society: Social aspects of new media*. Thousand Oaks, CA: Sage Publications.
- Zainudeen, A. (2008). What do users at the bottom of the pyramid want? In R. Samarajiva & A. Zainudeen (Eds.), *ICT infrastructure in emerging Asia: Policy and regulatory roadblocks* (pp. 39–59). New Delhi: International Development Research Centre (IDRC) & Sage Publications.