MICRO-PAYMENT SYSTEMS AND THEIR APPLICATION TO MOBILE NETWORKS

Examples of Mobile-Enabled Financial Services in the Philippines

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IFC International Finance Corporation World Bank Group

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FOREWORD

Mobile Network Operators are continuously introducing new products and services to meet the ever growing demand for mobility in today's fast-moving world, while simultaneously attempting to make such services increasingly relevant to, and affordable by the poorest members of society. One innovative application of mobile technology that has attracted considerable attention in recent months, is the provision of financial services.

In many developing countries, particularly in rural areas, access to financial services is very limited, resulting in a large percentage of the population operating on a cash basis only and outside of the formal banking system. However, the proliferation of mobile services in these countries has created a unique opportunity to provide financial services over the mobile network. In light of the growing size of international and national remittances, this opportunity could have significant implications.

In an effort to understand better the potential of this new mobile application, which is part of a growing area of mobile enabled commerce (m-Commerce), the Information for Development Program (*info*Dev) has partnered with the International Finance Corporation (IFC) and the GSM Association to conduct a case study of two promising examples of m-Commerce in the Philippines, namely mobile financial services provided by SMART Communications and GLOBE Telecom. This partnership has produced this report, which summarizes the first phase of *info*Dev's ongoing exploration into the application of m-Commerce in developing markets. This first phase is aimed at identifying the opportunities provided by mobile networks in offering m-Commerce services, as well as identifying the drivers of successful implementation.

Based on the findings of this report, it is clear that it is not only technically feasible and profitable to deploy financial services over mobile networks, but that there is significant and growing demand. In fact, m-Commerce may address a major service gap in developing countries that is critical to their social and economic development. In addition to providing many answers about this new service application, the report raises many interesting questions about the users and how they are benefiting from this service? These questions will be explored during the next phase of *info*Dev's work in this area, the scope of which will be decided in consultation with IFC, the GSM Association and its donors and other partners.

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EXECUTIVE SUMMARY

This Paper summarizes the first phase of an ongoing investigation into the application of mobile-enabled commerce (m-Commerce) in developing markets. The Paper was commissioned by *info*Dev, in partnership with the International Finance Corporation (IFC) and the GSM Association (GSMA).

The investigation is aimed at identifying the opportunities provided to mobile networks in offering an m-Commerce service, as well as establishing the drivers of a successful implementation. This first stage was launched in November with a fact-finding visit to the Philippines for on-site discussions with both GLOBE Telecom and SMART Communications, both of whom are operating successful m-Commerce services.

In addition to the Philippines study, contact was established with several groups in Southern Africa, that being another region where m-Commerce services have been launched. In all, the following companies have co-operated to supply information on their services:

- GLOBE Telecom, Philippines
- SMART Communications, Philippines
- Fundamo, a system supplier headquartered in South Africa
- MTN Bank, an m-Commerce service provider in South Africa
- Safaricom, the joint Vodafone-Kenya Telecom mobile operator.

Additional information has been obtained from various network web sites.

Without doubt, the largest and arguably most successful m-Commerce applications are to be found in the Philippines with over 3.5 million m-Commerce users on the two major networks. In discussion with the two networks, it was identified that the key success factors for that market included the ability to load prepaid airtime credits as well as the ability to transfer both cash and airtime credits between customers. Coupled with these were the low values set by the operator for such prepaid top-ups or credit transfers. Typical top-ups of US$ 47 to 57 cents were allowed by the networks (equivalent to around four to five minutes of calls) while transfers between customers of both cash and airtime credits were permitted as low as US$ 4 cents.

Ref Sect. 2.2 and 2.3

In Filipino terminology, the target market was attuned to 'sachet purchasing' or the practice of purchasing goods in very small quantities. This phenomenon is known to be common in other developing markets where the populace rely on cash for all trading and can afford to buy provisions for just a few days' consumption. This market does not exhibit bulk purchase tendencies and an m-Commerce offering that involves a significant cash deposit or payment will be unlikely to find any significant uptake from the target market.

Ref Sect. 2

While the application of m-Commerce to developing markets was not constrained to the Philippines, the African market developments seemed to reflect the Filipino views indicating that the target markets in these geographically diverse areas were very similar in their use of cash and their expectations.

Ref Sect. 3

The range of features available in each market showed significant uniformity as to be expected if the target markets were similar. With minor variations, the features of all systems included:

- Provision for cash deposits and withdrawals
- The ability for third parties to make deposits into a user account (employer, family member or a micro-finance organization)
- The ability to make retail purchases at selected outlets
- Over-the-air prepaid top-ups using the cash already in the account

- The ability to transfer cash between users' accounts
- The ability to transfer airtime credits between users
- Provision for bill payments.

This latter feature could be used for micro-finance applications involving both loan repayments as well as loan advances and this area in particular is being exploited in the Safaricom trials and in GLOBE Telecom's service in conjunction with the Rural Bankers Association.

Ref Sect. 2.3.1 and 3.3

Apart from the use of the service by micro-finance institutions (as in the Safaricom-Kenya trials and GLOBE Telecom's service) all services studied for the Paper operated on a debit account basis, i.e. the account could only be operated in credit. As a result, bad debt is not an issue other than loss caused by fraudulent activity. No operator indicated any serious concerns in this area and provided the overall system security was ensured, the possibility for fraud could be managed. In that regard, most of the systems studied involved a bank with normal banking systems in place. That arrangement results in the fraud issue being restricted to the bank's area of involvement for which it will be well-equipped.

Ref Sect. 4.4

The possibility of money laundering was considered by all service providers and it was noted that in all jurisdictions, the banking regulatory authority had established appropriate policies governing the activities of the banks. These policies included monitoring transaction levels and frequency, looking for transaction patterns and stipulating both maximum account balances and daily transaction levels.

Ref Sect. 4.4

While it is possible for a network operator to take almost full responsibility for the entire m-Commerce service, only GLOBE Telecom in the Philippines was operating in that manner. Even then, the actual cash float generated was held in one of the country's regular banks. All other cases studied involved co-operative arrangements between banks and networks. In view of the regulatory issues surrounding the banking industry, this method of operation is more likely to appeal to intending service providers, given also that the banks can bring additional advantages including the availability of debit cards through issuers such as MasterCard.

Ref Sect. 4.3

All networks confirmed that the additional SMS traffic arising from the service was within the mobile networks' capabilities and in any case, as had happened in the Philippines for other reasons, a second SMS channel was easily added and would have more than enough capacity to handle the extra load. Other than the SMS traffic implication, the m-Commerce application had little impact on the mobile network itself. In all cases, the interface with the m-Commerce system was attached at the periphery of the SMS system.

Ref Sect. 4.1

All versions of m-Commerce studied for this Paper involved a special SIM-based menu, which is a feature available to GSM networks. The ability to provide the services over a US-CDMA network has yet to be verified.

Ref Sect. 4.1

While there were no quantifiable figures available on system costs, various estimates placed a likely cost in the range of US$5 million to US$10 million with an expectation that an m-Commerce system could be profitable with as few as 25,000 users connected but that would depend on the overall investment and service operating costs.Various estimates placed the transaction level at around two per customer per day and average transaction values at between US$15 and US$30 per customer and airtime top-ups of around US$4 per time. These figures can only be regarded as indicative of the type of activity that may be encountered.

Ref Sect. 4.8

For all the network operators, the revenue was largely derived from SMS charges while the banks derived revenue from transaction charges on deposits and withdrawals as well as interest on the resulting cash float. The general view was that the business should

be a high volume/low margin activity, although some networks were operating with relatively high charges.

Ref Sect. 4.2.8

Apart from the advantages to the wider economy, the service providers noted that if implemented properly, the service would bring advantages to all stakeholders. While the networks would experience higher SMS usage and hence higher ARPU, the banking industry gained access to an otherwise difficult if not inaccessible market segment. Added to that were the transaction revenue and interest on the generated cash float. The identifiable customer advantages included the availability of useful features including cash deposits and withdrawals and ease of prepaid reloads and credit transfers between users.

Ref Sect. 4.7

In combination, the features would be likely to reduce network churn, as the customer would have more to lose by transferring to another network. The Philippines networks report a marked churn reduction, with one measure suggesting churn dropped from 3 percent per month to 0.5 percent per month.

Ref Sect. 2.5

The issue of market segment penetration was canvassed to identify if and how the lowest levels of users could be served, noting that the systems generally had a SIM to m-Commerce account link which would prevent use of the phone for m-Commerce by any other than the registered user of the phone. Apart from utilizing a system design that did NOT use a SIM-account link, two operators noted alternative ways of addressing the problem. MTN Banking's answer is to provide the other users with SIMs which can then be swapped over when a borrowed phone is used. This maintains the SIM-account link effectively but may have some consequences for prepaid account expiry. The other solution adopted by GLOBE was to work with the micro-finance organizations to assist these users to acquire phones with a time payment arrangement.

Ref Sect. 4.2.7

In summary, the evidence available suggests that m-Commerce is a viable service that has significant benefit to emerging markets in particular. Its major benefits are the extension of banking and money management services to the largely unbanked sectors of the economy including in particular, the ability to extend micro-loans to this sector as well as providing for easy repayment. The Paper notes these are not necessarily the features that would be top-of-mind to the target market and on the basis of the Philippines experience in particular, m-Commerce service providers must provide a range of features useful to that segment including airtime transfers as well as cash transfers between users. The importance of setting realistic user charges was also noted, as was the need for the service provider to carefully assess the issues involved in starting a service.

Ref Sect. 5

These issues included:

- Who would be the parties involved, e.g. banks etc.
- What responsibilities would each party undertake
- What services are to be offered
- Is a debit card appropriate
- What charges will apply
- Estimating the likely transaction volumes
- Deciding on the system vendors
- Identifying management and operational skill sets required
- Ensuring the back-office support services are available
- Ensuring a robust and effective customer care service is available
- Preparing a realistic business case and project plan.

Finally, there were some areas identified for further research in a later phase. These were the need to check the applicability of the current systems to networks using the US-CDMA technology, the possible needs for technical standards, the identification of the available system vendors and the issues raised by multiple users sharing a common mobile phone.

1. THE FORGOTTEN MILLIONS

In developed economies it can be demonstrated that the population has wide and easy access to the banking system, with an extensive uptake of EFTPOS and credit cards.Virtually all retail establishments have facilities for accepting both types of transaction in addition to cash and such facilities can often be found in service areas such as taxi cabs and even parking meters.

However, there are many economies where such wide acceptance of a "cashless" society is many years away. These are primarily economies where the average income is low with many people having no involvement with a bank at any time in their life. These people survive on cash and they very likely have no trust that a bank would serve their interests very well. At the same time, many banks would regard this segment of the market as being unworthy of any effort and likely to be more trouble than it's worth. In many cases, the cash assets held by any one individual would be too small for any bank to regard as having value when considered alongside the traditional costs to maintain banking records for a customer.

With the advent of mobile, that situation has changed in a subtle way, but the change has not yet been recognized in many markets. Specifically, the same market segment that has shunned the banks and the associated electronic funds transfer systems, has contributed to the very high growth of prepaid mobile services in these markets. These users are often characterized by the need to communicate but without the complexity of a formal account with the network operator. They are invariably given prepaid service and while some markets insist on knowing the identity of the user, at least at the time the connection is activated, there is no certainty that this information is accurate in the long term. This class of user prefers anonymity and that is what they can often get with prepaid mobile. Topping up their account is as simple as buying a new prepaid card from a retailer and entering the details into the phone's keypad.

Given that there are now large numbers of prepaid users in developing markets who are very familiar with using their phones for text and voice messaging as well as refilling their credit balance on the prepaid system, this same group is an ideal segment to target with a micro-payment feature. In many cases they have no relationship with any bank, do not use EFTPOS or credit cards and yet they have the ability to perform financial transactions as evidenced by their ability to purchase and activate prepaid cards for additional credit.

This potential has been recognized in a few markets, with arguably the most success in the Philippines.

1.1 THE SIGNIFICANCE OF THIS SEGMENT

The advantage of developing a market for micro-payments or m-Commerce, is that it continues to drive the economic system toward a cashless transaction environment. Elimination or minimization of physical cash has many advantages including less opportunity for fraudulent or criminal activity, reduction of cash handling costs and, for the user, less reliance on having the right amount of cash when needed. It also allows the value of money to be better utilized. Cash held outside the banking system is not available for short-term investment so that the time-value of the cash asset is lost.

In the more affluent economies, there is already a good infrastructure for a cashless environment with most people having bank accounts and an array of both debit and credit cards. Nevertheless there is an underlying need for cash for minor purchases but there is little incentive to eliminate cash entirely. These economies can manage quite well and there is no specific interest group that feels sufficiently under pressure to develop systems aimed at eliminating cash from the environment. Systems that have been developed in such markets are often expensive and hence not particularly attractive to the user.

In the developing economies however, there is a very large 'under-class' that is totally reliant on cash for all their day-to-day expenses. Moreover, this under-class makes no use of the banking sector and so is 'invisible' in terms of its cash value. At the same time, the need for cash forces the providers of goods and services in

these markets to have adequate cash-handling facilities and this comes at some cost.

In these cases, the commercial organizations have much more to gain by addressing the problem of cash transactions. Not only is the risk associated with cash holdings that much greater, but the time-value of the cash being held outside the banking sector is entirely lost. Furthermore, the population in this category is lost, i.e. unseen by the banking sector.

For these reasons, there is likely to be more incentive in developing economies to move the population at large away from cash, than exists in developed economies. That being so, a solution that meets the needs of developing economies will also have extensive application in the developed economies. This arises because the solution must be accompanied by very low costs as if it were otherwise, the solution would have no appeal in those developing economies.

The resulting low cost solutions can then be applied in the developed economies resulting in further efficiency gains.

2. THE PHILIPPINES EXPERIENCE

As with many developing economies, the Philippines is characterized by a very large under-class. While other analyses have considered the population to be subdivided into five categories, A to E, there is no quantitative assessment as to the make-up of these five layers other than to regard categories A and B as the upper and upper-middle income groups, with C to E corresponding to lower-middle, low and poverty level groups. What is agreed is that the three lower categories comprise the bulk of the Philippines population.[1]

Probably in common with other developing economies, the characteristic of the lower groups is their total reliance on cash for their day-to-day subsistence, whereby their cash resources will sustain them for no more than a few days. This in turn leads to a different manner of purchasing life's necessities. The concept of a major shopping visit to buy food in bulk is often not possible. Instead, provisions will be purchased in quite small quantities, often on a daily basis, or at least several times each week.

This characteristic has given rise to the term 'sachet' purchasing,whereby goods are packaged in very small quantities and sold through small stores specifically catering to this segment of the population.[2] The stores, termed 'sari-sari' stores, build up a personal relationship with their customers and may actually offer credit arrangements to cover difficult times for one of the local families.

2.1 THE IMPACT OF MOBILE

When GLOBE Telecom introduced GSM mobile services in the early 1990s, it attacked the high revenue end of the market with an emphasis on post-paid services, but with the later development of prepaid technology, the company commenced a prepaid GSM service in 2000. When SMART eventually commenced GSM services in 1999, it had little option but to seriously address the traditional prepaid segment of the market, which it did believing that profitability could come from a low margin, high volume business

Following its introduction of service, SMART researched the uptake and the way in which the customers used the service and found that their lowest value prepaid recharge card was still too expensive for many of the users. These users could not afford the minimum P300 (US$6) charge for the card. As a result, the minimum card value was reduced to P30 or US60 cents. This new value was quickly recognized by the market, resulting in a very high customer growth rate for SMART. This experience reinforced the view that the lower groups in the economic pyramid are influenced not only by the price of the product but also by the cost of the smallest element of that product, i.e. the segment was conforming to its characteristic of 'sachet' purchasing.

Following SMART's necessary efforts to cater to the lower socio-economic classes to secure a customer base, it became apparent to the company that there was a definite future in this largely untapped market segment provided costs and hence the service charges could be kept at a very low level. The lesson from the prepaid recharge card value alone was an incentive to further reduce the recharge values but that could only be done if there was a move away from the more usual scratch cards to an electronic 'over-the-air' (OTA) system.

As a result, the company turned its attention to technologies that would allow such a move and recognized that such technologies could deliver much greater value than just prepaid recharge using OTA concepts, and that gave rise to SMART's launch of their first mobile banking and commerce service, SMART Money, in December 2000.

Since then, various changes to the product have been made and it has been joined in the market place by GLOBE Telecom's own mobile money remittance and payment service called G-Cash. This new GLOBE service resulted from the company's desire to develop a unique m-Commerce solution and was eventually launched in 2004.

Today in the Philippines, the emphasis in the mobile markets is on low transaction costs (text messaging at typically US2¢) and minimal re-charge values

1 'Economic crisis dampens Christmas'AC Nielsen review in Manila Times, 28 October 2004, www.manilatimes.net/national/2004/oct/28/yehey/top_stories/20041028top2.html
2 'Small Grocers in Asia Surviving Onslaught of Retail Chains'A C Nielsen review of 16 June 2004, http://www2.acnielsen.com/news/20040616.shtml

(US60¢) coupled with ease of use and a range of transactional applications aimed at addressing the population's needs. Both GLOBE's G-Cash and SMART's SMART Money are being actively promoted and from the information supplied, both are experiencing a high uptake of the services.

These same low 'sachet'costs have significantly influenced overall mobile demand,which now exceeds 33 million users out of a population variously estimated at between 85 and 90 million. This mobile penetration level presents both major operators with enormous potential in the area of m-Commerce.

2.2 SMART MONEY

SMART Money is the product offered by SMART Communications. It has a related product, SMART Mobile Banking that allows customers to transfer funds from their bank accounts to their SMART mobile service account including prepaid recharging. These two products can co-exist with some customers.

SMART Money was first introduced by SMART in December 2000 and has gone through several iterations to the present time. As currently configured, the service appears to address most requirements for a good and reliable micro-payment platform.

2.2.1 Product Description

The SMART Money product is essentially a facility for linking the user's phone to a 'cash'account. Facilities exist for the customer to deposit cash, withdraw cash, top up the mobile phone prepaid credit levels from that account or other bank accounts, all without going near a bank or a SMART office if need be. Inherent in the operation is an ability to transfer credit between mobile users, so as well as allowing a semi-formal cash transfer, it allows the users to manipulate their credit in the system to suit their particular needs. It operates entirely on a credit basis, i.e. funds must be in the system before a customer can manipulate those funds. As a result bad debt is not an issue. The system gives no credit to the users.

In its simplest form, SMART Money has no outwardly obvious attributes. The service is menu-driven from the phone and the customer can perform all necessary actions using the phone alone.

In its preferred form, the service is coupled to a bank debit card as can be found in any community around the world. In this case the customer is provided with a card issued under the MasterCard banner, that can be used anywhere a normal debit card can be used, i.e. in ATMs, shops etc.

The service is aimed at providing a wide range of transaction capabilities all of which should have considerable appeal to the target market. It is coupled into an account held by Banco de Oro (BDO) so that the user is effectively operating a BDO account using the phone as the transaction medium.

The specific list of features provided by SMART Money is as follows:

- Cash deposits
- Cash withdrawals
- Transfers of credit to the prepaid account (recharge of prepaid service—SMARTLoad)
- Transfers of cash to and from other users
- Transfers of airtime credit from one user to another (SMART Pasa Load)
- Cashless purchasing at a wide range of shops where the retailer has a SMART Money account
- Cashless purchasing at any MasterCard-enabled retailer with a MasterCard debit card
- Direct credit from employer payroll
- Bill payment
- Inward international remittances from Overseas Filipino Workers (SMART Padala).

Annex 1 shows in tabular form the range of services available along with restrictions, capabilities and costs. However, the following descriptions cover the important aspects of the Company's service.

Customer Sign-up. For the customer wishing to become a SMART Money customer, the application process is relatively simple.

The normal situation involves the customer visiting a SMART office and signing up for the service. This may involve a SIM card change and it is necessary for the customer to have the phone available at that time. A cash deposit into the account is not required at that time but without a cash balance in the account, no purchases or withdrawals can be made. However, having opened the account, others can transfer credit into it (see below). The customer will normally be encouraged to sign up for the associated debit card at a cost of P220 which includes the first

year's subscription charge. Subsequent years attract the same charge, i.e. P220 per annum. Assuming the card is uplifted by the customer, it is prepared while the customer is being signed up and given to the customer at that time. If the customer applies at an office that has no card-printing facility, the card can be mailed or picked up over the next day or two.

If the customer chooses to not have a card, then there is no charge for the sign-up.

Under normal circumstances, the customer will make a cash deposit into the system at this point.

As an added method of subscription, the company has provided an over-the-air activation process which registers the customer on SMART Money and allows credit transfers to the account but until the customer visits a SMART office and provides the necessary ID as required in the Philippines, cash withdrawals and purchases are not possible. This feature is specifically aimed at the SMART Padala feature described below.

Automatic Transaction Update. This feature, which is built into all the transaction services, provides for a text message to be sent to the user whenever a transaction is performed, whether by the use of the phone directly or by way of the bank debit card if that option has been chosen. This feature operates at all times on all transactions and provides the customer with a level of confidence in the use of the product. As an added safeguard, the customer has free access to the current credit balance using the menu on the phone and can also request a printed statement of the transactions at a nominal charge.

Cash-In. This feature allows the user to deposit cash into the user's account. As it is a physical medium, the cash must be deposited at one of the designated cash deposit locations. This includes SMART and BDO offices along with a range of accredited retailers who have agreed to take deposits. Every deposit must be covered by an acceptable ID in accordance with the requirements of the country's central bank (BSP). If the customer does not have the available debit card then the deposit is manual and the depositor must fill in a deposit form that requires a formal ID. If the depositor has opted for the debit card, then that can be used in a cash deposit terminal available at some locations. The terminal accepts the card and currency notes in payment with a minimum note size of P100 and the minimum deposit is set at P500. Note that these are country-specific requirements unrelated to the technology.

As noted above, as soon as the cash has been deposited, the customer will receive a text message in addition to a paper receipt from the cash teller or automatic teller.

Cash-out. This is the reverse of the cash-in procedure but is potentially a more flexible arrangement. In this case the customer can withdraw from a bank or SMART cashier or accredited retailer in exactly the same way as depositing cash. Again, a withdrawal must be completed with acceptable ID. However, users who have opted for the additional bank debit card can use that card in ATMs worldwide that accept MasterCard transactions; in that case the card provides the ID link. Subject to retailer policy, cash withdrawal from retail establishments using the debit card is technically possible although it is not a practice in the Philippines market.

Retail Purchasing. In this transaction, the user has two options. One is to use the debit card, in which case the purchase is done according to normal practice where a debit card is used.

The other alternative can be used at participating retailers, and that involves the retailer originating the transaction request through his own SMART mobile phone terminal. Subject to the customer having a credit balance to cover the intended purchase, the customer receives an authorization request via SMS. Once authorization is given, the retailer and customer accounts are updated and the customer receives a confirmation of the transaction via SMS.

Credit Transfers. These are convenience transactions for the customer, allowing the transfer of a credit balance to another customer. The customer initiates a text message indicating the amount of the transfer and the SMART Money customer to whom the transfer is directed. Subject to fund availability, both parties receive a confirmation SMS.

An extension of this service is marketed by SMART under the banner of SMART Padala and is aimed at the significant number of Overseas Filipino Workers (OFWs) who regularly transfer funds to family back in the Philippines. For this, SMART, in conjunction with BDO, have established links with TRAVELEX,

a worldwide group specializing in money transfers and Forex cash conversions with outlets at airports and in cities in many countries. In the case of these Forex transfers, the OFW must know the mobile number of the Filipino family member and that family member must have a SMART Money account. Recognizing that initially at least, many SMART customers will not also be signed on for SMART Money; the company has provided an over-the-air registration method for such users to quickly register for SMART Money. While this will quickly register the customer for the purposes of an international transfer, the customer must still visit a SMART or BDO office to uplift the cash.

The same concept allows employers to make direct credits to customers'SMART Money accounts.

Airtime Transfers. This is another form of credit transfer where the SMART Money customer can transfer airtime credit to another SMART Mobile customer's mobile account. In reality, this transfer can be done without being a SMART Money customer as there is no cash transaction with all credit records being held within the SMART prepaid system. The service is marketed as SMART Pasa Load.

Prepaid Top-Up. This is a natural extension of the service, using either SMART Money or their mobile banking feature, SMART Mobile Banking. It allows transfers of credit from a SMART Money or bank account direct to the prepaid card account. The minimum top-up from a cash account is P30 (US57¢).

Merchant Opportunities. As an adjunct to prepaid recharging, SMART Money offers participating retailers the opportunity to sell airtime to customers in lieu of previously used prepaid scratch cards. It is marketed by SMART as SMART Load. As long as the retailers have credit in their SMART accounts, they can sell units of airtime to prepaid users who do not have the capability to do so themselves. The smallest transfer recognized by SMART is a value of P2 (US4¢).

2.2.2 Market Uptake

SMART report that as at November their customer base was approximately 20 million of whom 2.5 million had subscribed to SMART Money. Of these, around 1 million have implemented the full feature set, i.e. they have taken the debit card option, which allows all the features available through a normal bank debit card, including use overseas.

Information made available indicated that the service was continuing to grow at a steady rate. A major driver was the ability to recharge prepaid services by quite small amounts. The minimum recharge allowed is P2, which will only pay for two text messages. As noted above, the minimum top-up value is P30 through the normal top-up facility.

Overall usage of SMART Money and its related services is reported to be very high.

Almost all the company's prepaid users (98 percent of total customer base) utilize the OTA recharge feature either directly by transferring credit from SMART Money or by purchasing airtime in 'sachets'from around 700,000 co-operating dealers.[3]

Of the estimated 8 million OFWs working overseas, over 1 million are using the SMART Padala service to transfer almost US$50 million per month into the Philippines economy through SMART Money.[4]

Users transferring airtime contribute a load of around one transaction per customer every four days.

SMART Money transactions are approaching US$100 million per month, all of which pass through the BDO network, and the banking partner, BDO, reports an added cash float of aroundUS$10 million.[5]

2.2.3 Service Charges

For the basic service with no debit card facility, there is no initial fee. All costs are transaction related.

If the card option is chosen, there is an ongoing annual charge of P220 (US$4) for the facility in addition to the transaction charges.

The transaction charges are few and fairly simple:[6]

- Every customer-initiated SMS (inter-account transfers etc) costs P2.5 (US5¢)

3 SMART presentation (Powerpoint) to IFC-infoDev, November, 2005
4 Ibid
5 Ibid
6 SMART website, product tariffs

- Retail purchases using the phone incur a P1 SMS fee (US2¢), which is also the standard SMS fee. No charge if the card is used
- Cash deposits and withdrawals through a cashier attract a fee of 1 percent of the transaction value
- Cash deposits using a card are free
- Cash withdrawals at BDO ATMs are charged at P3 (US6¢)
- Cash withdrawals at other ATMs are charged at P11 (US21¢)

2.2.4 The Business Partners

The product is jointly operated by SMART in conjunction with Banco de Oro. Through Banco de Oro, the product also has access to the MasterCard services

SMART's role is essentially that of a transport system and host to around 20 million mobile customers, some of whom would be normal bank customers with credit and debit card facilities, but there would be significant numbers who do not currently have any relationship with a bank. SMART's service provides for customers to send text messages to the bank's systems using high level encryption available to them through the SIM card features. No aspect of the cash transfer and credit arrangements is held within the mobile network.

With minor exceptions, SMART receives its income entirely from the SMS charge that is levied for the transaction.

Banco de Oro's role is that of a retail bank providing normal transactional services to its customers using the full range of cash and debit card services. As such, the bank takes full responsibility for audit, fraud management, account security etc. under its normal banking licence. This ensures that the service operates entirely within the limits of the Central Bank's jurisdiction.

In addition to meeting the immediate needs of managing the debit accounts for the SMART customers, the bank is able to offer other services to these customers and could conceivably introduce them to the full range of services offered by the bank and quite separate from the specific services available through SMART's network.

2.2.5 Transaction Security

Security of the transactions with particular emphasis on PINs and account details is of utmost importance and is taken care of using SIM-based encryption.

2.2.6 Network Traffic

The Philippines is noted as arguably the world's leader in the use of text messaging (SMS). For most foreign network operators, the SMS service can be carried on the control channel that exists as part of the infrastructure at all cell sites. This control channel handles the normal housekeeping associated with connecting mobiles to the network but in a normal network, this channel is relatively lightly loaded and it was this available capacity that provided the SMS service an opportunity for near cost-free carriage. In the Philippines however, the market developed around very low charges for SMS calls, currently P1 (US2¢). The result was a very high uptake and use of SMS. Current industry estimates place the SMS usage in the country at around seven SMS's sent per customer per day, and at that level, the Philippines networks have had to equip two data channels for control channel and SMS functions in place of the usual one such channel.

In that context, the introduction of SMART Money has not caused a major problem. SMART report no network or SMS overload from the introduction of the service, and while exact transaction loads are not available, best estimates place the added load at around two SMS calls per customer per day for those customers on the system.

2.2.7 Network Technology Issues

Recognizing that SMART's approach is essentially to provide the transport mechanism for the service, its investment in added technology is understood to be fairly modest. SMART has developed both the hardware and software required for the service in conjunction with BDO and specialist suppliers and as with other value-added service applications, the facility is an add-on to the existing network.

The company has indicated a willingness to work with other networks worldwide to facilitate a technology solution in those networks.

A simplified network architecture is shown below. The key feature of the SMART implementation is its transparency and the concentration of the necessary communications security aspects and transaction interface management in the peripheral unit linked to the SMS platform and to the BDO network. BDO have retained full responsibility for its part of the system including all necessary software and hardware requirements.

2.2.8 Handset Compatibility

The service makes use of SIM-based memory and menu capabilities and is compatible with GSM 'Phase 2 Plus' SIM standards. As that particular standard has been in operation for at least five years, the majority of customers on the SMART network have compatible handsets.

The company believes that US-CDMA systems would only support the service where SIM-based handsets are used. This aspect will require further study.

2.2.9 Telecom Regulatory Issues

As the service involves no new or unusual telecommunications aspects and tariffing is consistent with current practices, the company reports that the regulator has indicated no interest or concern with the service. Certainly based on what is being offered and the manner in which it is being offered, it would seem highly unlikely to raise concerns in any but the most restrictive regulatory regimes.

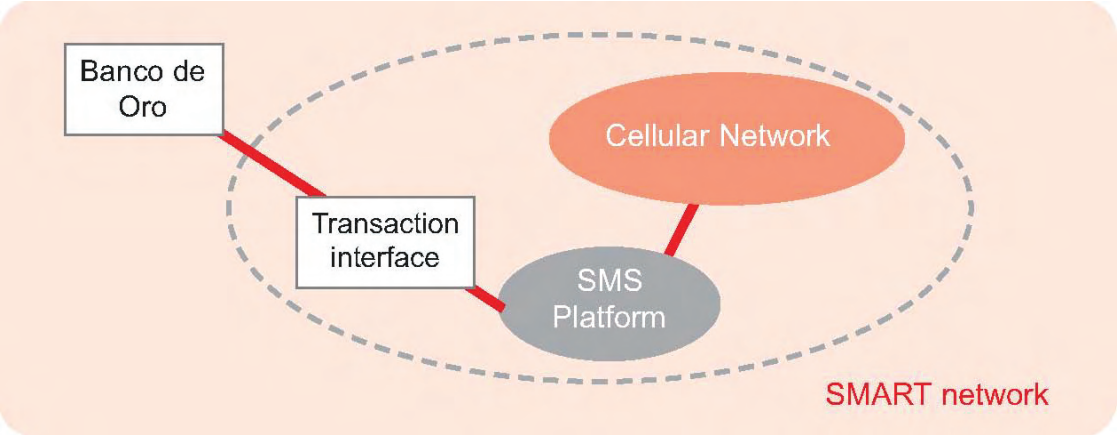
2.2.10 Central Bank Issues

Because of the way in which the service is being implemented, i.e. all transactions are held within the BDO system, SMART has been able to side-step the significant issues that are of concern to the Central Bank (BSP). As in all jurisdictions, there are controls on the movement of cash with particular emphasis on security, bank liquidity and the elimination of money laundering opportunities.

In this case, SMART has left all such activity in the hands of BDO and as a result, it is BDO's responsibility to meet the Central Bank requirements. It does this by making sure that the SMART Money accounts are handled in exactly the same way as other accounts. It is for this reason that the depositing and withdrawal of cash from the system requires the customer to present a formal ID or have a bank debit card.

As an added constraint, dictated by the bank and/or the Central Bank, the SMART Money account is limited to P50,000 at any one time (US$950) and is accompanied by daily transaction limits. Such requirements will always be unique to the specific country and are not dictated by the technology or the system concept.

FIGURE 1.



2.2.11 Summary Comment

The SMART Money product is well thought out and appears to address the issues that are most likely to be of concern to the average customer in the Philippines. Its key features include:

- Catering for small transaction sizes
- Capability of high transaction volumes
- Apparent security using modern encryption techniques for protection of customer PINs and account details
- Ease of sign-up and does not require the customer to provide a credit history. Only a recognized national ID is required to meet the country's financial regulations
- Depositing and withdrawing cash is as easy as it can be while meeting Central Bank requirements
- Allowing customers to transfer credit from one user to another
- Permiting electronic payment for goods and services
- Enabling OTA recharging of prepaid accounts.

It is probably true that most if not all of these are present in other models but the distinguishing feature of the SMART model is its transparency and use of a standard banking organization to record and manage the transactions and associated cash holdings.

In that regard it has an advantage in that it removes the network operator from the usually severe restrictions that are a necessary part of the financial and banking sectors. That probably means it is easier to implement in developing economies as it is much less likely to cause concern to the various central banks. On the other hand, it requires the operator to identify a co-operative bank who can see the advantage for the bank.

In the Philippines case, the bank's advantages are the extra cash float available and the access to a large number of otherwise inaccessible customers. A further advantage comes from the bank's development of its relationship with those customers, leading to the provision of added services.

SMART Communications Inc.—CEO Interview

Napoleon L. Nazareno became CEO and President of SMART Communications Inc. in January 2000. Under his leadership, SMART claims a dominant 58 percent market share in terms of customers. SMART has won global recognition for its innovative SMART Money products and services, which are now used by approximately 3 million of the company's total 20.8 million subscriber base. Mr Nazareno serves as a member of the Board of Directors of the GSM Association.

1) Please provide a brief overview of the service.

We launched in December 2000 in co-operation with First E-Bank, which has since been acquired by Banco de Oro, and MasterCard, one of the world's leading payment services providers. SMART Money is the world's first reloadable electronic cash wallet, linked together by our cellular network. The card is the ultimate in cashless convenience. Once cash has been transferred to the SMART Money account, it can be used in thousands of shops and restaurants. The cash value may also be used to load airtime, pay utility bills, or transfer money from the SMART Money card to another card. SMART Money has served as the platform by which other m-Commerce services have subsequently been built.

2) Why was the service launched?

We needed a differentiator in our service offering because everyone else was offering the same phone and text services. We believed that once subscribers had become familiar with SMART Money they would be less likely to change operators. It has brought a great deal of stickiness to the 3 million subscriber base. For instance, our churn rate for non-SMART Money subscribers is about 3 percent. For those that use SMART Money, it's roughly about 0.5 percent. They hardly ever change operators.

3) What are the most popular applications from the service?

The most popular application is SMART Load, introduced in May 2003 for our prepaid customer base that makes up 98 percent of our subscriber market. It is a revolutionary way of loading your prepaid account. It's an over-the-air prepaid reloading service offering airtime in what we call 'sachet-like'packages using the SMART Money m-Commerce infrastructure. It brings down the denomination of prepaid loads to affordable levels for our low-end consumers.

That is a very crucial market for us. They earn roughly P300-P400 (US$5.6–US$7.5) a day and therefore a P30 (US$0.56) load is quite affordable to them. Before, we used to distribute prepaid the traditional way in cards, and our lowest denomination was a P300 card.

The reason why it was that high is because the logistics cost in distribution is high, as well as the cost of the card itself. With electronic loading it becomes borderless, as it can be distributed all over the country via our 700,000 outlets within a matter of seconds. The retail stores are happy with it as they earn about 15 percent commission—it is a fairly lucrative business for them. It's available 24/7 and they can sell any time of the day because it is electronic. We carry out something like 4 million SMART Load transactions a day.

However, when we initially launched SMART Load, people were critical. They were worried it would reduce ARPU (Average Revenue Per User). Our secret is there is a time limit by which they can use the sachet, e.g. the P30 (US$0.56) offering has a time limit of about three days, and the P60 (US$1.12) offering has five or six days expiration. By limiting it to a certain number of days, the ARPU is preserved.

Another popular service is SMART Padala, which is an international cash remittance service via SMS. It is the newest way of remitting cash from a sender abroad to the mobile phone of a beneficiary in the Philippines. SMART Padala is very popular because it is convenient and instantaneous. From the UK, for example, it would take three days to receive cash via physical delivery.Via SMART Padala, customers receive the money immediately and it is then available at any of our 20,000 participating SMART Padala centres nationwide. There are no more door-to-door courier fees and lower transfer and transaction fees. Our remittance partners are global, and countries include the U.S., Canada, Australia, Ireland, Spain, Greece, Hong Kong and Singapore where there are many migrant Filipino workers.

4) How much revenue does SMART Money generate per month? Is it profitable?

Actual profits from SMART Load, for example, are not that huge but what goes through the pipeline is substantial—about US$18 million a month. We earn the SMS portion of that value-added service, which is roughly P2 (US$0.04). We also take a small percentage of commission from our SMART Padala service.

5) What have been the primary benefits of the service, to both SMART and your customers?

The ARPU of SMART Money customers is about double that of non-users. And then of course customer loyalty is also higher, especially from those customers using SMART Padala. The major benefit for SMART though is really cost reduction. When we introduced SMART Load I think we saved something like P300 million a quarter (US$5.6 million) compared to the traditional prepaid voucher service. That is a huge saving. Most of our prepaid account loading is now done over-the-air.

For users, the benefits are simplicity, ease of use and convenience. With SMART Load, they don't have to scratch a card, and it's available with our 700,000 agents and retailers all over the country. They can buy any time of the day, 24/7. It is secure, and fits their daily cash intake because the denominations are low. That is the breakthrough.

6) Has it met your initial expectations?

Definitely. In fact, it has exceeded our expectations. It has allowed us to penetrate the low-income markets. That is the benefit that not too many others are able to recognize. Analysts told us that the maximum market penetration possible in the Philippines would be 25 percent. We are already hitting the 40 percent penetration rate. It really enhances your penetration in the market.

7) What challenges did you face in implementing the service?

With SMART Load, the first and most important challenge was to convince the distributors to offer it instead of prepaid cards. So we had to invest in marketing in order to raise awareness of the product. We launched massive advertising campaigns and educated the market. The other thing is the robustness of the service. We needed to be confident the infrastructure would be robust and able to take care of the number of transactions that would be demanded. In the beginning the number of transactions was low but once people got used to it, it grew at exponential multiples. It was a good thing that we anticipated this.

8) How do you expect the micropayment service to develop over time?

The next step is to allow our subscribers to purchase other services such as Internet access and gaming using their mobile phones. That would diversify the SMART Money product and make it a universal wallet. Consumer goods companies are interested in using our platform. We already have the strongest retail distribution network in the country and that could be a springboard for us to use it as a vehicle for other kinds of transactions that can be developed. We are in tests now and hope to launch commercial services in the second half of 2006. We won't launch until it is robust, secure and reliable.

9) What are your goals for the service in terms of subscriber numbers?

The number of users is now growing exponentially. It used to be one or two per cent a month but now it is double-digit. The reason for this is SMART Padala, as families are using it to transfer funds between relatives.

I would really hope we can double our 3 million SMART Money customer base by the end of next year. That is a conservative target.

10) What do you believe were the critical market conditions necessary for a successful launch?

Our market is a low-income market. Therefore SMART Load, SMART Padala and all the SMART Money applications have addressed the specific needs of the mass market and that is why it has been successful. The other critical factor is the fact it was reliable, robust and secure from day one.

Apart from that we also have a market that is not resistant to change. We had a substantial subscriber base when we launched SMART Money that was familiar with SMS. Because this is SMS-based, it became a natural evolution for them. Our network alone has 500 million outgoing messages per day.

11) Do you believe a similar service could be replicated in other countries?

I think you could replicate it in regions with similar market conditions to the Philippines. Indonesia is a market where it could really work. China, India and Cambodia are others that also have great potential. Africa, perhaps. There must be an existing SMS habit though. Latin American regions like Mexico and Argentina are also potentials.

2.3 GLOBE G-CASH

G-Cash is the competing product offered by GLOBE Telecom. It has several related products that provide customers with flexibility in managing their mobile services and using the m-Commerce facilities.

G-Cash was first introduced by GLOBE in October 2004 and is a natural extension to the other related products offered by the company.

2.3.1 Product Description

The G-Cash product is essentially a facility for linking the user's phone to a 'cash'account or 'wallet'as described in the company's promotional material. In combination with the other related products, facilities exist for the customer to deposit cash, withdraw cash and top up the mobile phone prepaid credit levels from that account. Inherent in the operation is an ability to transfer credit between mobile users, so as well as allowing a semi-formal cash transfer, it allows the users to manipulate their credit in the system to suit their particular needs. It operates entirely on a credit basis, i.e. funds must be in the system before a customer can manipulate those funds. As a result, bad debt is not an issue. The system gives no credit to the users.

Unlike the competing SMART product, G-Cash does not currently make a debit card available.

The specific list of features provided in G-Cash is as follows:

- Cash deposits
- Cash withdrawals
- Transfers of credit to the prepaid account
- Transfers of cash to and from other users
- Transfers of airtime credit from one user to another (GLOBE *Share* a *Load* and *Ask a Load*)
- Cashless purchasing at a wide range of shops
- Direct credit from employer payroll
- Bill payment
- Inward international remittances from Overseas Filipino Workers.

A comparison will show that the services offered are very similar to those offered by SMART as can be expected in a competitive market. However, in developing its competitive offering GLOBE has endeavoured to add as many useful attributes as possible by way of association with banks and other service industries. Some of the specific transactions it has enabled include:

- Payment of income taxes and annual business registration fees
- Payment via the Internet for games, cinema tickets and online stores
- Transfers from bank accounts to G-cash via ATMs
- Donations to charity and civic-oriented projects, e.g. Red Cross, Unicef, etc.

While this wide range of features is not necessarily related to the technology, it indicates what can be done to make the service useful and attractive to the customers.

Annex 2 shows in tabular form the range of services available along with restrictions, capabilities and costs. However, the following descriptions cover the important aspects of the company's service.

Customer Sign-up. For the customer wishing to become a G-Cash customer, the application process is relatively simple. It involves registration as well as the making of a cash deposit.

For the more usual case,the customer will make a cash deposit into the 'wallet'at the time of registration. This deposit is not mandatory at this stage but is necessary before the 'wallet'can be used.

In a lesser number of cases, OFWs or other Filipinos may wish to transfer cash to a GLOBE customer and in this case the deposit is credited to the nominated GLOBE customer account, perhaps even before the account holder is aware of the proposed transfer.

In both cases, registration is essential for the account to become active and the registration process is made easy by the company's use of over-the-air activation. The activation involves use of the SIM-based menu and an SMS text format that includes the customer's name, address and national ID.

There is no charge for initial registration.

Automatic Transaction Update. This feature which is built into all the transaction services, provides for a text message to be sent to the user whenever a transaction is performed. This feature operates at all times on all transactions and provides the customer with a level of confidence in the use of the product. As an added safeguard, the customer has free access to the current credit balance using the menu on the phone and can also request a printed statement of the transactions at a nominal charge.

Cash-In. This feature allows the user to deposit cash into the user's account. As it is a physical medium, the cash must be deposited at one of the designated cash deposit locations. This includes GLOBE offices along with a range of accredited retailers who have agreed to take deposits. Every deposit must be covered by an acceptable ID in accordance with the requirements of the country's central bank (BSP) and is charged at 1 percent of the transaction value with a minimum of P10 (US19¢).

As noted above, as soon as the cash has been deposited, the customer will receive a text message in addition to a paper receipt from the cash teller.

Deposits may be made into other customers' accounts.

Cash-out. This is the reverse of the cash-in procedure. In this case the customer can withdraw from a GLOBE cashier or accredited retailer in exactly the same way as depositing cash. Again, a withdrawal must be completed with acceptable ID. The transaction charge is again P10 or 15 of the transaction value.

Retail Purchasing. Retail purchases are possible at several thousand participating retailers, and this involves the retailer originating the transaction request through his own cell phone terminal. An authorization request is then sent from the retailer and, subject to the customer having a credit balance to cover the intended purchase, the retailer and customer accounts are updated and the customer receives a confirmation of the transaction via SMS. In the case of some supermarkets, the retailer has arranged special access from the cash register, thus removing the need for each check-out counter to have a G-Cash phone available.

Credit Transfers. These are convenience transactions for the customer, allowing the transfer of a credit balance to another customer. The customer initiates a

text message indicating the amount of the transfer and the GLOBE customer to whom the transfer is directed. Subject to fund availability, both parties receive a confirmation SMS.

Airtime Transfers. This is another form of credit transfer where the G-Cash customer can transfer airtime credit to another GLOBE mobile customer's mobile account. The service is marketed as GLOBE Ask a Load or Share a Load.

Prepaid Top-Up. This is a natural extension of the service, using G-Cash to transfer credit to the mobile account.

Bill Payments. The company has a limited group of utilities to whom account payments may be made using G-Cash. Most recently it has negotiated for G-Cash to be accepted as a tuition payment method at almost 100 universities and tertiary institutions.

Micro-Finance has been provided for in the G-Cash service and agreement already reached with the Rural Bankers Association of the Philippines (RBAP). In this service, users can use G-Cash to make loan repayments and it is understood that the bank concerned will shortly use the G-Cash service to advance micro-loans to the target market. This feature will enable small financial institutions to provide services in areas not currently well served by the larger bank thus significantly extending their reach.

Merchant Opportunities. As an adjunct to prepaid recharging, G-Cash offers participating retailers the opportunity to sell airtime to customers in lieu of previously used prepaid scratch cards. It is marketed by GLOBE as Auto Load Max.

2.3.2 Market Uptake

GLOBE indicated around 1 million customers are using the service and the service is experiencing good growth.

Considering that the service has only been available since 2004, uptake has been very good.

2.3.3 Service Charges

All costs are transaction-related. The transaction charges are few and fairly simple.

Each customer-initiated SMS (inter-account transfers etc) costs P1 (US2¢)

Retail purchases using the phone incur a P1 SMS fee (US2¢), which is also the standard SMS fee

Cash deposits and withdrawals through a cashier attract a fee of 1 percent of the transaction value with a minimum of P10 (US19¢).

2.3.4 The Service Configuration

Unlike SMART's approach whereby it operates the service jointly with BDO, the GLOBE approach is to maintain and operate a clearing house facility which records all transactions and arranges settlement between the retailers and the G-Cash customers. This results in GLOBE having responsibility for the usual banking issues of fraud management and money laundering prevention. However, the cash float from the customer balances is held by the company's usual business bank, although that bank has no knowledge of the individual user activity or account balances.

Each participating retailer maintains a balance in the system and this balance is used as the float for transactions involving the G-Cash customers.

All settlements between GLOBE and its partner establishments are done via the cash management system of partner banks.

2.3.5 TRANSACTION SECURITY

Two-factor authentication (phone and PIN) is performed for each transaction. Users have a choice of using standard SMS messages or SIM-based menus and encryption.

2.3.6 Network Traffic

As noted earlier, the Philippines is recognized for its high levels of SMS usage at around seven messages per customer per day. The load from the G-Cash operation equates to roughly two messages per G-Cash customer, which represents a relatively small load on the SMS system and the network.

2.3.7 Network Technology Issues

GLOBE's approach necessitates a purpose-built financial transaction processing facility. Such a facility has been designed and implemented by the company and it has indicated a willingness to work with other networks worldwide to facilitate a technology solution in those networks.

A simplified network architecture is shown above. The key feature of the GLOBE implementation is its emulation of a banking network, albeit with some constraints, such that it does not require the creation of a partnership with any specific banking partner.

2.3.8 Handset Compatibility

The service makes use of SIM-based memory and menu capabilities and is compatible with current GSM SIM standards.

2.3.9 Telecom Regulatory Issues

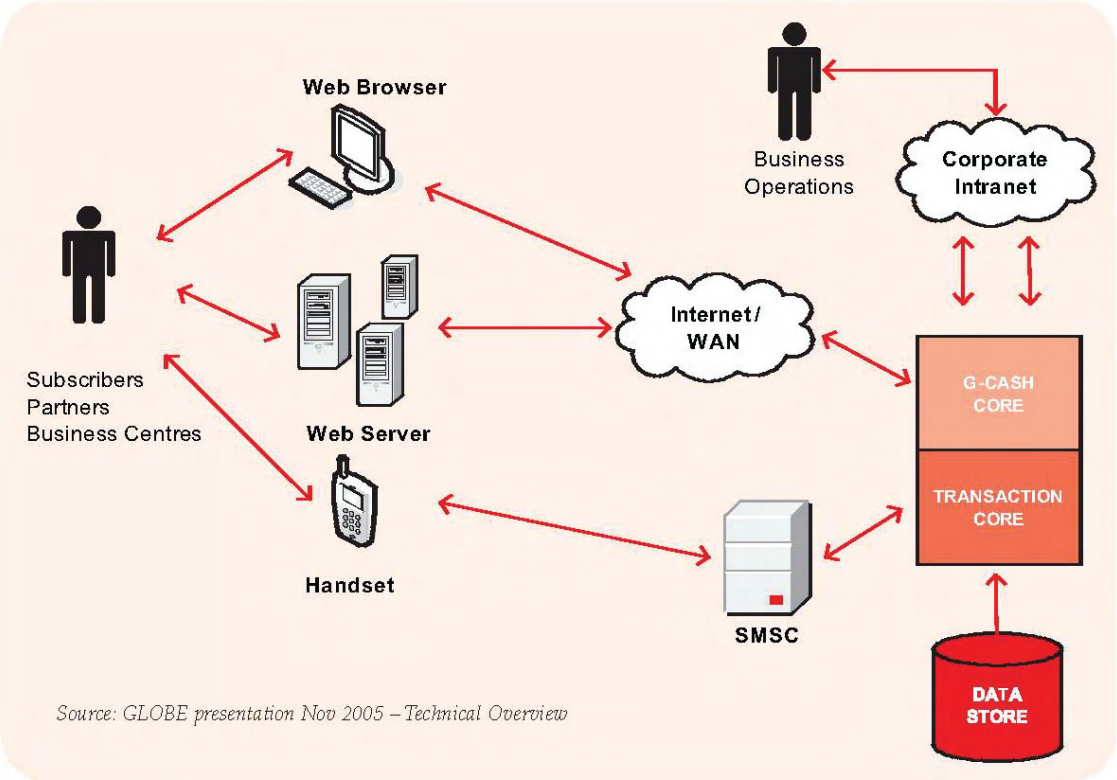
Although offering a very wide range of features, the service involves no new or unusual telecommunications aspects and tariffing is consistent with current practices. The company reports that the Regulator has indicated no interest or concern with the service.

2.3.10 Central Bank Issues

With GLOBE taking responsibility for all the financial transactions, the service is of specific interest to the banking regulator (BSP) and the Anti-Money Laundering Council (AMLC).

At this stage of development, the company has limited the customer's account size to an instantaneous maximum of P10,000 (US$189). While this is a different value to that for SMART, the difference is not related to the technology or method of service provision, but rather to company policies. GLOBE has

FIGURE 2.



Source: GLOBE presentation Nov 2005 – Technical Overview

commented that this value was discussed with and agreed by BSP.

2.3.11 Summary Comment

The GLOBE G-Cash product is well thought out and appears to address the issues that are most likely to be of concern to the average customer in the Philippines. While its approach is significantly different to that of SMART, it is nevertheless a viable alternative that would have application in other markets. Its key features include:

- Catering for small transaction sizes
- Capability of high transaction volumes
- Apparent security using modern encryption techniques for the protection of customer PINs and account details
- Easy sign-up and does not require the customer to provide a credit history. Only a recognized national ID is required to meet the country's financial regulations
- Depositing and withdrawing cash is as easy as it can be while meeting Central Bank requirements
- Allowing customers to transfer credit from one user to another
- Permitting electronic payment for goods and services
- Enabling OTA recharging of prepaid accounts.

These features are similar to those of its competitor, which is as to be expected, but the method of implementation is somewhat different. Its greater involvement with the financial aspects makes the approach somewhat more complex, but at the same time the need to find a banking partner is eliminated. The different approach has also enabled GLOBE to offer innovative features to the product, something that may be more difficult with a simpler approach.

GLOBE Telecom-CEO Interview

Mr. Gerardo C. Ablaza is President and CEO of GLOBE Telecom. In October 2004 the company launched its G-Cash micropayments service, which now boasts around 1 million subscribers.

1) Please provide a brief overview of the service.

G-Cash is GLOBE's cashless and cardless wallet in your cellphone. The service was launched in October 2004, with an initial set of three anchor services: (1) international and domestic remittance; (2) P2P (phone-to-phone or person-to-person) transfers; and (3) payments for retail purchases. With G-Cash, all of GLOBE's subscribers, more than 12 million at this time, are m-Commerce-enabled. Because our subscribers do not need to have a card or bank account to be part of the service, G-Cash has immediately provided m-Commerce capability to a previously underserved segment of the market, including those who currently do not do banking, either because of their difficulty to comply with the deposit requirements of financial institutions or the inconvenience of obtaining access to such services.

We now have around 1 million registered subscribers in G-Cash and close to 400 accredited partners covering 3,000 or more outlets. G-Cash is also available in 16 countries via 27 international partners with around 200 outlets. Since we launched G-Cash a little over a year ago, other types of services have also evolved. These include (1) tax and business permit payments of the Bureau of Internal Revenue; (2) bill payments for utilities, schools, and insurance companies; (3) partnerships with rural banks, or countryside banks, as a payment channel for micro-financing, thereby extending the banks' presence in the rural areas; (4) G-Cash To Load, wherein our subscribers can use G-Cash to purchase airtime; (5) a link to one of the major banking networks, BANCnet, to enable transfers from bank accounts to the G-Cash wallet; (6) integration into the POS (Point-Of-Sale) systems of major retailers; and (7) an automated G-Cash machine which is on pilot while awaiting approval from our Regulators.

2) Why was the service launched?

Within GLOBE, our mission is to transform and enrich people's lives through communications. G-Cash represents one of our major steps towards fulfilling this mission, providing a convenient and low-cost m-Commerce service to our subscribers. We saw a segment of the market that was underserved by the formal financial system. With G-Cash, we have minimized barriers to entry that we have seen in other m-Commerce implementations; for example, the requirement to have a bank account or a credit card and high transaction fees, while still pursuing the objectives of regulatory requirements.

3) What are the most popular applications from the service?

The top three services are phone-to-phone transfers, retail purchases, and remittances. We are also seeing increasing demand for bill payments.

4) How much revenue does the service generate per month? Is it profitable?

From our registered subscriber base, the service processes approximately P3 million (US$56,164) in transaction value daily. At this early stage, our priority objective is to build a strong community and ecosystem of users, outlets, and retailers that would enable m-Commerce to thrive and become pervasive. That would be far more valuable over the longer term.

5) What have been the primary benefits of the service, to both GLOBE and your customers?

As regards the benefits to our customers, the best indicators come from feedback that we have received from them and our partners. The main benefits are safety, convenience, and low cost. Let me cite some examples: (1) A parent residing in the provinces sends a monthly allowance to her son in Manila. Sending small amounts via G-Cash is ideal because the transaction cost is low.

(2) Our customers use G-Cash to pay their bills because they do not have to go and queue up in the payment centres. (3) Using G-Cash to pay for food deliveries has also been very convenient and safe for both our customers and our fast-food partners. I know of several people, including myself, who would order pizza to be delivered to their kids who are at home, and pay for the order via G-Cash while they are still on the road or in the office. (4) In the department stores where our partners have integrated G-Cash into their POS system, our subscribers and our partners' cashiers do not have to bother with cash and small change whenever they use G-Cash.

On a bigger scale, G-Cash takes advantage of the accessibility and availability of our network nationwide, and thus it provides a pervasive m-Commerce platform and extends the reach of services such as microfinancing. Further, because the service is available through our international partners, G-Cash provides an immediate link in the financial value chain between our OFWs (Overseas Filipino Workers) and their families here in the Philippines.

6) Has it met your initial expectations?

Our numbers show that G-Cash is gaining acceptance—1 million subscribers and an average of P3 million in transaction value every day. As I mentioned earlier, G-Cash now has around 400 partners covering more than 3,000 outlets, and it is present in 16 countries through 27 international partners.

7) What challenges did you face in implementing the service?

The initial challenges were in the areas of partner acquisition and regulation. We had to acquire partners prior to launching the service, and because G-Cash is a new concept, its use and benefits are sometimes not immediately evident. What is interesting to note, however, is that once we were able to demonstrate how G-Cash works, our partners themselves were the ones who thought of service variations that make use of the G-Cash platform, and this is very evident in the new set of services described earlier.

In the area of compliance to government regulations, we have to make sure that our procedures will comply with the Know-Your-Customer requirements, as GLOBE is a covered institution under the AntiMoney Laundering Act of the Philippines. We have presented our procedures to the Regulators and we are happy to note that these were found to be compliant. Our agreement with the Regulators is that we would advise them of any new type of service 30 days prior to launch. Moreover, we also have our capability to track G-Cash transactions. G-Cash leaves a trail, cash does not.

8) How do you expect the service to develop over time?

There are three areas of development planned. First, we will continue to expand our partner base for the existing set of services—retailers, utility companies and other billers, banks, department stores, and remittance companies. Second, we have partners who will, on their own, espouse the use of G-Cash within their ecosystem—examples are the rural banks and national co-operatives that will continuously bring members into the fold of G-Cash user establishments.

Third, and most interesting, is that we will have partners who will find new ways of using G-Cash. Just one year after we launched the service, there were seven new services that were spawned by our partnerships.

9) What are your goals for the service in terms of subscriber numbers and future new applications?

We expect 20–25 percent of our subscribers to eventually be registered with the service. As for future applications, I think there are numerous possibilities. Quite recently, we had a contest called G-nius, whereby schools formed teams to develop proposals for new uses of G-Cash. There were several new ideas that came out of this contest, and what surprised us most was the level of understanding that the participants had on the potential of G-Cash. The winning proposals were all technically feasible, and we believe that this is a very good indicator of the new variants in uses of G-Cash.

10) What do you think were the critical market conditions necessary for a successful launch?

There are a few. First, the Philippines is an SMS country. People were very much at ease in using the service. Second, our other services like Autoload Max and Share-A-Load have paved the way for easy acceptance. In both services, airtime value is transferred over the air, and in a way G-Cash was a progression in transferring another form of stored value. Third, we have a segment of the population for which financial services are not easily accessible. G-Cash is our effort to reach this segment of the population. Fourth, there is a need for safe but low-cost money transfer services. G-Cash has enabled our partners to provide such services without the need for them to put up expensive infrastructure. Last, but not least, is the receptiveness of our regulators. We work closely with our Regulators to ensure that our G-Cash procedures address regulatory requirements and concerns.

11) Do you believe a similar service could be replicated in other countries?

Yes. In fact, we have received some serious queries over the past few months. We believe the service can be replicated, particularly in areas where there is a widely dispersed population with a need for low-cost financial transaction delivery.

2.4 INVESTMENT AND PROFITABILITY

While neither network would confirm the exact costs of implementation, both indicated a quite modest capital requirement and a very satisfactory impact on overall company performance. The comments made would suggest a capital cost of less than US$5 million but this figure may not reflect the true cost, given the efforts of the two companies to develop the facilities.

2.5 CUSTOMER CHURN

Both networks confirmed that the introduction of the service had stabilized network churn to a remarkable extent. One estimate placed normal prepaid churn at around 3 percent per month but for those who were also users of the m-Commerce services, the churn rate was only 0.5 percent per month. The reduction is understandable given the features of the service and the necessary investment that the customer makes in the service. *While customers can readily withdraw their cash balances in the system and relinquish cellular service altogether, there is arguably little benefit in doing so, the down-side being the need to keep their prepaid account live. In many markets, that cost is quite low so it is to the customer's advantage to remain connected.*

3. OTHER SYSTEMS

3.1 FUNDAMO IN SOUTH AFRICA

Fundamo is a South African based company specializing in the m-Commerce sector. It is not an operator of such services but in co-operation with other companies, it provides m-Commerce solutions.

The company claims to be able to meet all requirements ranging from bank-hosted systems to those where the network operator essentially functions as a bank. Its clients include MTN Banking in South Africa as well as Celpay in Zambia and the Democratic Republic of Congo.

In discussion with Fundamo, it confirmed that a typical initial implementation would cost in the range of US$3 to 5 million and be profitable from around 25,000 users. Its experience in the African markets suggested that mobile monthly ARPU was impacted by approximately US$2 for the users of the service but it would appear that in their experience there can be a wide range of transaction rates.

Fundamo also confirmed the importance of the banking regulatory issues in planning the introduction of a service and the need to carefully plan the resources needed to launch a successful m-Commerce service.

3.2 SAFARICOM IN KENYA

Safaricom is the Kenyan mobile system operating under Vodafone and Kenya Telecom ownership. As part of the Vodafone stable,the company has joined with another Vodafone operation,Vodacom in Tanzania,to investigate and develop a micro-finance service, to be trialed initially in Kenya. From the information supplied by Safaricom, the service is currently in embryonic form but is expected to provide features largely in line with those offered in the other markets studied.

As in those other markets, the project involves both a network (Safaricom) and a bank (Commercial Bank of Africa) and in addition for the purposes of the trial service, it includes a lending institution specializing in lending into the target market (Faulu Kenya). The initial emphasis of the trial service is on facilitating Faulu Kenya's activities but not to the exclusion of the other opportunities offered by the service.

Initial trials of the service, branded as 'M-Pesa', are underway with a selected group of around 250 users. Even with the very limited range of services currently available, the company reports some encouraging results as follows;

- Transaction rate approximately 0.6 per user per day and likely to be rising as customers become accustomed to the features
- Average transaction value US$14
- Average cash deposit US$19.60
- Average transfer between users US$4.50
- Average cash withdrawal US$3.80.

Given that the service is primarily aimed at the micro-finance operations of Faulu Kenya, the usage levels are impressive in spite of the very small number of customers in the trial.

3.3 MTN BANKING IN SOUTH AFRICA

MTN Banking is a joint venture between Standard Bank and MTN Networks. In its operation, based on a platform largely supplied by Fundamo, MTN Banking operates as the prime service provider, responsible for sign-on, marketing and distribution, leaving MTN Networks to be the carrier for the service.

Because of its 50 percent ownership from Standard Bank, MTN Banking is able to operate under the umbrella of Standard Bank's licence. This arrangement has significant benefit for any service provider as the alternative is for the service provider to obtain a banking licence and in some markets that could be difficult.

At the present time, the company reports that approximately 150,000 customers have logged onto the service, but actual user numbers are understood to be somewhat less than this. Noting that service commenced in August, the level of interest is very encouraging.

It was also noted that MTN Banking provides a MasterCard debit card as part of the service. While

the use of the card initially appears to be low, the company reports a very significant increase in usage as the users become familiar with the service.

As the only example of a joint venture company handling the overall service, the company's views on the arrangement were sought. As to be expected, the advantages related to the management and operational aspects with specific mention that the joint venture led to the creation of a new company with a new culture, unafraid to make innovative changes. Recognizing the unusual nature of the m-Commerce business and how its demands are foreign to normal network operator and bank activities, the arrangement may prove to be one well worth considering in establishing a service.

3.4 CELPAY IN SOUTHERN AFRICA

Celpay was originally established as a wholly owned subsidiary of Celtel, the MSI mobile operation on the African continent. However, in March 2005 it was sold to First Rand Bank of South Africa. Celpay was originally the m-Commerce service set up by Celtel in Zambia and subsequently the Democratic Republic of Congo. Under the Celtel banner it was proposed to establish the Celpay service in each of Celtel's markets in Africa. Following the purchase, First Rand Bank has made no comment on its plans for Celpay other than a general statement suggesting that the Celpay concept is the way of the future.

From a high-level analysis of the Celpay system, it is apparent that it operates with the same range of features as found in other markets. It is understood that the existing implementations of Celpay utilize the Fundamo system.

The Celpay service does not incorporate a debit card but as it is now owned by a bank; presumably the provision of a card if necessary as well as the acquisition of a banking licence will not be difficult in whatever markets Celpay may operate in. Its current markets would not benefit from the provision of a debit card.

It is presumed that under its new ownership Celpay is independent of network operators.

4. DISCUSSION OF THE VARIOUS IMPLEMENTATIONS

4.1 MOBILE NETWORK IMPACT

One factor to come through all the systems discussed above is that they are all very similar in terms of the impact on the mobile networks. Invariably use is made of the SMS feature available in all the networks and from the experience to date, the added load from the service is easily managed and unlikely to result in any significant loss of capacity. Even where the SMS traffic levels are quite high, the impact has been to utilize a second digital channel for SMS traffic. In the only case where this has occurred, the need resulted from high 'texting' traffic rather than the m-Commerce application.

Based on the stated loads being experienced in the Philippines networks, the provision of the m-Commerce services is capable of generating a healthy revenue stream for the network operator, but more importantly, it may create an additional incentive to take up mobile services in the developing markets. Although the added customers are unlikely to be volume users of the mobile services, they will still contribute in a material way to the operators' net earnings.

While not encountered on the study, it is equally possible to utilize the WAP features of the mobile networks as a transport medium. However, from a practical point of view, this solution is likely to be less attractive due to the relatively low profile of WAP services in the emerging markets. On the other hand, the SMS features are widely utilized in most markets and their use in the m-Commerce application makes for an easily understood product. The use of the SMS capacity also utilizes an existing feature of all networks while a WAP application may involve some networks in further development.

It should be noted that all the networks involved in the study were GSM-based. The applicability of any of the solutions to a US-CDMA based network has yet to be verified

4.2 CUSTOMER FEATURES

In terms of customer features, the offerings can be broken down into two categories: those where a debit card is issued and those where there is no debit card issued. However, in making this split, it is important to recognize that the issuing of a debit card is more likely to be a matter of central bank policy than any technology issue for the chosen implementation.

Disregarding the debit card issue, all the systems studied had similar customer features. While not all systems included every feature, there seemed to be nothing to prevent all the features being made available. All gave cash-in and cash-out facilities as well as some aspects of bill payment, credit transfer between customers, retail purchasing at selected establishments and prepaid recharge.

The range of options was clearly one for each operator to determine and the selection appeared to be limited only by the ability of the operator to reach agreement with the third party suppliers. G-Cash in particular seemed to be very active in adding useful features and partners to its product.

4.2.1 Deposits and Withdrawals

Naturally, every system provides for deposits and withdrawals. All provided for deposits at a company office, but some had other options available or under development. SMART in conjunction with its partner, BDO, provided a series of cash deposit machines on its premises allowing customers to enter cash in predetermined denominations, using their MasterCards. GLOBE was in the process of trialing similar terminals which could be used in conjunction with the phone to permit deposits.

Apart from that, deposits and withdrawals were also possible at the participating retailers.

4.2.2 Debit Cards—A Useful Feature?

The important difference in customer features related to the availability of a recognized debit card. In the MTN Bank and SMART Money versions, the banks involved had been able to issue MasterCard debit

cards to the customers. This would have to be a major feature for those networks as it gives the customer almost infinite possibilities for purchasing and cash withdrawals. With the debit card, customers no longer need to find an accredited dealer but can instead use regular ATMs for cash withdrawals. Furthermore, the need for providing an acceptable ID for all deposits and withdrawals is avoided, as the card with either a PIN or a signature provides that security feature.

The card could also be of advantage where user literacy is a problem as its use may be less stressful than having to complete a formal withdrawal application form.

The availability of the debit card also eases the problem for retailers and the network operator in that purchases are no longer restricted to just selected retailers.

However, the use of debit cards pre-supposes that debit card systems and ATMs are widely available in the respective markets. They clearly are in the case of the Philippines and South Africa but many other markets may have limited card facilities, which would render this attribute of little value.

4.2.3 Retail Purchasing

Performing retail transactions using the phone itself was a feature in all the systems. However, in order to function, the retailer must have an m-Commerce account on the chosen system. Whether this requirement is a barrier to widespread up-take of the service is not apparent at this stage of development. There is a potential problem that in a competitive market with several m-Commerce offerings, retailers could resist the need to have m-Commerce accounts on several systems. No network reported this as a problem, and in any case, a system technology development could well eliminate this as an issue by permitting transactions to leave the confines of the m-Commerce application and be handled as a normal POS transaction.

Once a debit card is available, retail purchasing is made that much easier, but as noted above, the existence of a widespread card environment is a prerequisite.

4.2.4 Bill Payments and Micro-Finance

This area of micro-finance is becoming increasingly important to the emerging economies as it gives the ability to advance funds into the sector as well as receive repayments on loans already advanced. The use of the m-Commerce systems for this important area also has significant advantages to the outlying customers. One case that was mentioned involved a customer who was required to make regular weekly or fortnightly repayments but to do so involved one whole day of travel to reach an office that could accept the payment. That requirement resulted in the customer being unavailable for productive employment on that day and if a five-day week was assumed, the loss of productivity is around 20 percent.

As a result of general interest in this aspect, the operators trialing the m-Commerce service have all made moves to enable such a feature.

However, in all cases studied, the service is provided by a third party, typically a 'rural bank'who then takes all liability for debt etc. and is accordingly operating to the requirements of the banking regulator.

The micro-finance option is an extension of the bill payment feature that all operators were offering. If the system allows the payment of bills, and all systems studied did so, then it must also allow repayments to financial institutions for loans that have been advanced. In the same way, the technology will also allow loans to individuals but it is important to note that the credit given is not credit on the account but a bona fide transfer of cash from the financial institution to the customer.

Several networks had actively sought or were seeking micro-finance institutions as partner service providers on their systems. Among others, GLOBE is already offering a repayment service to one of the Philippines rural banks while Safaricom is trialing a service in Kenya.

4.2.5 Prepaid Loading and Airtime Transfers

All networks have included prepaid loading as a feature of the systems they offer. From comments made, this is probably the key driver for the growth in the systems. Customers find that the ability to load credit into their prepaid accounts is a major attraction, whether it is from their m-Commerce accounts or through participating retailers. For the networks, this feature is a major cost reduction issue as the need for prepaid scratch cards is eliminated along with the associated security requirements.

Coupled with this feature was the ability also to transfer airtime between customers. This feature too was greatly appreciated by the customers as it provided a further alternative for their prepaid accounts in the event that they had neither cash nor credit in their system account.

It was noted that GLOBE had further expanded on this feature by providing for the recipient to be able to request the transfer from another family member (Ask-a-load), rather than having to make a separate request to a friend or family member.

Note that an airtime transfer can be technically achieved without an m-Commerce solution as it can be confined entirely to the mobile billing system.

4.2.6 Cash Transfers

This feature was offered in all systems and again was said to be a significant driver of customer growth. It allows credit to be moved between users and by implication, between third parties and users. Specifically, a transfer of cash to a user from a payroll deduction is possible as is an international remittance from an overseas source, subject to having negotiated a suitable arrangement with the remittance organizations. Systems having a bank partner were likely to be better served in this area as the banking partner would already have the necessary relationships.

4.2.7 Targeting the Lower Market Segments

While not a specific customer feature issue, the appeal to the lowest levels of the target market is an important issue if the m-Commerce service is to realize its full potential. In all the systems examined, there is a danger that this major goal will be lost in the rush to get users onto the system. For all networks and system suppliers,a stated goal was to attract the lower'unbanked'segments of the potential market into the service. The benefits were seen to include capturing the cash float and removing the need for this segment to carry cash at all times, thus reducing the threat of robbery within the group. However, the provision of the features outlined above presupposes that all of the target market is equipped with cell phones.

Unfortunately, this is not the case and it is known that in many markets, one phone may be shared among several individuals. This practical arrangement is unfortunately incompatible with most of the systems studied. In general, the systems all used SIM-based menus and assumed one m-Commerce account tied to one phone. As a result, sharing a phone doesn't work for the m-Commerce service.

This point has not been lost on GLOBE who commented that in order to address this point, a programme of co-operation between GLOBE and the Rural Bankers Association had resulted in this segment of the market being financed into phone ownership with payments spread out over six months with an additional GLOBE contribution in the form of airtime credits for loan repayments. As the programme is recent, there is no reliable information on actual results. In addition, the company has been encouraging the market in used handsets, which should result in a low entry barrier for this segment.

An alternative view from MTN Banking involved issuing these users with a SIM that could then be loaded into a borrowed phone when a transaction had to be initiated. This solution may have some network and handset reliability issues.

4.2.8 User Charges

A key feature of the Philippines implementations was the low user charges of typically US2¢ to US4¢ for purchases and transfers of airtime and cash. Cash deposits and withdrawals attracted a higher charge of 1 percent but with a minimum generally less than US19¢.

These low values were not necessarily repeated in the other markets with some networks charging 5 to 10 times these values for the similar transactions. However, based on the reported uptake of the services, the Philippines charges generated a much higher level of usage.

As noted elsewhere, the Philippines philosophy is low margin and high volume and that has resulted not only in high transaction levels but greater uptake of the service as well as a higher uptake of mobile service.

4.3 NETWORK ARCHITECTURE

As intimated above, all realizations of the m-Commerce service involved the use of the network's

SMS platform, with no operator reporting a resulting traffic loading problem.

From that point on, the offerings fell into two distinct groups.

4.3.1 The Access Model

One group employed a relatively simple approach to the provision of the service, sometimes referred to as the 'Access'model because it is one where the mobile operator is restricted to just the access portion of the business. In this case, the networks established relationships with a normal bank with both parties marketing the service. The network provided a 'front-end'to the SMS system that was linked to the bank's own system. This interface system was designed to take care of security, transaction routing and the management of the SMS responses back to the customer based on information supplied by the banking system. Specifically this covered the automatic account update whenever a transaction was initiated. The architecture can be simply represented by the following diagram.

In this model and for the purposes of considering the alternative configuration, the banking system will itself comprise three elements as shown below. In this next diagram, the transaction module maps the actual transactions, determining the settlements that must be made and generating the transaction confirmation messages that must be sent to the users.

The data storage module holds the account balances for all the users including the retailers and other service providers, while the bank module represents the physical cash storage facility and the holder of the banking licence.

This portion of the overall network is discussed further below.

4.3.2 THE HYBRID MODEL

This model is the more complex arrangement whereby the network operator takes a greater role in the provision of the service. This can range from including just the transaction management aspect, right through to the stage where the network operator also holds a banking licence and provides all aspects of the service.

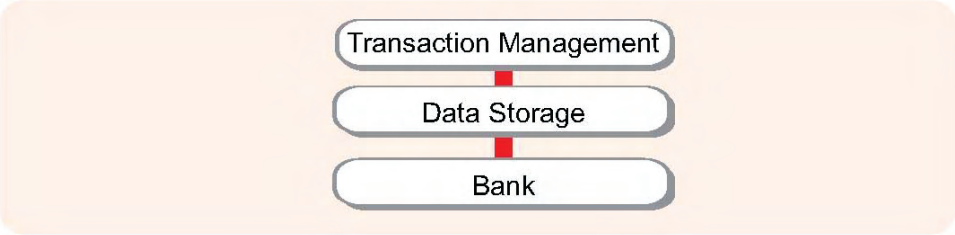
Of the two approaches, the Hybrid model is naturally the more complex from a central bank viewpoint. Recognizing that individual central banks all have quite rigorous requirements covering issues of liquidity, banking security and anti money laundering, the implementation of the Hybrid model will necessarily involve extensive negotiations with the banking regulator.

This model is the one adopted by GLOBE Telecom in the Philippines in particular.

4.4 BANKING REGULATORY ISSUES

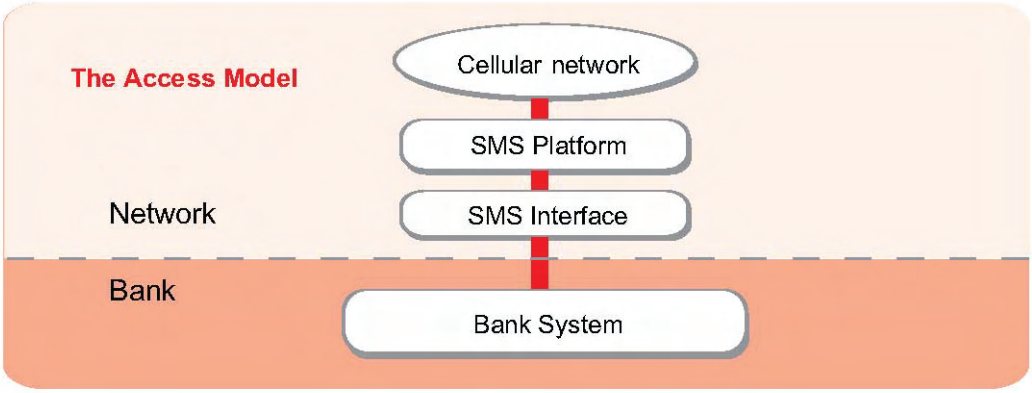
No network or service operator expressed concerns about this area, noting that in all cases adherence to

FIGURE 3.



The Access model is employed by SMART Money in the Philippines, MTN Bank in South Africa, Safaricom in Kenya and eventually Tanzania as well as Celpay in Zambia and the Democratic Republic of Congo.

FIGURE 4.



the country's financial regulations was not negotiable. For that reason most service providers preferred a solution involving a banking partner who would hold the banking licence and perform all the required actions with regard to liquidity, security, fraud and money laundering prevention.

4.5 BAD DEBT PROVISION

In none of the cases studied was any credit offered to customers. All transactions through the system must be supported by available credit in the customer's account. As a result, there is no specific provision for bad debt arising from the customer transactions. Fraud and money laundering activities will be an issue for the banking part of the service. The possibility of fraud through the network is regarded as extremely low.

In the case of micro-finance applications where loans may be advanced and a resulting risk arises, the service is a third party one with the provider carrying the entire risk.

4.6 MARKETING AND SALES RESPONSIBILITIES

There were a variety of approaches to sales and marketing among the systems studied. These approaches could be influenced by the model adopted for the architecture implementation, but the arrangements used seemed to canvas all the possibilities.

GLOBE Telecom with its hybrid model, wherein the entire network was essentially in GLOBE control, naturally resulted in GLOBE being responsible for all aspects of sales and marketing.

However,the other networks all used the 'access'model,but the sales and marketing responsibilities varied with each case.

For SMART Money, the bank provided the financial system infrastructure in conjunction with SMART. The marketing was left almost entirely to SMART although the bank did have some lesser roles. Acquisition of dealers and other third party partners was also left to SMART.

For MTN Banking, MTN Networks, the network operator, was a 50–50 joint venture partner with Standard Bank, but as MTN Networks, it had no specific involvement other than as a transport medium. Sales, marketing and dealer acquisition remained with MTN Banking. Similarly, Standard Bank, the banking partner in the venture, had no obvious role, although like MTN Networks, it does provide information relating to the service and it holds the banking licence.

Celpay in Zambia and the Democratic Republic of Congo is now owned by First Rand Bank. When it was owned by Celtel, it was presumably marketed by that company; but under its new ownership all marketing, sales and distribution is left to First Rand

Bank and the business is now fully independent of a network.

The Safaricom trial is in its early stages so no real pattern has emerged, but from what has happened to date, all the partners including the micro-finance institution are involved.

4.7 ARPU IMPACTS AND PROFITABILITY

The Philippines network operators indicated a very satisfactory ARPU gain. SMART indicated that the ARPU for the target group was double that of the other mobile customers, while GLOBE indicated a transaction volume of perhaps two transactions per day per user. If this figure is correct and the average GLOBE transaction charge is P1 (US2cents), the ARPU would be around US$1.20. Fundamo also expressed the same expectation but noted a significant variation in transaction volumes in the African markets.

GLOBE and SMART both indicated very satisfactory levels of profitability which is to be expected at the user volumes those two networks are experiencing. Fundamo believed the service could be profitable with around 25,000 users while MTN Banking expressed the view that a 'break even'might not occur until there were more than 350,000 users, but as no transaction volume was available, the much higher number could be a reflection of lower transaction rates.

First Rand Bank has commented[7] that in the Zambian and DCR markets, where they are offering service under the Celpay brand, the company has yet to break even, noting that demand is growing steadily and transaction volumes are around 100,000 per day (2.5 to 3 million per month).

Both GLOBE and SMART indicated a major impact was the very significant cost reduction through the availability of OTA reloads for the prepaid service. No longer did they need to distribute scratch cards with the associated costs and security issues.

4.8 INVESTMENT REQUIREMENTS

At this early stage it is not possible to be definitive about the capital investment needed for an m-Commerce solution. However, from the discussions with the various networks and/or system suppliers it could be expected that an investment of around US$5 million would be needed in order to launch a service with a capacity of around 5 million transactions per month.

Some increase in costs would accompany higher transaction volumes, but from comments made the increase could be quite moderate. The two Philippines networks indicated similar costs and in those two cases, transaction volumes could range between 50 and 100 million per month.

Assuming the high Philippines usage level of around two transactions per day per customer, combined with the conservative capacity of 5 million transactions per month, a start-up system would have a capacity of 80,000 customers.

Using such a network as a model, the return on investment was calculated assuming only 50,000 customers and a daily transaction volume in the range 1.5 to 2.5 per user. Other assumptions were that the support costs were 10 percent of capital investment and there was no growth over the 10-year period, i.e. a constant 50,000 users at all times.

The results are displayed in the chart below. No account was taken of the cash float generated and the resultant interest income that could be derived. Note also that if the transaction rate is fewer than two (as used above to calculate the user capacity), the user capacity is increased accordingly, i.e. it is transaction-limited rather than user ID-limited. That has the effect of making the economic performance better than shown here.

The chart tracks transactions per day per user against the transaction charge in US cents. Note that SMART's transaction charge was around US4cents compared to GLOBE's at US2cents and their customer loads exceed 2.5 million and 1 million respectively.

Clearly the real Return on Investment will be dependent on the actual customer load and transaction rate, but the chart reveals that at quite moderate rates of usage, the service is potentially quite profitable.

7 First Rand Bank CEO Report for 2005

5. ISSUES TO BE CONSIDERED IN ESTABLISHING AN m-COMMERCE SERVICE

5.1 ISSUES FOR A NETWORK OPERATOR

Recognizing that the main objective for the mobile network operator is to generate further transaction revenue from the network messages that take place, the issue for the operator is to identify the banking parties that it can work with to achieve that goal. Working with a bank allows the operator to largely sidestep the banking regulatory scene as well as gaining from the facilities that a bank has available for electronic transactions and perhaps access to a debit card.

The alternative is for the network operator to adopt the Hybrid model wherein the network essentially becomes a bank in all but name. This would have to be an option in a situation where a partner bank was not easily identifiable but it carries a heavy load with regard to the need to meet banking regulations. In some markets it may be unacceptable to the central bank.

If the market already exhibits a high level of ATM, POS and credit card use, the availability of a debit card will become a useful attribute, as it will allow customers a wider choice of where they can purchase goods and services.

If the network operator decides to adopt the Hybrid model, it must also decide how far the hybrid model is to be developed, recognizing that the path through the banking regulations may be quite difficult.

If the network adopts the 'Access' model, it must find a banking partner who will be prepared to develop the service and provide the facilities. The economic downside is that its revenue stream will come entirely from the transactions. The alternative of adopting the Hybrid model places the product development and management more firmly in the network court but brings with it the possibility of the added revenue from managing the significant cash float generated from m-Commerce.

Whatever model is adopted, the offering of an attractive service is likely to generate additional demand for mobile services when the users experience the convenience of m-Commerce. More importantly, the use of the m-Commerce service provides an element of customer churn reduction. Users of the service are less likely to move between competitive mobile services as they will to some extent be tied by the m-Commerce application. Note the very significant reduction reported in the Philippines.

5.2 BANKING ISSUES

For the bank, the issue is more complex than just the added revenue. From a central bank viewpoint, the capture of the unofficial cash economy has to be a major factor in favor of moving to an m-Commerce service. Not only does it generate a cash float that can be used to improve the country's economic situation, but it also helps to reduce fraud, money laundering and criminal acts such as robbery because the cash assets of the users are no longer being carried around in person.

For the partner banks, there are two related benefits. The first is the extra cash float that will be generated from the cash deposits into the m-Commerce system. In the reported case of SMART in the Philippines, their partner bank, Banco de Oro, received a US$10 million boost from the 2.5 million users of the service.[8]

The second benefit is that most of the customers taking up the service are likely to be new to the banking sector so that the provision of the service gives the banks a greatly expanded market into which they can target specific products. Included with this is the opportunity to develop micro-finance opportunities.

5.3 MARKET ISSUES

While the banks and the networks may have expectations as to the value of m-Commerce, the

8 SMART presentation to IFC-*info*Dev, November 2005

service will not succeed if it is unattractive to the customers.

5.3.1 USER CHARGES

From the experience of the two Philippines operators, a major driver was the provision of airtime credit transfers between customers and between the 'customers'accounts'and their prepaid mobile accounts. It was important that the minimum values of credit transfer be kept to very low levels. The Philippines values were as follows:[9]

- Minimum person-to-person airtime credit allowed: US4¢
- Minimum prepaid top-up from account: US47¢ to US57¢.

In the same market the standard SMS charge was US2¢ and the normal prepaid call charge was US14¢ per minute. The charge associated with these transactions was typically US2¢.

In that market, there was a significant bloc of customers who could not afford high value prepaid top-ups and possibly could not afford to make voice calls at all, i.e. they had cell phones purely for text messaging.The above airtime transfer and top-up values supported those customers'use of the network and led to a significant growth.

By coupling these features with the m-Commerce features, the two companies have been able to secure large numbers of m-Commerce customers onto their networks, thus realizing the goal of increasing call revenue (from extra SMS usage) and capturing the cash float from the 'unregulated'market.

5.3.2 Adding Facilities to Attract Users

It is probably a reasonable assumption to say that for the majority of customers, the value of m-Commerce is quite low initially, and it is only by experiencing the service that they will come to use its features on a more regular basis. This view is supported by SMART's reported uptake of the debit card option at 1 million out of 2.5 million customers. While the debit card provides the customer with much greater flexibility of use, many customers are not bothering to uplift this optional extra, presumably because they perceive no need.

Extending this to the wider scene, the banks and the networks have complementary views of the m-Commerce service, but the majority of the customers in the emerging economies are likely to have quite a different view. It is only by merging a significant customer need with the objectives of the banks and networks that m-Commerce will find widespread acceptance. Once customers are linked into the m-Commerce service, they can be encouraged to start using the extra features available.

From the experience of the existing providers, the major driver has been OTA prepaid top-ups as well as cash and airtime transfers between users. Following on behind in the Philippines was the ability to remit funds to an m-Commerce account, particularly from overseas. This may or may not be an issue in other markets but the emphasis has to be on finding features of importance to the users.

Adding significant groups or types of retail purchasing can also provide an incentive to take up service.

But before customers will take up the service, they will want to see reasonable charges. Recognizing the target market is likely to be characterized by 'sachet'purchasing (ref Sect. 2.0 above), the m-Commerce offering must be accompanied by appropriate transaction charges. In the Philippines cases, the transaction charges are quite low and typically at around one to two times the normal (and low) SMS charge. In other markets offering m-Commerce but without the success of the Philippines, transaction charges were noted to be somewhat higher.

5.4 COMPETITION ISSUES

For most mobile network operators, a solution that provided exclusivity would be a desirable outcome. However, it would probably also lead to an inefficient implementation, as there would be little incentive to meet the market needs. That would most likely lead to a stagnation of the service and eventually lead to its closure.

As evidenced by the very good performance in the Philippines where there are more than 3.5 million customers[10] using the m-Commerce services of the

9 SMART and GLOBE corporate websites with product tariffs listed
10 SMART claim over 2.5 million users and GLOBE 1 million

two major operators, healthy competition is likely to lead to significant penetration of the service.

As can be expected, the implementation model chosen will be impacted by the competitive scene and must be considered in the context of the specific national financial infrastructure and banking regulatory requirements. Annex 3 attached gives a summary of the likely advantages and disadvantages of the various approaches including the impact on services to the end user.

5.5 REGULATORY AND SECURITY ISSUES

Conforming to the national banking regulatory requirements including liquidity, security, fraud detection and management and in particular money laundering prevention is essential. All the operators questioned on this aspect confirmed the need to meet these requirements. The issues of fraud detection and money laundering are managed by tracking deposit and withdrawal transaction values and patterns, e.g. frequent transactions at or near the allowable transaction levels. Regulators may also apply maximum daily limits on transaction values as well as a limit on a single transaction value, and may also apply a limit on the instantaneous account balance.

No intending operator should regard this as an area likely to be subject to negotiation with the banking regulator. It is almost certain that the existing national requirements will be enforced.

5.6 COMPETENCY

Regardless of the method of implementation, an intending operator will normally require some senior management with expertise in the banking sector. If the implementation is an 'Access'model, where the network is largely restricted to access, the level of expertise will be quite restricted but that will also depend on the extent to which the network has any involvement with the customer interface, i.e. customer sign-up, deposits and withdrawals. In the most pure cases where the operator has almost no involvement, then it is arguable that any expertise is required other than at the technical interface level. MTN network in South Africa is close to this situation with all promotion and activity associated with the service being done by MTN Bank, the joint venture company set up by Standard Bank and MTN Networks.

5.7 TRANSACTION MANAGEMENT ISSUES

Regardless of the 'Access' model chosen, there is one part of the overall system that requires special consideration and that is the transaction management system or transaction 'engine'.

Whereas in a normal banking environment there will be a steady stream of transactions at moderate to high values, the m-Commerce services are characterized by large numbers of very low value transactions. Taking the Philippines case as an example, with 2.5 million users on the SMART network and assuming two transactions per day, the transaction volume will be 5 million per day or 150 million per month. Assuming a typical telecommunications traffic profile for the transactions (as reported in the Philippines examples), the load equates to an average of 170 transactions per second, so that allowing for instantaneous peaks, the system would need to be able to handle perhaps 300 per second to ensure minimal delays.

Considering the stage of development of the banking sector in a number of emerging markets where there are often relatively few ATMs or POS terminals, it is doubtful that many of the banking networks in those countries could handle the load presented by an m-Commerce system. As a result it is almost certain that an m-Commerce implementation will involve the provision of a purpose-built transaction engine. None of the systems studied is known to have utilized an existing bank network.

While some of this load results from users transferring airtime or cash value among themselves, there is still a significant part involving third parties such as retailers, banks, insurance companies etc. In a situation where the majority of these transactions are handled entirely within the m-Commerce transaction engine, the load will be accommodated by appropriate design. However, if these transactions involve accounts held in the systems of other banks, then the ability of those banks to handle the transaction volumes must be considered. Unless all parties, i.e. retailers, service industries, utilities, rural banks etc. agree to have accounts on the m-Commerce system, these third party transactions must eventually find their way into the country's banking networks.

Looking back from the transaction engine to the network, there can be similar issues to be considered. While the transaction load is not an issue (they came through the network in the first place), there are some issues relating to the text messages that must be sent to notify the users of the new account balances etc. For the transaction engine, integrity is of paramount importance. Errors can occur in the mobile networks and there is no guarantee that a text message will be sent on time, or at all and may be even sent twice. While the systems are very reliable, they are not intended to be foolproof. On the other hand, the transaction engine must deal with the transactions that arrive and be able to deal with possible transmission errors such as a duplicated message. It must also ensure the transactions are correctly recorded in spite of any delay or failure of the mobile network to deliver the confirmation messages.

Finally, the transaction engine must perform all the activities expected of a banking system with regard to settlements, monitoring daily volumes per subscriber and checking transaction patterns for possible fraudulent or money laundering activities.

In summary, do not overlook the importance of carefully dimensioning the transaction requirements including the impact on the country's banking network

5.8 COMPANY INFRASTRUCTURE

In any successful mobile company, there will be a substantial investment in customer care. This will include both the customer care centre, the system used to support the customer care operation and the back-office systems and staff required to give effect to the activities of the customer care staff.

For the same reasons of providing excellent service, a good customer care support function will be required with the m-Commerce service.

6. CONCLUSIONS AND FUTURE STUDY

The aim of this study was to identify the key aspects of the currently available m-Commerce systems, and, in particular, identify what the drivers were for a successful implementation. The study was to look at the technology, market & competition, regulatory and network load issues with a view to identifying a 'best practice' for implementing m-Commerce in the wider international markets.

This study has necessarily taken a high-level look at the emerging industry and in the process has identified the difficult issues that will impact the success of new implementations.

At the same time, there are a few areas requiring further consideration as detailed below:

Of the areas studied, it would appear that the traffic loading created by an m-Commerce implementation is of minor significance with no network reporting any concern. As a result, it appears no further work is required in this area.

With regard to the mobile technology used, the systems studied to date have all utilized GSM network technology combined with a variety of transaction engines. While the user menus are all SIM-based, there are differences between the various implementations and there is some uncertainty as to whether the menus can be applied to handsets conforming to the North American CDMA standards. This issue will need further study, but in any case will depend on the recommended method of service implementation.

The next stage of the project should examine the various systems in existence and perhaps even consider whether there is a need for interface standards at least between the SMS platforms and the transaction processing systems. It is assumed that the existing standards for the financial sector will suffice for the interfaces on the banking side of the transaction processing systems.

At this time, there are few vendors of systems. Some networks have embarked on custom-built solutions but this approach is probably beyond the capabilities of many networks, particularly the smaller ones. The next stage of the Project should then attempt to identify the major system vendors. For most networks, a turnkey implementation is probably desired.

There is a concern that some of the solutions link a specific user to a specific phone through the use of a purpose-configured SIM.This has the effect of preventing another registered user from 'borrowing'a phone in order to arrange a transaction. This could pose a significant barrier in poor communities where one phone may be shared among several users.

One solution noted by MTN Banking involved issuing SIM cards to these users to use in borrowed phones. This could raise some other problems relating to SIM expiry if the card is never used for making calls and normal prepaid expiry rules are operating. This category of user would be inclined to let the 'prepaid' account lapse until such time as a transaction was to be done. It would be difficult to persuade such a user to continually top up the prepaid account if the resulting calls were few and far between.

The alternative solution used by GLOBE of assisting these users to acquire a phone has much merit and may be the best solution.

The impact of the problem or need for multiple user facilities should be investigated.

It is widely accepted that m-Commerce has particular benefits in the emerging economies, including:

- Capturing the unofficial cash float in the community
- Eliminating the need for people to carry cash in significant quantities
- Reducing the exposure to robbery
- Enabling the advancement of micro-loans to the community
- Facilitating loan repayments
- Enabling the payment of utility bills
- Minimizing money-laundering opportunities.

These benefits impact at a national level, but there are added benefits for the industry participants too:

For the banks—an increase in their customer reach, the opportunity to migrate customers upward in the

use of banking services and the added cash float available to the bank

For the networks—an increase in text messaging revenues, greater appeal to the market and hence an increase in the uptake of mobile services, and lastly the reduced churn on the network

For the retailers—added business opportunities through the sale of prepaid account credits, facilitating purchasing by customers and the competitive advantage gained by having the facility available

For micro-finance institutions—the ability to advance funds into remote areas and have regular repayments that do not significantly inconvenience the user

For service industries and utilities—the ability to get payments electronically from a significant portion of the overall population without the need to establish franchised agents in remote locations.

While these benefits may be of significance, there is little of obvious benefit to the target market. That suggests that unless extra features are added having a high perceived value, penetration of the market will be low and probably focus on those in the upper segment of the market who already use other e-Commerce systems such as debit and credit cards, internet banking etc. For this discussion, the target market would be users who populate the 'cash' market.

The Philippines experience suggests that by including facilities of perceived value to the lower segments of the market, significant uptake can be achieved. For the Philippines market those added features were the ability to top up their prepaid accounts by as little as US47¢ from their 'cash' account and the ability to transfer airtime credits from one user to another at values as low as US4¢.

The Philippines operators have also recognized that transaction charges too must be kept at an affordable level, preferring high volume at low margin to the reverse arrangement that would inevitably lead to usage only by the upper-level segments of the market. Their transaction charges range between US2¢ and US5¢ except for cash transactions where charges of typically US20¢ are more likely.

From the above, the preferred implementation of an m-Commerce solution would appear to include the following attributes as a minimum to meet user expectations.

1 Airtime transfers between customers with a low minimum. This makes the service useful to the lower socio-economic groups needing to share airtime 'credit'around among the family.

2 Prepaid account top-ups from the cash account also at a low level equivalent to about four to five minutes of normal calls. Again this will appeal to the lower market segments.

3 Provision for cash deposits with a nominal transaction fee.

4 Provision for cash withdrawals with a nominal transaction fee.

5 Provision for cash transfers to other users' accounts.

6 Provision for cash deposits by parties other than the account holder. This allows employer-direct credits as well as international remittances and micro-finance loans.

7 Provision for retail purchases both with and without a debit card, recognizing that many small retailers in the emerging markets will have no facilities for handling debit cards.

8 Provision of a debit card at a nominal charge. This facilitates (4) and (7), particularly in a competitive market where retailers may not wish to hold a special m-Commerce account.

9 Provision for payment of utility charges. Coupled with (6) above it provides for micro-finance services to be offered through third party finance organizations.

With regard to the network architecture, there would appear to be advantages in operating in conjunction with a bank. Issues surrounding banking operations are avoided and the service can most likely utilize a bank debit card. Even where a bank has the major role, the network operator can still take a leading role as evidenced by the SMART situation in the Philippines whereby SMART perform much of the marketing, customer registration and the issue and replacement of the debit cards.

On the other hand, a solution in which the network operator provides much of the infrastructure has appeal where there is some reluctance by the banking sector to get involved. However, such a solution will inevitably involve the network in a significant invest-

ment in acquiring banking knowledge and the use of a bank debit card may not be possible.

The issues to be addressed before launching a service include:

- Identifying the market opportunity
- Identifying suitable partners, i.e. which bank, which network
- Setting up a joint Project Management group
- Deciding on the implementation model
- Discussing and clearing the proposal with the banking regulator and if necessary, thetelecommunications regulator.

Identifying the responsibilities of each partner including:

- Who provides the customer support services
- How the revenue is split (subscription fees, transaction fees, interest on the cash float)
- How the costs will be shared
- Will there be joint marketing
- Will a new brand be required
- Will both parties sign up customers
- Will both parties have card-issuing capabilities (if appropriate)
- Will both parties manage the retail channels and how will the activity be split
- Deciding on the suppliers of the main system and any support systems
- Establishing audit procedures
- Establishing dispute resolution procedures
- Preparing an implementation plan.

ANNEX 1. TABLE OF SMART MONEY FEATURES

Action	Where	How	Fee Payable other than SMS charge	SMS Message SMS Charge		Card Required
Enter credit into the account	SMART or Banco de Oro	Pay cash to attendant for credit to be added. Can be any amount but minimum of P500.	No if own card used otherwise 1 percent	Yes	No	No but fee waived if own card used.
		Use cash deposit machine in Smart Wireless Centers. Selected amounts with min of P500.	1 percent	Yes	No	Yes
	Selected Retailers	As for SMART and Banco de Oro (attendant only).	No	Yes	No	Yes
	Friendly retailer	Pay cash and retailer does credit transfer from own account.	None set but between 1 percent and 5 percent	Yes - both parties	No	No
	Friend or family member	Transfers credit from own account.	None set	Yes - both parties	P2.5	No
	Overseas Filipino Worker goes to Remittance Company	Funds transfer to recipients account.	No but a service fee is charged to the OFW by Remittance Company	Yes	No	No
	Employer	Direct pay-roll credit	No	Yes	No	No
	Self	Use bank transfer facilities to transfer credit from another bank account.	No if done through network	Yes	P2.5	No if done through network
Get cash from the account	SMART	On site cashier.	1 percent	Yes	No	No
	SMART or BDO	BDO on-site ATM.	P3	Yes	No	Yes
	Selected retailers	As for SMART and Banco de Oro.	1 percent	Yes	No	No
	Friend, family member or friendly retailer	Transfer credit to recipient who then pays out cash.	None set	Yes—both parties	P2.5	No

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ANNEX 1. TABLE OF SMART MONEY FEATURES (continued)

Action	Where	How	Fee Payable other than SMS charge	SMS Message SMS Charge		Card Required
	ATM Network	Use debit card and PIN.	P3 at BDO, P11 at other ATMs		No	Yes
Purchases	Participating retailers (No card)	Use PIN to authorize transfer. Retailer must have account also unless debit card used.	No	Yes	P1	Optional
	MasterCard Retailers (world-wide)	Use Card with PIN or signature depending on retailer requirements.	No	Yes world-wide	No	
Prepaid reloads	Network	Use PIN.	No	Yes	P2.5	N/A
Transfer airtime	Network	Use PIN to transfer credit from one prepaid user account to another.	No	Yes—both parties	P2.5	N/A
Transfers from other accounts	Network	Transfer using PIN. Must be a nominated account.	No	Yes	P2.5	No

ANNEX 2. TABLE OF GLOBAL G-CASH FEATURES

Action	Where	How	Fee Payable other than SMS charge	SMS Charge	Card Required
Enter credit into the account	Globe Office	Pay cash to front-liner and complete Cash-In form. Can be any amount. Use phone and M-PIN to authorize.	P10 or 1 percent whichever i s greater	P1	Yes
		Use fast cash deposit machine. (New feature to be added) Accredited customers only.	P10 or 1 percent whichever is greater	N/A	Yes
	Accredited retailer	Pay cash to front-liner and complete Cash-In form. Can be any amount. Use phone and M-PIN to authorize.	P10 or 1 percent whichever is greater	P1	Yes
	Friendly retailer	Pay cash and retailer does credit transfer from own account.	None set	P1	Yes - both parties
	Friend or family member	Transfers credit from own account.	None set	P1	Yes - both parties
	Overseas Foreign Worker	Funds transfer to recipients account.	No, but OFW will pay fee on depositing of funds	N/A	Yes
	Employer	Direct pay-roll credit.	No, but employer may pay fee	N/A	Yes - subscriber
	Self	Use bank transfer facilities to transfer credit to G-cash from a bank account (thru BANCnet ATMs).	P5	P1	Yes - subscriber
Get cash from the account	Globe Office	Complete Cash-In form. Send SMS authorization from phone and collect cash from front-liner.	P10 or 1 percent whichever is greater	P1	Yes
	Accredited retailer	Complete Cash-In form. Send SMS authorization from phone and collect cash from front-liner.	P10 or 1 percent whichever is greater	P1	Yes
	Friend, family member or friendly retailer	Transfer credit to recipient who then pays out cash.	None set	P1	Yes - both parties

(continued on next page)

ANNEX 2. TABLE OF GLOBAL G-CASH FEATURES (continued)

Action	Where	How	Fee Payable other than SMS charge	SMS Charge	Card Required
Purchases	Participating retailers	Use PIN to authorize transfer. Retailer must have account also and use mobile phone.Major retailers may use POS Terminal but SMS PIN authorization still required.	No	P1	Yes - both parties
Prepaid reloads	Self	Buy airtime via G-cash.	None. Subscriber gets a 5 percent discount	P1	Yes - both parties
Transfer airtime	Self	Done through another system.		P1	Yes - both parties
Transfers from other accounts	Self	Transfer credit from one G-cash subscriber to another.	None	P1	Yes - both parties

ANNEX 3: BANK-NETWORK OPPORTUNITIES

Model	Advantages	Disadvantages
Bank operated, with access provided by the network	Bank already has a banking licence Has expertise in financial transactions Has access to debit cards Can offer services through several networks Network has minimal need for staff with banking experience	Bank already has banking licence Bank has expertise in financial transactions Access to debit cards Network has knowledge of the target market Network has high interest in promoting the service
Bank operated, access and joint marketing by the network	Can utilize the bank's normal licence Debit card availability ensured JV imports skills from the parent bank and the network JV has knowledge of both business areas as well as the target market JV can develop its own culture to match the needs of the service Bank-network conflicts largely eliminated	Network has knowledge of target market No conflicts of interest Does not require a banking partner to be identified
Joint venture between bank and network	May inhibit service with high charges No current knowledge of the target market (currently a cash market) Bank has little knowledge of or contact with telecommunications issues Bank attitudes and culture may be foreign to the needs of the target market Network has limited interest in promoting the service	Requires a banking partner to be identified Joint marketing will limit ability to offer service through several networks May experience conflicts between network and bank views and objectives Some banking knowledge required by network management
Network operated	Definitely restricted to one network Must identify a willing JV partner	Requires a banking licence Network must acquire significant banking skills Network culture may not suit the financial attributes of the target market Debit card more difficult to arrange Must establish full banking network capabilities

PROJECT CONTRIBUTORS

ABOUT *INFO*DEV

*info*Dev is an innovative global partnership of international development agencies focused on how information and communication technologies (ICT) can help to combat poverty and promote opportunity, empowerment and economic growth in developing countries. This partnership is co-ordinated and served by an expert Secretariat housed at the World Bank, one of *info*Dev's principal donors and founders. *info*Dev's mission is to help developing countries and their international partners use ICT broadly and effectively as tools of poverty reduction, sustainable economic growth, and empowerment of individuals and communities. Its work is rooted in the conviction that information and communication are indispensable elements of effective and responsive institutions (including governments), markets and societies.

ABOUT IFC

The International Finance Corporation is the private sector arm of the World Bank Group and is headquartered in Washington, D.C. IFC coordinates its activities with the other institutions of the World Bank Group but is legally and financially independent. Its 178 member countries provide its share capital and collectively determine its policies. The mission of IFC is to promote sustainable private sector investment in developing and transition countries, helping to reduce poverty and improve people's lives. IFC finances private sector investments in the developing world, mobilizes capital in the international financial markets, helps clients improve social and environmental sustainability, and provides technical assistance and advice to governments and businesses. From its founding in 1956 through FY05, IFC has committed more than $49 billion of its own funds and arranged $24 billion in syndications for 3,319 companies in 140 developing countries. IFC's worldwide committed portfolio as of FY05 was $19.3 billion for its own account and $5.3 billion held for participants in loan syndications.

ABOUT GSMA

The GSM Association (GSMA) is the global trade association that exists to promote, protect and enhance the interests of GSM mobile operators throughout the world. At the end of July 2005, it consisted of 680 second and third generation mobile operators and more than 150 manufacturers and suppliers. The Association's members provide mobile services to over 1.5 billion customers across more than 210 countries and territories around the world. The GSMA aims to accelerate the implementation of collectively identified, commercially prioritised operator requirements and to take leadership in representing the global GSM mobile operator community with one voice on a wide variety of issues nationally, regionally and globally.

About *info*Dev

*info*Dev is a partnership of international development agencies, coordinated and served by an expert Secretariat housed at the World Bank, one of its key donors and founders. It acts as a neutral convener of dialogue, and as a coordinator of joint action among bilateral and multilateral donors—supporting global sharing of information on ICT for development (ICT4D), and helping to reduce duplication of efforts and investments. *info*Dev also forms partnerships with public and private-sector organizations who are innovators in the field of ICT4D.

For more information visit www.*info*Dev.org or send an email to info@infodev.org

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