The Vodafone CR dialogues

# economic empowerment through mobile

vodafone

# The Vodafone CR dialogues

This series of papers – The Vodafone CR dialogues – explores key issues we face in managing our relationships with society. Our aim is to consider new ideas and stimulate debate.

If our CR report focuses on our most material issues, the Vodafone CR dialogues explore them in depth. They also extend our engagement programme because we involve experts and stakeholders on each issue in order to enrich the debate.

The Vodafone CR dialogues cover topics that are specific to the telecommunications industry (such as privacy or accessibility) and also those that reflect the processes of a corporate responsibility programme (such as stakeholder engagement or assurance). We aim to fully explore these issues and therefore value greatly the opinions of others.

We welcome your thoughts so please send us your comments or ideas to:
**responsibility@vodafone.com**

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We would like to thank the following organisations for their help in producing this paper.

# Introduction

**Charlotte Grezo**
**Director of Corporate Responsibility**

Charlotte joined Vodafone in January 2001 with a remit to establish a Group Corporate Responsibility function. This includes working with the Group's subsidiaries and affiliates to establish the policies and processes to manage Corporate Responsibility at the Group level. Charlotte's role is to lead CR for the Vodafone Group; to ensure the achievement of the strategic goal on responsible business, promote the value Passion for the World Around Us and to ensure that the commitments made in the Vodafone Corporate Responsibility Report are delivered. She is a Trustee of the Vodafone Group Foundation and the Vodacom Foundation. Dr Grezo has served on a range of Government Committees and taskforces including ACCPE (Advisory Committee on Consumer Products and the Environment) and the Sustainable Procurement Taskforce. Charlotte Grezo joined Vodafone from BP where she was Director of Global Environmental Issues.

## Introduction

Welcome to our third CR dialogue, one of a series of papers designed to explore issues that are specific to our industry (such as privacy and accessibility) and also those that reflect approaches to corporate responsibility (such as stakeholder engagement and assurance). Our aim is to share our learnings and the learnings of others with as wide an audience as possible and to provide a forum to consider new ideas and stimulate debate. We welcome your thoughts and actively encourage your involvement in the discussion.

We believe that the mobile industry has great potential to generate positive social and economic development particularly for individuals in the developing world. Indeed two years ago the overwhelming amount of evidence around this resulted in our first SIM report which outlined the broad impact that mobile phones have had in developing countries. Since then the debate has moved forward and the potential for mobiles to act as conduits for banking services is now being explored.

Vodafone has been interested in mobile banking and micropayments for some time now and our success in developing M-PESA, a micropayment solution, is testament to our long-term commitment in this area. M-PESA has been developed as a partnership with the UK Department for International Development (DfID) and is expected to launch in markets across Asia and Africa shortly.

It is clear from the combined results of the three reports outlined in this paper, that the potential for mobile banking to assist people on low-income is enormous. If successfully managed we hope it will have a dramatic and positive effect on the lives of people who currently lack access to traditional banks. This is why we support knowledge sharing and want to work with others to explore new ways to reach those who need these services most.

The CR dialogue begins with a summary of a recently released study titled 'Mobile phone banking and low-income customers: Evidence from South Africa'. I would like to take this opportunity to thank the Consultative Group to Assist the Poor (CGAP) for agreeing to share this study, which was designed by CGAP and produced through a partnership between CGAP, the United Nations Foundation, and the Vodafone Group Foundation, with important contributions from South Africa's FinMark Trust. The study shows that poor people in South Africa are using mobile banking services and value them highly. It also identifies the challenges in bringing mobile banking to more poor consumers, including the need to better understand poor people's perceptions of banking, technology and mobile-banking.

The second report is a summary of our work with Forum for the Future to understand the social and economic benefits of a specific product, Airtime Transfer, which has been widely available and used in Egypt since September 2004. The key learning from this was that, in addition to the economic benefit that 'sharing' airtime brings, the social benefit is also considerable, particularly for families, which are often separated for economic reasons, and who might otherwise be unable to keep in touch.

Finally, we have asked the World Resources Institute (WRI) to outline the variety of ways that mobile telephones are currently being used to deliver different types of financial services, including mobile purchasing, electronic money and electronic banking. This report explores ways in which traditional business models are being challenged and outlines the commercial opportunities presented by servicing the base-of-the-pyramid market.

In order to be successful we must listen to our customers and adapt our offerings to suit their needs. In 2005 there were 1.4 billion mobile phone users in developing markets, the WRI estimate that there will be 3 billion by 2010. Individuals who were previously silent and ignored can now be heard and industry must take account of this. These three reports suggest that this means challenging traditions and adapting existing business models in order to provide real, relevant benefits.

It's a challenge we look forward to embracing.

**Charlotte Grezo**

# Mobile phone banking and low-income customers: Evidence from South Africa


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**The following is an executive summary of a longer study designed by the Consultative Group to Assist the Poor (CGAP), and produced through a partnership between CGAP, the United Nations Foundation, the Vodafone Group Foundation, with important contributions from South Africa's FinMark Trust.**

Banking through mobile phones has been common in developed countries for years. But the real potential of 'm-banking'[1] may be to help give millions of poor people access to financial services for the first time. Earlier this year, the mobile phone became the first communications technology to have more users in developing countries than in developed ones.[2] More than 800 million were sold in developing countries in the past three years.

As mobile usage expands, so may opportunities to bank the unbanked. With m-banking, low-income people no longer need to use scarce time and financial resources to travel to distant bank branches, often located far from low-income communities. And since an m-banking transaction costs far less to process than a transactions transaction at an ATM or branch,[3] banks can make a profit handling even small money transfers and payments.

Mobile is already reaching the unbanked poor: in South Africa and Botswana, one-third of people without bank accounts own a mobile phone or have access to one.[4] Many of these people are poor. M-banking therefore holds great promise. But questions remain about whether poor customers will adopt m-banking. For example, will low-income customers view banking through their mobile phones as reliable? Will limited schooling and unfamiliarity with technology slow their adoption of the service?

This paper presents the first public findings on how low-income people view and use m-banking, using results from a survey of 515 low-income individuals in South Africa.[5] Three hundred of those surveyed do not use m-banking, while 215 are customers of WIZZIT, a start-up mobile banking provider that targets the 16 million South Africans who lack or have difficulty accessing formal banking services. WIZZIT offers a basic current account accessible via mobile phone and a Maestro-branded debit card that can be used at ATMs and branches of two major banks. WIZZIT has accumulated 50,000 customers since beginning full-scale operations in 2005.

While the findings of this study are not representative of all low-income m-banking users and potential users in South Africa, they are encouraging and point to important challenges and opportunities for those seeking to increase adoption.

**Low-income WIZZIT customers value the m-banking service for its affordability, ease of use, and security.**
Respondents indicated they use WIZZIT because it is "cheaper" (70%), "safe" (69%), "convenient" (68%), and "fast" (68%). Of all banking channels, m-banking falls closest to what the WIZZIT users surveyed say is their ideal way of doing banking. Nine out of 10 surveyed say the m-banking service is "not expensive" or "inexpensive" for the benefits it gives. In contrast, these users say bank branches and ATMs have high fees and long queues, poor customer service, and carry the risk of robbery.

The cost of an average basket of transactions appears considerably cheaper through WIZZIT than through the least costly full-service accounts offered by South Africa's 'Big Four' banks. WIZZIT also appears less expensive than the Mzansi account, an entry-level account designed by South Africa's banks especially for low-income customers. For the same basket of transactions, WIZZIT charges about US$6 per month, while the Big Four banks charge US$9 with the cheapest full-service account and US$8 with the Mzansi account. FinMark Trust has determined 2% of income to be the maximum poor people can afford to pay for access to basic transaction banking.[6] At these costs, WIZZIT falls below the threshold of what would be affordable to the poor, while the full-service and Mzansi accounts are above it.

Perhaps because they perceive it to be lower cost, convenient and secure, WIZZIT's customers conduct more banking transactions per month using the service (9.3 per month) than non-users conduct at all other channels combined. WIZZIT customers prefer to use their mobile phone over other channels to pay for pre-paid electricity, transfer money, buy pre-paid airtime, check account balances and pay store accounts.

[1] We term the delivery of banking services through mobile phones 'mobile banking,' or 'm-banking.' The terms mobile payments ('m-payments') and mobile commerce ('m-commerce') are also used, but usually to refer to the use of mobile phones to make retail payments and person-to-person transfers only.
[2] GSM Association. "GSM Hits Two Billion Milestone." 16 June 2006.
[3] BAI 2005. Tower Group 2004. Booz Allen 2004.
[4] Finmark Trust. **Finscope South Africa 2005** and **Finscope Botswana 2004**.
[5] The complete report provides a detailed description of the study methodology, including important information about its limitations. Surveys were conducted in July and August 2006.
[6] Porteous, David. **Making Financial Markets World for the Poor**. Prepared for FinMark Trust. October 2004.

Table 1: Cost of using WIZZIT vs traditional bank account or Mzansi account

| | Transactions WIZZIT users conduct | | Same transactions w/ Big Four full-service account | | Same transactions with Mzansi | |
|---|---|---|---|---|---|---|
| | Rand | US$ | Rand | US$ | Rand | US$ |
| Bank fees charged / mo | 36 | 5 | 55 | 7 | 49 | 6 |
| Airtime fees / mo | 2 | 0 | 0 | 0 | 0 | 0 |
| Transport to bank / mo | 7 | 1 | 11 | 1 | 11 | 1 |
| TOTAL MONTHLY COST | 45 | 6 | 66 | 9 | 60 | 8 |
| ANNUALISED COST | 537 | 70 | 790 | 103 | 718 | 94 |
| Annual cost as days of income | 7.5 | | 11 | | 10 | |
| Annual cost as % of annual income | 2.1% | | 3.1% | | 2.8% | |

Table 2: Average basket of transactions conducted by WIZZIT users per month

| | Total | Buy airtime | Balance inquiry | Cash withdrawal | Cash deposit | Money transfers | Pay electricity | Mini-statement | Pay store accounts | Electronic bank transfer | Set up debit order | Set up stop order | Check deposit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All banking transactions | 12.8 | 3.7 | 2.7 | 1.7 | 0.8 | 0.8 | 0.7 | 0.7 | 0.5 | 0.4 | 0.35 | 0.2 | 0.1 |
| Transactions using WIZZIT | 9.3 | 2.6 | 1.9 | 1.3 | 0.7 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 | 0.3 | 0.1 | 0.1 |

**Significant numbers of WIZZIT customers are low-income, but they occupy the upper end of South Africa's low-income population on income and assets, and are more financially and technologically sophisticated.**

The survey results do not reveal whether most of WIZZIT's customers are low-income, or whether most are affluent, but WIZZIT does have a large low-income customer base. Forty-three per cent of WIZZIT user households surveyed fall below South Africa's poverty line of US$257 per month for a family of five, and a further 12% have incomes up to 150% of the poverty line (which likely means that they are still vulnerable).

Though poor, the surveyed users are better off than most other poor South Africans. Only 6% of WIZZIT user households are 'destitute' according to a Living Standards Measure (LSM) categorisation based on household assets and income. By comparison, 16% of all South African households, and 23% of non-user households, fit this description. While only 15% of WIZZIT users surveyed reported being unemployed, 40% of non-users and 27% of all South Africans have no jobs. And only a quarter of WIZZIT users surveyed would be described as "financially unsophisticated" by FinMark Trust in terms of their attitudes, knowledge and behaviour towards financial services, as opposed to 93 per cent of non-users and 45% of all South Africans.

Compared to non-users who own mobile phones, WIZZIT users are also more likely to use their mobile phones for advanced tasks, such as using it as a diary (62% of users, 19% of non-users) and playing games (64% of users, 39% of non-users).

**Although users and non-users say they are open to using new technology, they still value human interaction.**

Almost all WIZZIT users surveyed (97%) said that they are "prepared to use technology." Eight-one per cent of non-users said the same thing. But other survey results suggest that users and non-users still have difficulty with technology, and may prefer human interaction. Fifty-one per cent of non-users and 49% of users agree with the statement that "you would rather deal face to face with a person rather than an electronic device, even if the device is faster". And the most common reason why some WIZZIT users surveyed have stopped using the service is because they "don't understand the technology" (27%). The third most common reason is that users find the service "too complicated" (23%).[7]

**Awareness of m-banking is low, and non-users have negative perceptions about banking and m-banking that are restricting their rate of adoption.**

Most people in South Africa haven't heard of m-banking. Although non-users live in the same municipalities as WIZZIT users, 65 per cent of non-users surveyed were not familiar with the term "cellphone banking." Among survey respondents who were familiar with m-banking, only 1% named WIZZIT as a provider. This may be one reason why non-users perceive m-banking as costly. Non-users guessed that an average WIZZIT transaction would cost US$1.70, whereas WIZZIT actually charges between US$0.13 and US$0.66 per transaction. But once informed that a monthly average for fees may be about US$2.62, 74% of non-users said this would be "affordable" or "inexpensive".[8]

A significant number of non-users are pessimistic about m-banking. Only about one in three responded that m-banking "will make banking more affordable" and less than 40% said m-banking "will be as secure as other banks". ATMs are seen as convenient and affordable and bank branches as secure, although there are complaints of "high fees" and "long queues".

Attitudes towards banking in general are another challenge. About 84% of non-users who are unbanked say they would like to open a bank account, but many seem to believe that their income and employment status excludes them from banking. Sixty-five per cent of unbanked non-users cite a lack of regular income as the main reason for not having a bank account, and 60% cite a lack of employment.

[7] Respondents who stopped using WIZZIT had education and employment levels similar to current users, and were more likely to be LSM 5 and live in households with higher incomes.
[8] WIZZIT's US$2.64 estimate is based upon customers using electronic deposit and cash back at merchants for most of their withdrawals. Users in this study conducted more cash deposits and ATM withdrawals.

## Conclusions

This study has yielded several insights from one of the first initiatives dedicated to offering m-banking services to the poor. It shows that m-banking services are valued by poor people in South Africa and may be more affordable than traditional banking. It also suggests that m-banking providers must build greater awareness of their services, and must find the right balance between a human touch and technology to appeal to more low-income customers.

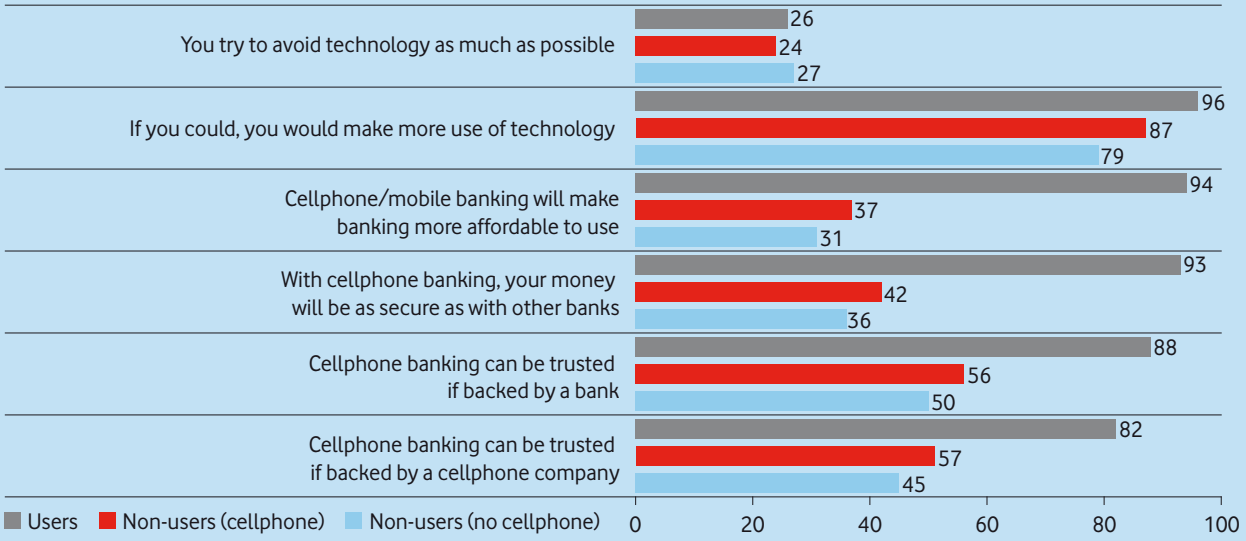
More importantly, the study suggests that low-income m-banking users in South Africa today are early adopters who are wealthier and more technologically and financially sophisticated than most poor people in the country. By identifying that perceptions about banking, m-banking and technology may be as important as income levels in determining the rate of adoption, the study argues for a deeper exploration of these perceptions and how they may be used to segment the low-income market.

For example, the study reveals that some South Africans who are unemployed and earn no personal income seem to believe that they do not need banking services, cannot afford them, or are ineligible to have them. With a clearer understanding of this unemployed and unbanked segment, m-banking providers may discover better results in branding their service as a safer, more convenient payment mechanism – rather than as a better bank account. Qualitative research, such as with focus group discussions, may be helpful in isolating critical variables.

Ultimately, all poor people need financial services to increase household incomes, build assets, and become less vulnerable to crises. With millions of mobile phones already in poor people's hands, CGAP, UNF and VGF see tremendous potential in the power of network operators, banks and new entrants to deliver financial services through this channel.

The full report can be accessed at www.cgap.org and www.unfoundation.org

Table 3: Perceptions among users (215), non-users with mobile phones (149) and non-users without mobile phones (151)



# A sense of balance
# A socio-economic analysis of airtime transfer services in Egypt

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Forum for the Future is a UK-based sustainable development charity. Our aim is to show that a sustainable future is both possible and desirable. We work with forward-looking organisations in business and the public sector to find practical ways to build a future that is environmentally viable, socially just and economically prosperous. Our partners – which include companies, local authorities, regional bodies and universities – work with us to identify and overcome barriers to more sustainable practice. We identify opportunities for sustainable business and change the way leading companies operate, promoting green procurement, encouraging ethical marketing and fostering innovation.

## Introduction

Mobile phones are having a transformative effect across the globe. They offer access to people, goods and services and economic opportunities on a scale in the developing world that is much greater than before. They constitute an opportunity for more sustainable social and economic development, and new mobile-based services are continually appearing to support this.

Person-to-person airtime transfer is one such service, allowing mobile subscribers to send and receive airtime for a small fee. In theory the balance transfer service (BTS)[1] is a mechanism for the efficient sharing of airtime within a network, making mobile services more affordable. BTS has been introduced into many developing world markets such as the Philippines, South Africa and Kenya. Although anecdotal examples of the positive social and economic impacts of BTS are emerging – such as its ability to enable airtime to be used as an informal form of electronic money – there has been little systematic research to date.

This paper provides summary findings of a study of the social and economic impacts of BTS in Egypt. A full report is published separately[2]. Vodafone Egypt launched BTS in September 2004 and this study is based on primary research conducted between January and July 2006.[3] During this time, we conducted:

- Six focus groups, each with eight BTS users, in three different locations and covering both genders, with different socio-economic groups and ages
- Six follow-up interviews with focus group participants
- Four interviews with phone shop dealers and four interviews with airtime resellers
- A nationally representative quantitative survey of 700 BTS users and 300 non-users.

### Key findings

We have developed five propositions based on the results of our research into the social and economic impacts of the BTS:

- **Balance transfer increases access to mobile services** through enabling users to obtain free or paid for airtime remotely
- **Balance transfer improves affordability** by allowing airtime top-ups in smaller increments and access to free airtime
- **Balance transfer creates commercial opportunities** for resellers of airtime, providing a viable and flexible business opportunity for a wide range of micro entrepreneurs
- **Balance transfer use supports social networks** through reinforcing existing relationships and redistributing airtime within family or friendship networks
- **Balance transfer is not used as a proxy currency** due to significant cost and cultural barriers as well as a lack of awareness, but has the potential to support mobile payments and mobile banking services.

Balance transfer has many social and economic implications. However, we have found that the social aspects are more visible at present – particularly in terms of reinforcing existing family and friendship networks and building social capital – as the service is not delivering on its full potential for enabling economic activity. BTS can provide economic benefits directly through creating income earning opportunities, or indirectly, through allowing more low-income individuals to access mobile services or as an enabler for improving access to financial services for underserved groups. We present some options to develop this potential at the end of this paper.

We now briefly outline how the BTS works and categorise broad user groups before examining each of our five propositions in more detail.

### The balance transfer service

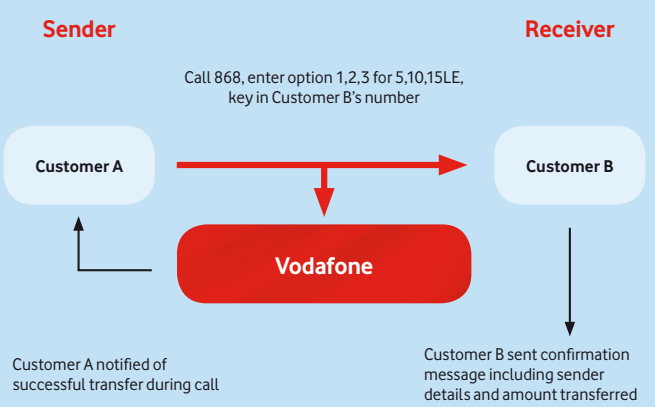
Vodafone Egypt is one of two mobile operators in Egypt, a growing market with approximately 21% mobile penetration in July 2006 – 90% of which are on prepaid tariffs.[4] Vodafone Egypt offers different prepaid tariffs with varying pricing and usage structures but all these tariffs require airtime recharge cards sold in denominations starting from 10 Egyptian Pounds (LE) / US$1.73 – without added sales tax – going up in increments to 200LE /US$34.84.[5] After sales tax and vendor commissions, retail prices for the cards start at 13-15LE for the 10LE card, going to 114 -118LE for a 100LE card. The 10LE card has rapidly grown to be the most popular since its introduction in 2005, indicating the price sensitivity of the Egyptian mobile market. The 200LE card has a much lower market presence and was not mentioned by any respondents in this study.

In order to ensure revenue levels are maintained in low-income markets, many operators require prepaid users to consume airtime within a fixed time period. Prepaid subscribers in Egypt can only use their phones within 'validity' periods provided by the recharge card they use to top-up their airtime. A 100LE/ US$17.42 recharge card gives the buyer 90LE worth of airtime and four months' validity in which to use it. Lower denomination cards have shorter validity periods. The BTS service was introduced because of several instances where the validity system did not match a mobile user's airtime consumption, either leaving 'light' users with too much airtime at the end of their validity period or causing 'heavy' users to run out of airtime early on in their validity period, forcing many to ration their mobile use. BTS enables users to redistribute airtime according to their needs.

1 Airtime transfer is referred to as the Balance Transfer Service (BTS) by Vodafone Egypt. We use the term BTS throughout this report.
2 A full report that contains more data and analysis as well as a series of case studies is available at www.forumforthefuture.org.uk
3 This study refers to tariff plans and balance transfer services that were available during this period. The BTS and Vodafone Egypt tariff plans have changed slightly since the completion of this study.
4 Source: Vodafone Egypt
5 All currency conversions used in this study are based on rates supplied through www.XE.com in October 2006. The exchange rate used is 1US$ = 5.742LE.

The balance transfer process is described in the figure below. It uses the standard Vodafone balance enquiry IVR (interactive voice recognition) costing 0.2LE/US$0.03 per transaction. BTS has been designed to be easy to use for the majority of Egyptians. It does not rely on literacy, ability to use text messaging or other features, but is based on a simple automated voice call with a pre-recorded message giving instructions on which button to press for fixed airtime amounts of 5, 10 or 15LE.

Table 1: The balance transfer procedure




## Profiling BTS users

BTS has proved to be one of the fastest-growing value–added services introduced into the Egyptian mobile market. Forty-five per cent of the Vodafone Egypt customer base had used the service between September 2004 – 05 and figures from July 2006 show 51,624LE (US$8,994) being transferred in 4,400 transactions in that month.[6] In our qualitative research, BTS was the fourth most mentioned mobile service after calls, missed calls, and texts. The service is very important to many users. One respondent even claimed "People would demonstrate in the streets if the BTS was withdrawn."

We interviewed 1,000 Vodafone customers – 700 BTS users and 300 non-users – across Egypt between 13 and 26 July 2006.[7] Compared to non-users, BTS users tended to be younger, single, more likely to be students and more likely to be female. There were no significant differences according to socio-economic classifications A/B, C1, C2 and D/E or region. In order to investigate user profiles, we segmented BTS users into four broad categories. The table below presents a brief description of each category according to significant socio-economic and demographic characteristics.

The findings reveal that BTS is not a very regularly used service for most users – the 'light users' category, which makes up 58% of the BTS user base, only sends and receives airtime once in a three-month period and even 'heavy users' only send 7 times and receive 10 times.

## Proposition one: Balance transfer increases access to mobile services

Balance transfer users in general use their phones more than non-users, making and receiving more calls, texts and missed calls, as table 3 below shows. Heavy users of BTS make and receive more calls and send and receive more texts than any of the other BTS user groups.

Table 3: Mobile usage habits amongst BTS users and non-users

| Average times/week | BTS user | Non-user | Heavy user | Sender | Rece-iver | Light user |
|---|---|---|---|---|---|---|
| Give a missed call | 22.3 | 16.1 | 22.3 | 22.6 | 26.6 | 20.8 |
| Receive a missed call | 23.4 | 17.3 | 21.8 | 23.4 | 27.6 | 22.1 |
| Call someone to talk | 14.2 | 13.8 | 17.6 | 17.1 | 13.7 | 13.2 |
| Receive a call to talk | 18.8 | 18.5 | 22.7 | 21.1 | 19.4 | 17.4 |
| Send a text | 8.4 | 4.5 | 12.3 | 9.3 | 9 | 7.4 |
| Receive a text | 8.9 | 5.7 | 11.8 | 8.8 | 9.3 | 8.2 |

It is likely that heavier users of mobile services are attracted to balance transfer, as it allows them to maintain access to the network towards the end of validity periods. Before BTS was available, people would often run out of airtime while still in their validity period. Since cards are relatively expensive, this would mean rationing out airtime until they were able to afford another card, in effect limiting the use of their mobile phone. One respondent claimed: "In the past, I had to try to maintain my credit which I get from a 100LE card, throughout four months. So I was talking for only one or two minutes per day, but now I speak as much as I want, by paying 10LE or 15."

Therefore, BTS is associated with heavier mobile usage. Evidence from our survey supports this. We asked BTS users whether they thought that using BTS meant that they used their mobile phones more. The majority – 55% – said that it did, with only 2% disagreeing. Heavy users and receivers were more likely to agree, with 69% and 73% respectively saying that BTS meant they used their mobiles more.

## Balance transfer users spend more on their mobiles

It is not surprising that BTS users spend more on their mobile phones, given that they use them more. In terms of overall spend on recharge cards over the last three months, BTS users (199LE/ US$34.66) spent a little more than non-users (178LE/ US$30.9). However, when the BTS user group is segmented according to our typology, we can see that heavy users (230 LE/ US$40.06) and senders (223LE/ US$38.84) spend significantly more on recharge cards then non-users (see table 4 on page 7). Some of the airtime that senders purchase via recharge cards is later sent to others using BTS, in effect redistributing some of that airtime around the mobile network. Heavy users also transfer a lot of the airtime they buy, but receive substantial amounts of airtime using BTS.

Table 2: Characteristics of four broad BTS user segments

| Category | 'Heavy users' | 'Senders' | 'Receivers' | 'Light users' |
|---|---|---|---|---|
| Percentage of total sample N=700 | 10% (68 people) | 12% (86 people) | 20% (139 people) | 58% (407 people) |
| Times sent or received airtime (average in previous 3 months) | Sent airtime: 7 Received airtime: 10 | Sent airtime: 7 Received airtime: 1 | Sent airtime: 1 Received airtime: 9 | Sent airtime: 1 Received airtime: 1 |
| Gender difference | More women | | More men | |
| Distribution across age groups | More between 13-21, fewer 45 and over | Fewer between 13-21, more 45 and over | Slightly more 13-21 and fewer over 30 | More people aged over 30 |
| Socio-economic classification | More SEC C1 | More SEC A/B | More SEC D/E | Slightly more SEC C2 |
| Occupation | More full-time workers and slightly more students | Fewer students, more housewives and retirees | More part-time workers | |

[6] Source: Vodafone Egypt.
[7] Respondents were selected randomly from mobile phone number lists. Users were defined as people having used BTS within the last six months.

Table 4: Average spend on airtime recharge cards and BTS sent/received in three months

| Category | Average spend on recharge cards (LE) | Average amount of airtime received (LE) | Average amount of airtime sent (LE) |
|---|---|---|---|
| Heavy users (68) | 230 | 44 | 33 |
| Senders (86) | 223 | 6 | 31 |
| Receivers (139) | 173 | 39 | 9 |
| Light users (407) | 168 | 8 | 9 |
| Non-users (300) | 178 | - | - |

### BTS enables remote airtime top-ups

Remote transfer of airtime to friends and family is an important way of making sure that they can stay in touch. Examples include emergency situations or where a person is unable to physically access shops that sell recharge cards. For instance, someone who worked on a ship and couldn't buy recharge cards received airtime from friends using BTS and could stay in touch. We heard of many anecdotal examples where BTS was used to send top-ups in an emergency.

Airtime is also shared remotely within close family and friend groups. We heard an example where the user faced financial difficulties and was regularly sent airtime by his sister who lived in another town. BTS provides the ability to obtain airtime from family and friends or through commercial dealers and resellers (explored later in this paper) and thus maintain access to mobile services.

## Proposition two: Balance transfer usage increases the affordability of mobiles

### Mobiles are a vital – but costly – tool

Although our focus group participants gave us a strong message that mobile phones were an essential tool for living, in our quantitative survey we can see that people do not think that they are getting more than they pay for. Mobiles are seen as a vital but costly tool.

Overall, around half of our survey respondents either agreed or strongly agreed with the statement "I spend too much money on my mobile" (50%), with slightly fewer disagreeing or strongly disagreeing (31%). On another measure, the majority of respondents – 54% – thought that the benefits and costs of mobile were about the same. Twenty-six per cent said the benefits outweighed the costs and 20% said the costs outweighed the benefits.

### Making mobile use more affordable

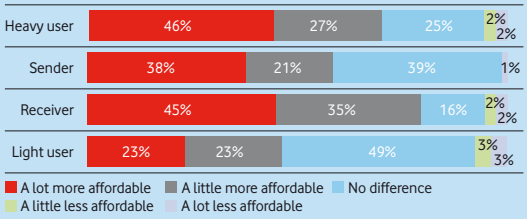
Affordability is a major barrier to increasing the take up of mobile services in low-income markets, where the ability to pay is severely restricted beyond the top socio-economic tier of the population. Mobile operators have taken a number of steps to address this low-income market, including offering prepaid tariffs with low entry costs. Low-income customers often have sporadic cash flow and are usually on daily or weekly wages. One of the most crucial issues is enabling such customers not only to purchase a handset and line, but also to manage airtime costs. A high value denomination card, such as the 100 LE/ US$17.42 recharge card, is beyond the reach of many, and a wide variety of techniques are used to manage airtime costs among low-income users. The use of missed calls, texts and careful management of tariffs is common.

### Balance transfer improves affordability

The ability to top-up airtime in small increments enables low-income users to manage their airtime consumption in line with their restricted and unpredictable cash flow. BTS enables users to top-up airtime in smaller increments (5LE/US$0.87) than possible by a recharge card (10LE/US$1.73). Since BTS was introduced, customers have been able to spread the cost of their airtime by regularly topping up small increments when their funds allow.

In our survey, users viewed BTS as an important tool to make their mobile use more affordable. Fifty-seven per cent of BTS users thought that BTS made using mobiles a little (25%) or a lot (31%) more affordable, with only 4% thinking the opposite and 39% thinking it made no difference. Eighty per cent of receivers – a group that has more low-income users and relies on BTS to obtain a significant proportion of total airtime – thought BTS improves affordability, indicating that BTS plays a valuable role in enabling access to mobile services for some lower-income users.

Table 5: Agreement with the statement "BTS makes using mobile phones more affordable"




Many users purchase airtime using balance transfer from resellers and dealers. Although some users will purchase airtime from friends and family in exchange for cash, the main source of purchased airtime is the diffuse network of small-scale dealers and resellers that offer airtime via BTS with a small profit margin.

- Fifty-seven per cent of heavy users and 68% of heavy receivers have bought airtime using BTS from a phone shop
- Resellers[8] are used by fewer people (23% of heavy users and 28% of heavy receivers), indicating that dealers dominate the commercial BTS market
- Low-income BTS users (SEC D/E) have done this more (51%) than more affluent consumers (33% of SEC A/B).

Remote top-up using BTS also took place commercially. We found many BTS users calling their local mobile phone shop or trusted reseller and asking for a transfer of airtime, promising to visit later to pay. Almost half of heavy users and receivers had done this at some point, and around a fifth of the same groups did this often or very often.

## Proposition three: Balance transfer creates commercial opportunities for users.

In a series of in-depth interviews with dealers, BTS emerged as a useful source of revenue but was not significant compared to the main revenue earners – recharge cards, lines and handsets.

In the focus groups and through subsequent in-depth interviews, we identified several micro entrepreneurs who have built viable businesses on BTS. These airtime resellers operate an informal service as a source of supplementary income, and transfer airtime using BTS at a small profit. The quantitative survey found a small but significant number of informal resellers. People who said that they had sold airtime at a profit made up 1.4% of BTS users, or 10 people. This may appear insignificant, but if extrapolated to the BTS user population as a whole, could mean approximately 40,000 to 50,000 informal resellers that are actively selling airtime at profit to some degree.

There is significant variation in this category, which could include individuals who have occasionally sold airtime to acquaintances on an ad-hoc basis and do not pursue it as a business opportunity. However, a few individuals have started to offer BTS as a commercial service on a regular basis. The average amount of profit was 35LE/ US$6.09 in one month, equating to either a low or very low proportion of total monthly income. However, significantly higher figures above 200LE/US$34.84 emerged in our in-depth interviews.
The data is unreliable, especially since many were reluctant to reveal figures for an informal grey market activity, but it is clear that some resellers have built livelihoods on BTS.

[8] A reseller is defined as an individual that sells airtime using the BTS service at a **profit** and who is not linked with a mobile dealer or phone shop. This excludes transfers made at face value, even if the airtime is sold.

It is very difficult to aggregate results and quantify what proportion of the total balance transferred is from resellers to customers. As we mentioned earlier, commercial balance transfer seems to be dominated by small-scale dealers rather than resellers. However, our in-depth interviews reveal that the reseller business model has strong potential to provide pro-poor livelihoods; it is suited to operating in 'base-of-the-pyramid' markets due to low entry barriers in the form of acceptable start-up costs, being easy to use and the flexibility to integrate into different lifestyles. Potentially, anyone who has a mobile phone can become a successful reseller. Our survey identified one housewife who was making a profit from selling airtime.

Resellers obtain airtime either by purchasing a recharge card at retail prices – and thus incurring administration, sales tax and other charges – or to a lesser extent, through validity transactions.[9] At the moment, resellers are paying the additional costs within the recharge card system as they are essentially retail customers rather than airtime distributors. This increases their costs and undermines the pro-poor benefits of their business model as they have to charge higher mark-ups to stay profitable. Most will be forced to charge upwards of 6.50 to 7LE for 5LE of airtime.[10] If they were brought into the official airtime distribution network, this would significantly improve both their bottom line as well as the affordability of airtime increments to their end customers.

## Proposition four: Balance transfer use supports social networks

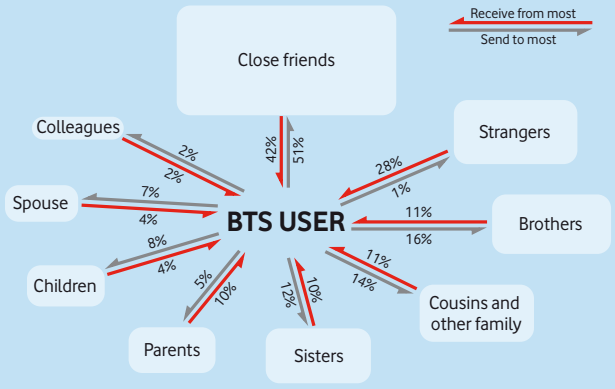
Egyptian mobile phone users think of their mobiles as invaluable social tools. In our survey, overall 76% of BTS users and 77% of non-users felt that using mobile phones strengthened their relationships with family and friends, with only 6% of users and 4% of non-users thinking the opposite.

### BTS strengthens relationships within existing social networks

Although respondents in our survey were less emphatic about the social role of balance transfer than they were about mobile phones in general, they still saw the service as a tool to strengthen relationships. Overall 49% of BTS users thought that using the service strengthened relationships, with another 50% thinking that it made no difference. BTS also allows people to send low-value gifts, for birthdays or during festivals. Overall 29% of BTS users had done this, and 4% said they did it often or very often.

BTS users mostly exchange airtime within their existing social networks, close friends in particular. For example, as table 6 shows, 51% of BTS users send airtime to close friends most and 41% receive airtime from close friends most.

Table 6: Who BTS users send and receive airtime with most.




There is variation between the different user groups and according to socio-economic and demographic profile.

- Women send and receive more with their sisters and parents
- Older age groups send and receive more with their children, and younger age groups more with close friends
- People from higher socio-economic groups send and receive more with their parents and close friends
- Lower socio-economic groups receive more from 'strangers' – in reality phone shop dealers and airtime resellers.

### Mobiles are valued by women

Women value mobile phones for increasing freedom (52% of the women surveyed said that mobiles gave them more freedom with only 5% saying the opposite). There was a contrast between female BTS users (56% agreeing) and non-users (33% agreeing). In focus groups with younger women, we found that they are adept at navigating traditional gender roles to obtain free airtime; asking for airtime from male friends rather than female friends, knowing that their male friends were unlikely to want anything back in return.

Especially for young people, the exchange of airtime, along with exchange of missed calls and other mobile-based behaviour, has been absorbed into normal social interaction. Mobiles for much of the youth are a part of 'youth culture' and balance transfer is an essential part of that.

To send someone airtime to a value of 5, 10 or 15 LE requires a certain amount of trust that the airtime or its equivalent – money perhaps, or a favour – will be returned at some point in the future. Sending and receiving airtime reaffirms that trust. A respondent said: "Say I now sent him the 5LE and he's in need of it because he is broke and can't even buy a recharging card, then I can send him and he returns it back whenever possible, no problem."

## Proposition five: Balance transfer is not used as a proxy currency

There are several emerging initiatives where mobiles are being used as a channel to deliver financial services.[11] Theoretically, a person-to-person balance transfer system offers a platform for conducting financial transactions, even if it has not been explicitly designed to do so. Airtime has the potential to become a proxy or virtual currency; it shares the same characteristics as money – medium of exchange, store of value and unit of account – and the ability to transfer it electronically makes it a viable payment mechanism.[12] Anecdotal evidence from other regions suggests that informal ad-hoc transactions using airtime as a form of electronic money are common in Kenya (using the Sambaza airtime transfer service) and South Africa (using the Me2U service).[13]

In our focus groups, we did encounter some isolated instances where participants had used airtime in exchange for goods or services. But this seemed to be taking place only in specific circumstances when the vendor wanted airtime to use: the airtime was not actually treated as a currency or as barter.

We tested this in our quantitative survey, asking respondents whether they had ever bought something using airtime. Most had not, but 1% of light users (four people) and 4% of receivers (six people) said they had. Only one person said that they did this often or very often.

### Cost barriers to using airtime as a proxy currency

We had expected to find more usage of airtime for mobile payments as Egypt has many characteristics which would make such an activity valuable, particularly for longer distance transfers. There are few alternatives that can transfer cash as efficiently, safely or cheaply because of the high use of cash for transactions, very limited presence of electronic payment systems and low levels of bank penetration, combined with increasing mobile ownership.

There are several barriers that need to be addressed before the BTS can act as a channel for mobile payments. The most important cost barrier is the current price structures within airtime distribution. At present, there is a significant

[9] A validity transaction entails splitting a recharge card into airtime and validity portions – a 100LE card will normally provide 90LE of airtime and fours months of validity – and then selling only the validity while retaining the airtime. A customer will buy a 100LE card from the reseller and then transfer back most of the airtime, even all of it, and retain the validity. The customer will typically pay 30LE for the service, which covers all charges and taxes and provides 5 to 10LE profit for the reseller in addition to airtime at a lower cost than through buying recharge cards. The reseller gets airtime without incurring any extra charges.
[10] Reseller profit margins were estimated with a range of variables. See full study for more details.
[11] See paper by World Resources Institute in this publication for an overview of current examples.
[12] Porteous, David (2006) "The enabling environment for mobile banking in Africa", DFID.
[13] Ibid.

discount in cash compared to airtime because of administration charges, taxes and commission payments. 90LE of airtime loaded onto a phone costs 115LE after taxes and charges. If a user wants to exchange this airtime for cash, the 25LE difference in value will need to be absorbed by the user. This makes it uneconomic for high value transactions or for regular use.

### Cultural barriers to adoption

This low usage of airtime as a proxy currency may in part be due to a perception of airtime as more of a social resource than an economic one, particularly for higher income users. Once the airtime has been bought, it can be redistributed, but normally in return for more airtime, to be received later, or as a gift. Very rarely is airtime 'cashed in'. In our survey, only 4% of BTS users had ever sent airtime in return for cash (not at a profit) and only a few more (7%) had ever asked someone else to send them airtime in return for cash (again, not at a profit).

The concept of offering airtime instead of cash to buy something might imply that the buyer didn't have the cash to pay, leading to a negative connotation and a 'loss of face'. This issue was raised repeatedly in our focus group discussions, with some references to how such payments were not appropriate in Egypt. Essentially this is a significant, but addressable, barrier through awareness raising and marketing of airtime as a proxy currency. Focus group participants were more positive about using airtime as a proxy currency if it was within a formalised and well-marketed framework.

There was also appreciation of the security benefits of having virtual money that could not be stolen if protected through a PIN system.

### Attitudes to mobile banking services

Although it was not the primary focus of our research, we did explore the potential of using mobiles as a banking channel in our focus groups.

Mobile banking met with a lukewarm response in some of the focus groups. The key issues seem to be a mistrust of including a third party in the relationship between the customer and the bank and concerns over the security of the system. However, there was positive discussion of time-saving potential and increased security.

## Options to enhance the positive socio-economic impacts of BTS

We now sketch out some potential ways in which the BTS can enhance the social and economic benefits of mobile phones in Egypt. These are broad recommendations and need to be developed further with regards to feasibility, market viability, regulatory issues and so forth.

### Using BTS to improve the affordability of mobile services

At the moment BTS is not officially used as an airtime distribution channel by Vodafone Egypt. All commercial sale of airtime via BTS by dealers and resellers is not within the formal distribution network, which is entirely based on printed recharge cards. However, the fixed costs associated with printing and distribution, currently 0.55LE/US$0.09 in Egypt, make it uneconomic to offer very low value top-ups through recharge cards. BTS is already operating as a person-to-person form of e-refill. Extending it to allow vendors to electronically sell airtime in very small increments to customers as an alternative to cards will improve affordability and formalise the existing dealer and reseller commercial balance transfer market. BTS can further improve affordability if smaller increments below 5LE are allowed and validity transfers are possible.[14]

**BTS is a viable means to distribute airtime but must be able to operate on commercial scales.** A wide range of mobile subscribers are using BTS as a form of e-top up, indicating that the Egyptian mobile market will be comfortable moving to an e-refill airtime system in the future. However, for the dealers and resellers that offer BTS, the service is too slow and cumbersome, and often fails during heavy network traffic. In order to develop BTS as a platform for building further value-added services or as a significant channel for distributing airtime, it needs to offer different ways to conduct transactions, perhaps by adding a streamlined SMS-based system to the existing service or a dedicated commercial service. Otherwise distributors will prefer to use recharge cards.

**Dealers and resellers have existing trust-based relationships with customers that can help introduce new value-added mobile services.** Most resellers serve specific small neighbourhood clienteles, with marketing through word of mouth and a roster of regular customers. Resellers build up trust with customers and are able to offer services like remote top-up or airtime on credit that depend on a certain degree of trust to work. Resellers can potentially become involved in a wider network of mobile-enabled services like m-payments or mobile banking.

### Enhancing commercial opportunities

BTS offers a highly adaptable business model that is fit for operating in base of the pyramid conditions. It offers benefits both to micro entrepreneurs, in the form of increased income, as well as to their customers, by enabling them to purchase small denomination top-ups. Both access and affordability are further increased by an existing trust relationship that allows remote top-ups and the provision of airtime on credit.

**Bring resellers into the official airtime distribution network.** Keeping resellers outside the official distribution network compromises their pro-poor potential. Resellers are unable to earn enough revenue and have to only use BTS as a source of supplementary income while customers are paying higher prices to maintain thin reseller margins.

If existing resellers, and other potential new entrants, were brought into the distribution network, they would be able to obtain and distribute airtime much more efficiently. By cutting out the retail margins, they could purchase airtime at wholesale prices and be able to distribute them for lower mark-ups, improving affordability for their end-customers. SMART in the Philippines follows this model for its SMS-based e-refill system, with a network of over 800,000 resellers who earn a 15% commission from airtime sales. Competitor, Globe Telecom's 700,000 strong distribution network will soon also earn income from acting as agents for its G-Cash e-money service.[15]

This also significantly increases the availability of airtime in more remote areas; compare the Philippines with a population of 89 million and served by 1.5 million retailers of airtime with Egypt, which has about 10,000 official airtime retail outlets for its 72 million people.

**The pro-poor benefits of BTS can be enhanced through targeted initiatives.** Operators such as Vodafone can target specific reseller markets as a way to distribute airtime while providing pro-poor income generation opportunities. This can include providing discounted airtime to specific groups like rural women's co-operatives or unemployed youth in economically deprived areas.

### Using BTS to facilitate financial transactions and delivery of mobile banking services

Although BTS has expanded rapidly in Egypt, we were unable to find many instances of airtime being used as a proxy currency to buy goods and services. This may be due to a lack of awareness, as the operator has not marketed airtime in this way. However, cost barriers also play a strong part: the relatively low amounts of airtime that can be transferred and the significant difference in airtime face and cash value undermine its viability for regular usage, particularly for higher value transactions.

**Cultural interpretations of mobile payments, mobile banking and other value-added services must be more carefully researched.** In our focus groups, the idea of introducing mobile payments and mobile banking was met with a range of responses. Most crucially, there is a sense that offering to pay via airtime rather than cash gives the impression that the user is poor, and is forced to use airtime. In order to succeed in Egypt, m-payments will need to manage this issue through marketing campaigns and ensuring that the system is rolled out widely. Cash also seems to have more respect than virtual payments in Egyptian society. Although users are happy to participate in BTS transactions, perhaps even remotely, implying a significant degree of trust in both the technology as well as the distributor, there are more reservations around security when it comes to m-commerce transactions.

**There may be potential to introduce mobile banking services for microfinance clients.** Egypt has a nascent microfinance industry with large unfulfilled demand for financial services. Rough estimates indicate that the Egyptian microfinance industry could potentially have between two and three million clients, of which approximately only 220,000 are currently being served.[16] Mobile banking could play a role in helping Egyptian microfinance

[14] The BTS service enhancements from August 2006 include flexible amounts between 1-50LE and validity transfer at 1LE per day.
[15] See World Resources Institute paper on page 11 for more details.
[16] United Nations Development Capital Fund. http://www.uncdf.org/english/countries/egypt/index.php

institutions increase their outreach and significantly scale up their operations, perhaps using a similar model to M-PESA in Kenya or partnering with some of the pioneering commercial banks in Egypt, such as the National Bank of Egypt, that are providing microfinance services.

**Remittance services from key markets may have strong potential.** Egypt has a significant remittance economy – around 3.9% of Gross National Income is from overseas workers[17] and there are considerable domestic remittances from urban workers to rural areas. If electronic money services were introduced onto the BTS platform, allowing international remittances might then enable cheaper, faster and more accessible cash transfers along with subsequent social and economic benefits.

## Conclusions

BTS has become integrated into mobile usage habits for a small but significant segment of Egyptian users, and is used more occasionally by a wider range. It is primarily used as a social resource to share airtime within existing family and friendship networks, being used in ways that align with dominant cultural behaviours such as gender relationships.

BTS also plays an important economic role in increasing the affordability of mobile services. In effect it enables an informal airtime recharge system through which users can purchase small increments of airtime commercially from dealers and informal resellers.

This means that BTS also provides some commercial opportunities for airtime resellers. BTS offers a viable business model for base-of-the-pyramid conditions and can potentially deliver benefits for micro entrepreneurs, their low-income customers and operators like Vodafone Egypt.

The positive socio-economic impacts of BTS can be increased through targeted initiatives, but they must reflect local cultural and operating contexts. This research adds to the body of evidence that shows low-income consumers as sophisticated users of services and how technologies are utilised in unique 'local' ways.

**This is an abridged version of a fuller report which includes case studies and more data from the survey. Please visit www.forumforthefuture.org.uk to download a copy.**

[17] World Development Indicators 2006, World Bank.

# Mobile-enabled transactions for the base of the economic pyramid: A brief review of the 2006 'state-of-play'

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## Introduction

In the effort to create fully inclusive financial systems which reach all socio-economic strata, including the base of the economic pyramid (the BOP), information and communications technologies (ICTs) are increasingly being deployed. ICTs, and in particular, mobile phones, are providing a means by which to process numerous small transactions efficiently and affordably, thus enabling a larger private sector role in service delivery. Hardware costs and network transmission costs are both falling rapidly. New technologies, such as Wi-fi-enabled cellphones, Wi-max, voice-over-internet (VoIP), and low-power/high-quality servers, show promise to deliver mobile telephony and wide-band capability to increasingly remote markets.[1]

In this brief review of the state-of-play as of mid-2006, we explore a range of technologies, enterprises, and business models that deliver financial services across communications networks, and in particular, mobile phone networks, with a focus on their application to BOP markets. We provide a flavour of the enterprise and product set, touch lightly on the development of the product and/or service and explore what business models are working and highlight promising pilots and full commercial roll-outs. Where possible, we briefly analyse whether the product/services respond to manifest BOP needs, and point to positive social and economic impacts. Finally, we offer some observations about how to make new products and services directed toward the BOP successful, both for the companies and for the customers.

### Deployment of services

Mobile telephones are currently being used in a variety of ways to deliver financial services. As defined by our colleagues at CGAP, these services fall generally into three categories: mobile-purchasing (m-commerce), electronic-money (e-money), and electronic banking (e-banking).[2]

**M-commerce.** Largely deployed today in the advanced industrial countries, particularly Japan and the Nordic countries, it is limited, for the most part, to small purchases, such as public transportation and vending machines. In these types of payment systems, the mobile phone is ordinarily replacing a debit or credit card. As it is at present a 'top-of-the-market' application primarily, we will touch on it only lightly in this review.

**E-money.** Allows storage of cash values on mobiles, either through a 'real value' system or a 'virtual value' equivalent in airtime credit. It is growing rapidly out of prepaid text-message mobile phone card systems. In this report, we focus on the Philippines experience.

**Banking channel.** Mobile phones are increasingly utilised as platforms for transacting business with financial institutions, and for accessing bank accounts, whether checking, savings, or loan. Balances in accounts can be accessed for a number of purposes: purely informational, making payments on bank loans, transferring money from one account to another, selective bill-paying (e.g., to utility companies and retail stores). The e-money and banking channels cross paths frequently, as in the case of mobile phone-based repayment of, or deposits to, microfinance institution loans. The African examples – M-PESA, WIZZIT and others – offer multiple perspectives for these types of services and products. We include in this category new systems evolving for the transfer of remittances from one country to another, such as the Exchange Wallet.

### Micropayments are the key; technology is the enabler

A significant element in the success (or failure) of any products is the capacity to handle large numbers of small transactions efficiently and profitably. Across the three categories of services described above, one finds three major types of payment systems: credit-based, account-based, and stored value. Credit-based systems, derive from, and rely on, the mature system of traditional credit cards: buy-then-pay. The second, account-based, employ the somewhat more recent system of debit cards, which direct funds to be moved from one depository account to another: pay-then-buy. Debit cards, like credit cards, require connection to, and approval from, a central network which can authenticate the transaction. Stored-value is an even more recent innovation, and functions much like currency. Cash is loaded onto an electronic wallet – a card, usually – and allows for transfer of the appropriate amount without further approval. It found early and widespread application in transit payment systems and the 'gift card' industry.

Telephone companies are historically well-suited by the nature of their enterprise to understand the nature of micropayments. The evidence is already compelling that they are responding innovatively to the business opportunities presented by micropayments. Handset producers and network manufacturers are increasingly aware of the potential of the BOP market, and are actively developing and marketing BOP-targeted goods and services. The Emerging Market Handset Program at the GSM Association is a good case in point. It took only about a year from inception to market delivery of first products – the Motorola C113 and C113a handsets.

At the same time, both the telecom and financial service industries are responding positively to innovation and energy that is coming from outside their own close circles, from, for example, technology entrepreneurs, who are seizing on the capabilities of fast-evolving chipsets and applying them to new functions. Along the way, all the stakeholders are revolutionising access to financial services for the BOP.

To conclude, it is worth noting that the number of mobile subscribers in developing countries grew more than five-fold between 2000 and 2005, reaching more than 1.4 billion. The estimate of worldwide subscribers today is just over 2 billion; developing countries accounts for 70% of the global market.[3] The estimate is that there will be 3 billion mobile phone users by

[1] For a discussion of low-cost rural telephony systems, see http://www.nextbillion.net/blogs/2006/05/09/a-new-model-for-rural-connectivity
[2] Mobile Phones for Microfinance, CGAP Brief, April 2006.
[3] www.itu.int/ITU-D/ict/statistics/at_glance/cellular05.pdf

2010. The industry has much of the growth curve ahead of it, and as functionality increases, the size of the market is further enlarged.[4] Industry analysts and experts agree that the biggest challenges facing this exploding sector are not the technologies, but the business models used to serve the growing markets – a good lead-in, then, to a discussion of some examples (indicative, but not exhaustive) of mobile finance in emerging markets.

## Case studies from emerging markets

### WIZZIT, MTN Banking and FNB, South Africa

In South Africa, 20-25% of the people who have never had a bank account have access to a cell phone.[5] FinMark, a British-backed non-governmental organisation that looks at ways financial markets can help the poor, estimates at least half of all bank accounts in South Africa will be administered via cell phones within five years.[6] Three companies – WIZZIT, MTN Banking and FNB – have launched mobile financial services aimed at this market.

WIZZIT[7] was first to market in November 2004. Through a partnership with South African Bank of Athens, customers are able to use SMS to pay for goods, transfer money to friends and family and top up the credit on their pre-pay phones. Account holders can also have their salaries deposited directly into their cellular accounts, and can deposit cash at Post Offices and some bank branches.

WIZZIT does not require users to have a bank account and is compatible with early generation and pay-as-you-go cell phones. Account holders are issued Maestro debit cards that can be used at any ATM or retailer. WIZZIT charges per-transaction fees that range from 99c (US$0.15) to R4.99 (US$0.78) and does not charge a monthly fee nor require a minimum balance.

The service has proved particularly successful due to its unconventional marketing. The company employs over 2000 "Wizz Kids" – typically unemployed university graduates from low-income communities – to promote the product in townships and rural communities and help un-banked customers open accounts. The company is looking to expand into Kenya, Botswana, Namibia, Zambia and Malawi. Customers and management of WIZZIT confirm (anecdotally at this juncture) the social impact of seeking out unemployed individuals and providing them meaningful jobs that empower other members of the community through communications and access to financial services. WIZZIT is on target to reach profitability and to serve 100,000 customers by the end of 2006.

Through a joint venture between telecom MTN and Standard Bank, MTN Banking[8] is also providing banking services through cell phones in South Africa. Customers open a MobileMoney account over an MTN cell phone, and all transactions can be done outside the confines of a traditional bank. Account holders also receive a MobileMoney MasterCard that can be used to make purchases or withdraw money from any ATM in South Africa.

MTN Banking may eventually expand its services into other sub-Saharan countries where it already offers cell phone services, such as Nigeria, Uganda, Cameroon or Rwanda.

Unlike WIZZIT, which works on any network with any model phone, MTN Banking customers must have a compatible cell phone that uses the MTN cellular network. Although there is no monthly fee, the standard R3 fee per transfer is too high for some microtransactions, reducing the service's value to those with lower incomes.

MTN Banking is not the MTN's only foray into the BOP. In Uganda, the telecom has partnered with the Grameen Foundation and local microfinance[9] institutions to replicate Bangladesh's successful village phone project in Africa. MTN's Village Phone project[10] has given more than 2,000 entrepreneurs access to start-up capital ($230) which includes a car battery or solar power panel, a wireless handset, a user manual and a fixed line dedicated SIM card that can be loaded with the prepaid airtime.

Finally, First National Bank (FNB)[11] has launched a cell phone banking service, but only for use by its existing customers. FNB expects the electronic banking channel to increase the number of its 'Mzansi' entry-level accounts for low-earners who have never had a bank account before. Like WIZZIT, the FNB programme has no special requirements in terms of handset make or model or SIM card to be used, and the service can be used on any cell phone network. Fees are comparable to those from MTN.

The rapid emergence of virtual banking through WIZZIT, MTN Banking and FNB demonstrates a growing belief among banking and telecom professionals that there is a big market in the un-banked, and this is encouraging competition. Since their launch, all three initiatives have exceeded their initial subscriber goals. As volumes grow, the banks plan to develop new applications aimed at the underserved markets.

### M-PESA, Kenya

In 2005, Vodafone partnered with its local telecom affiliate, Safaricom, to provide financial transactions over cell phones in Kenya. The M-PESA[12] service was piloted as a public-private venture, as a partnership with the UK Department for International Development (DfID) (providing matching funding), the Commercial Bank of Africa (providing local banking services and interface to the regulatory system), and the microfinance organisation, Faulu (providing local expertise).

Through the pilot, existing microfinance clients received a cell phone through which they could electronically make payments on their loans. Each phone was equipped with a special subscriber identity module (SIM) card[13] that allows the transactions to take place.

Several services are available in addition to loan repayments. M-PESA users are able to deposit or withdraw cash from authorised M-PESA agents, typically a small store owner that has enough cash on hand to complete the transactions. Clients are also able to make person-to-person money transfers, purchase airtime for re-sale or personal use, and receive account statements.

Pilot testing confirmed several important benefits to users.

**Time-saving and convenience:** The system has reduced the time it takes to repay their Faulu loans, as the transaction, complete with confirmation, is immediate. Clients have also saved time and money by reducing their visits to banks, and have received the added convenience of effectively longer 'banking hours'.

**Safety and security:** The M-PESA system reduces the requirement to carry significant amounts of cash, thus reducing the potential for loss. M-PESA was developed to bank the un-banked. According to one client, "... they [the low income people] will no longer have to store their money under the mattress... but in M-PESA which is a safe..."[14]

**Reduction of default rates:** As transactions can be completed during a longer business day, and at more convenient locations, the system has encouraged – and enabled – more prompt and regular loan repayment, an outcome with clear benefits to the banking institutions. As a side benefit, the regular Faulu lending circle meetings could move away from discussions of repayment issues to address other concerns and issues.[15]

[4] The size and characteristics of BOP markets is discussed extensively in The Market of the Majority: Poverty, Profit and Unmet Human Needs, World Resources Institute/International Finance Corporation, to be published February 2007.
[5] http://www.kalahari.net/BK/product.asp?toolbar=none&sku=27978928&format=detail
[6] http://www.nextbillion.net/newsroom/2005/11/02/cell-phones-plug-africas-poor-into-mobile-banking
[7] http://www.wizzit.co.za/Wizzit_index.htm. Current numbers confirmed by author in personal communication with Brian Richardson, CEO, August 2006.
[8] http://www.mtnbanking.co.za/
[9] http://www.nextbillion.net/node/1429
[10] http://www.mtnvillagephone.co.ug/index.htm
[11] https://www.fnb.co.za/personal/transact/accessyouraccounts/cellHowDoI.html
[12] 'Pesa' means 'money' in Swahili
[13] Current cost of the SIM card is USD$2.
[14] Second Pilot Review, Microsave, April 2006.
[15] Interestingly, the Pilot Review highlighted some concerns that the mobile system would negatively impact the 'group cohesion' that often characterises microfinance lending circles. The introduction of this new technology suggests a re-thinking of the rules which attend microfinance loan participation. In the view of the authors of this paper, a broadening of the agenda for microfinance organisations, from an exclusive focus on loans towards full financial services literacy and empowerment, will prove a powerful positive impact of these efforts.

The small pilot proved to the satisfaction of the joint venture partners the value of mobile-based financial services to customers and merchants alike. It also validated the technology for the senior providers, Vodafone and Safaricom, and gave them the opportunity to improve the underlying platform. Nonetheless, users of M-PESA have been slow to adopt other available services beyond loan repayment, indicating a lingering lack of familiar with and trust of the new technology.[16] The service, and the phones on which the service was delivered, were provided free to the clients during the pilot. Full commercial acceptance will be determined during the roll-out.

Some practical and market challenges were revealed in the pilot programme, a number of which are applicable to other mobile-based system initiatives. In the pilot, M-PESA placed a limit to the total amount that could be withdrawn at any one time, with the result that clients were required to seek out multiple agents for large transactions. The number and availability of agents available during the pilot was limited and it slowed the system's adoption, although recruiting new agents proved not to be a problem. Receiving customer information and replacing lost SIMs also was found to be an inconvenience. These specific issues were addressed as the partners moved from pilot to full roll-out.

In a commercial mode, the programme plans to target the 200,000-300,000 users of microfinance services in Kenya. It will also seek to become the platform of choice for the nearly $500 million in remittances that are received annually.[17] Partnerships will be key to M-PESA's expansion. These potential partners include banks, SMEs, agricultural companies, and other businesses where moving to a cashless system adds value. Expansion into rural areas will occur where cellular coverage is available. The Kenyan roll-out, now underway, may be followed by expansion into Tanzania and other African markets.

### Celpay, Democratic Republic of Congo and Zambia

Another South African-based company is providing mobile commerce solutions directly to banks. Created by CelTel[18] in 2003 and purchased by South African FirstRand Bank in 2005, Celpay[19] is a financial services company operating in both the Democratic Republic of Congo (DRC) and Zambia. The company provides mobile banking and payment solutions for banks looking to offer access to financial transaction services to their customers. The services are accessed through the use of GSM cell phones and POS devices using mobile operators as the delivery channel.

Utilising technology provided by the mobile banking and transacting solutions company Fundamo[20], Celpay allows registered customers with an existing bank account to use their cell phones for merchant transactions, monthly bill payments, and fund transfer between participating phones.

Customers registering for Celpay receive a new secure SIM card, adding a menu to their cell phones that facilitates the payments and providing access to their Celpay accounts. Money can be added to Celpay accounts via transfers from a bank account, or by depositing cash or a cheque at a participating Celpay partner bank. Transfers made using Celpay are free to the payer, while the payee is charged a small fee for each transaction.

In the DRC, Celpay is currently partnered with four large trade banks: Commercial Bank of Congo (BCDC), RawBank, the International Bank for Africa in Congo (BIAC), and the Congolese Union of the Banks (UBC). The company is responsible for over 3 million transactions a month in the country.[21]

### Smart Communications and GlobalTelecom's G-Cash, Philippines

Smart Communications is the Philippines' leading wireless services provider with 22.5 million subscribers on its GSM network as of summer 2006.[22] The company launched the world's first electronic cash card linked to a mobile phone in 2000 through a partnership with MasterCard. The Smart Money service enables users to transfer money from a bank account to a Smart Money account. Subscribers can then use a Smart Money card like a debit card to pay for a variety of goods and services at a network of retail stores and restaurants, and transfer money from one Smart Money card to another via SMS texting.

Although Smart Money is being marketed primarily to the top-of-the-pyramid because it requires the user to have an existing bank account, the company's rapid growth is due largely to its BOP-oriented business model. Smart Buddy, the company's pre-paid GSM product, is used by 99% of Smart's subscribers. Customers can activate an account for as little as P100 (US$1.80), and top up electronically using the SMS-based Smart Load service in increments as small as P30. The low denominations have opened up an entire subset of the BOP market, enabling Smart to retain customers who may temporarily be unable to afford higher top-up amounts.

Smart sells its airtime through more than 800,000 small merchants that market predominantly to low-income populations in communities throughout the Philippines. Many Smart Load retailers are established neighbourhood stores that are able to sell re-loads to people living under the poverty line by extending their existing on-credit purchasing model already used for staples and sachets. Housewives and students acting as roving agents are also earning income as retailers. PasaLoad pushes the service further down the pyramid, by allowing customers to transfer units as low as P2 to other Smart cell phones.

Smart's sensitivity to local business practices at the small- and micro-enterprise level allowed them to capitalise on an existing distribution network that they did not have to create by themselves. The company proved the viability of targeting lower-income market segments, encouraging further price competition, and catalysing a new market for selling used handsets. By paying a 15% commission on re-load sales, Smart has also significantly increased the income of local retailers.

The company plans to continue focusing down-market as it grows. Future plans include introducing lower-cost handsets, and lowering the cost of infrastructure expansion into areas that were previously uneconomical to serve. Smart already allows customers with a bank account to transfer money and make payments through the cell phone. Increased mobile banking activity from Smart (the company already has 3 million Smart Money subscribers) coupled with more inclusion of the BOP in formal banking channels could result in new opportunities, particularly in the area of remittances.

Strong competition for the cell phone banking market in the Philippines comes from Globe Telecom's G-Cash[23] service. Launched in 2004, the service's Text-a-Payment feature allows users to send and receive cash and make payments, including bill payments, donations, and online purchases, via SMS texting. G-Cash also enables the transfer of domestic and international remittances. Globe charges a flat fee of Php10 for any transaction below Php1,000, and a 1% fee for any transaction above that amount.

Like Smart, users of the service must be a subscriber of the telecom's network. Unlike the Smart Money feature, however, users are not required to have an existing bank account to register for the service.

Globe's reach has rapidly expanded through its wide network of partners, including government agencies, utility companies, rural banks, cooperatives, insurance companies, universities, and commercial establishments. As of March 2006, there were approximately 1.3 million G-Cash registered users transferring about USD$100 million per day. Globe boasts a vast distribution network of 700,000 airtime loading retailers throughout the country, many of whom will soon be able to provide G-Cash to their clients.[24]

Both Smart and Globe are using their mobile commerce solutions to expand their customer base. Although there are five active mobile brands in the country, Smart (with a 59% market share in 2005) and Globe (36%) control most of the cellular market in the Philippines.[25] Between the two companies, more than 1.5 million independent entrepreneurs are engaged in resale of airtime and facilitation of mobile financial services. This represents a significant employment source for the country.

[16] Second Pilot Review, Microsave, April 2006.
[17] http://www.nextbillion.net/newsroom/2006/02/22/remittances-dwarf-aid-investment-in-kenya
[18] http://www.celtel.com/
[19] http://www.celpay.com/
[20] http://www.fundamo.com/
[21] http://www.fundamo.com/index.asp?pgid=45
[22] www.smart.com.ph Current numbers verified in personal communication with Ramon Isberto VP, Smart Communications, August 2006.
[23] http://www.myglobe.com.ph/
[24] http://www.chemonics.com/projects/content/GCash.pdf
[25] Robin Simpson, Globe Telecom's G-Cash a Mobile Commerce Success Story, Gartner, March 2005.

### Remote Transaction System, Uganda

Cellular networks have also been used to enable financial transactions without utilising mobile phones. In 2002, Hewlett Packard formed a partnership with a number of microfinance organisations and commercial partners[26] working in related areas to explore how technology could be used effectively to help scale microfinance. What emerged from the effort was a Remote Transaction System (RTS)[27] that supports both group and individual lending, online and batch offline processing, and back office synchronisation.

The RTS is based on the use of sturdy hand-held devices that can communicate over GSM cellular networks. Combined with the use of smart cards given out to clients and microfinance agents, the system allows to collect crucial financial data in the field and subsequently to transfer the data directly into the MFIs' computerised financial management system. The RTS eliminates the need to prepare, transport, and enter hand-written reports, reducing costs for rural operations.

Following the completion of the pilot in May 2005, the MFT disbanded, passing along the intellectual property rights to the RTS to Sevak Solutions.[28] The new charitable non-profit organisation is now promoting global dissemination of the technology by providing open-source licence agreements to interested parties. In addition, Sevak Solutions is continuing the development of the RTS and related technologies, and supports the RTS user community.

### UAE Exchange Wallet

UAE Exchange Wallet is a global money transfer system, established first in the United Arab Emirates to allow Indians to wire money home to Indian banks using their cell phone, and neither the sender nor recipient needs to visit a bank. The sender calls up Exchange Wallet on his phone, enters a PIN number, indicates whether the funds should be sent to a bank, Western Union office or another Exchange Wallet customer, and sends the money over the Internet to its destination. The company is the brainchild of Sam Pitroda, a pioneering figure in the Indian telecom industry, and now the founder and Chairman of C-SAM, with offices in Chicago, IL and India. C-sam has a wide product offering covering a host of branded and secure mobile transaction platform products both for financial and non-financial sectors.[29]

## Business briefs

This section presents short capsules introducing a variety of mobile-based financial services being introduced around the world. There is very little information available publicly – in print form or on the web – about most of these initiatives. Taken together, however, they suggest the range and vitality of efforts in this domain. We provide URLs to information resources where available.

### Bangladesh

Grameen Phone (GP), Bangladesh's top mobile service provider, recently partnered with Dutch Bangla Bank to provide its users with a mobile banking service. The service allows customers to use text messages on their mobile phones to pay their phones bill by debiting against their accounts directly, check their account balance, change their PIN code, and perform other banking functions. GP offers two services, one a voicemail-based system and the other an SMS text-based system.

http://www.financialexpress-bd.com/index3.asp?cnd=8/10/2006&section_id=7&newsid=33770&spcl=no

http://www.grameenphone.com/modules.php?name=Content&pa=showpage&pid=518

### Brazil

Banco do Brasil and Brazilian wireless operator VIVO, EverSystems launched MobileBanking in February, 2006. Initial reports indicate that the partners "are very impressed and satisfied with the usability, performance and security of MobileBanking. There's a lot to celebrate!" Banco do Brasil customers are now able to use their cell phones to access account information, and perform complex financial transactions. The bank reports that these functions can be carried out with authentication and security features identical to those of Internet-based banking.

http://brew.qualcomm.com/brew/en/developer/resources/news/archives/2005/nov_2005.html

### Colombia

Bancolombia, Colombia's largest bank, started a mobile banking service in June 2006, which allows customers to make payments, money transfers, and information requests by mobile. The service is known as Banco Movil. Bancolombia is partnering with Comcel and Ola, two cellular phone service providers to provide the service.

According to Jorge Londoño Saldarriaga, the president of Bancolombia, the bank's new service is specifically targeted at those customers – or would-be customers – who do not have easy access to physical banking infrastructure: "The bank will arrive in areas where we don't have offices or ATMs, but we will take advantage of cellular phone technology which covers all the territory."

http://www.la-republica.com.co/noticia.php?id_notiweb=63416&id_subseccion=11&template=noticia&fecha=2006-08-04

### India – ABN Amro

ABN Amro has provided mobile service since 2004. Their product, Mpower, uses SMS texting. Customers can access a wide variety of services including balance and transaction inquiries, share holdings in demat accounts ('dematerialised' account, used for purchase/sale of stocks), funds transfers to ABN AMRO and other banks, bill presentment and payment, cheque inquiry and stop payment requests, opening online fixed deposit accounts, requests for cheque books and statements, and requests for new PIN numbers and to change PIN numbers. Mpower assigns a unique PIN to the mobile phone number registered at the bank for security purposes; if the phone is stolen and someone tries to access the customer's account, the system blocks all transactions after five failed attempts at access.

http://www.epaynews.com/index.cgi?survey=&ref=browse&f=view&id=1083237870622215212&block=

http://www.abnamro.co.in/ProductsnServices/Consumer/Services/mobile_banking.html

### Kenya

The Cooperative Bank of Kenya offers five basic services via mobile: account balance verification; purchase and/or transfer of airtime from two cell providers, Safaricom and Kencell; direct salary deposit, with SMS immediate verification; mini-statements of the last three transactions, with current balance; utility bill payment. Each service costs 30Ksh, or approximately US$0.40 per transaction, which seems a fairly high barrier for low-income customers.

http://www.co-opbank.co.ke/epayments.php?cat=6&sub=72

### Nigeria

In February 2005, Globacom piloted a mobile banking programme in Nigeria. Just one month later, Globacom announced that it was ready for a commercial launch of its service. In August 2006, press reports indicate that the 'Glo M-Banking' service is averaging over 200,000 transactions a day, which indicates strong market acceptance. Mobile banking subscribers can check bank account balances, view the last five transactions on the account, transfer funds from one account to the other in the same bank, and recharge a prepaid line of credit.

According to bank officials the Globacom service is the first of its kind, allowing bank customers to 'interface' with a variety of banks. As of 2005, the following banks participated in the programme: First Bank Nigeria Plc, Guaranty Trust Bank, Zenith Bank, Afribank, Oceanic Bank, Wema Bank, Chartered Bank, Platinum Bank, Prudent Bank, Standard Trust Bank, Universal Trust Bank, Bond Bank, Gulf Bank, National Bank, First City Monument Bank, United Bank of Africa (UBA), Continental Trust Bank, Diamond Bank, EIB International Bank, Equitorial Trust Bank, Magnum Trust bank, Union Bank and Acess Bank. To use the service, a customer must register at any of the participating banks. Once the service is activated, the customer will receive a welcome text message on his mobile phone. From here, to access the service, the customer will need the PIN issued by the bank.

http://www.mobileafrica.net/n140.htm

http://www.sunnewsonline.com/webpages/features/suntech/2006/aug/16/suntech-16-08-2006-001.htm

[26] http://www.hp.com/e-inclusion/en/project/uganda2.html?jumpid=reg_R1002_USEN
[27] http://www.nextbillion.net/files/RTS.pdf
[28] http://www.sevaksolutions.org/
[29] http://www.c-sam.com, http://timesofindia.indiatimes.com/articleshow/1051551.cms

### South Korea

While not a developing country, South Korea has adopted mobile banking with enthusiasm. According to **Business Week**, as of 2004, as many as 581,000 Koreans made about 4 million bank transactions using their mobile phones. "All of South Korea's retail banks now offer mobile banking, and every month, more than 300,000 people buy new phones equipped with a special slot where subscribers can plug in a tiny memory chip with their banking data and an encryption code for secure transactions."

Already, tens of thousands of restaurants and stores have terminals that read credit card information from phones via infrared beams, letting customers avoid the hassle of swiping cards. And Seoul commuters can have bus and subway fares deducted from their accounts by flashing their phones as they pass the turnstiles.

Carriers benefit too. They gain a new revenue source – subscribers pay a monthly fee of 70¢ for the service – and a new way to keep customers from defecting to rival operators. LG has even used the service to expand its retail presence: The company now sells phones and signs up new subscribers at 2,800 bank branches, in addition to its 580 storefronts. "This has become a pillar of our sales drive," says LG's Hyun. As of August, LG had sold 1.1 million banking-ready handsets.

Another plus: The service gets a new set of customers hooked on using their cell phones for more than voice calls. Whereas other trendy new mobile services such as multimedia e-mail, video clips, and music downloads appeal largely to the young, banking is most popular among people in their 30s and 40s. To better serve these newcomers, SK Telecom (SKM ) may soon start offering ticket sales and shopping services to its mobile banking clients. "Banking will be another leap forward for our data service," says Cha Jin Seok, vice-president in charge of the mobile financial division of SK.

Korea: Mobile banking takes off.
http://www.businessweek.com/magazine/content/04_39/b3901068.htm

## Lessons being learned

Our intention here has been to pull together a range of activities from around the world, and from a broad range of stakeholders, to provide evidence of the revolution underway. While everyone is learning as they go, one can draw some early lessons.

First, in BOP markets, as in all markets, the first rule is to 'know the customer.' The BOP has suffered both from a lack of appreciation as an accessible and worthy market and from an acute lack of hard data on low-income individuals as economic actors. The experience in the IT sector – and new research – is beginning to elevate those in base-of-the-pyramid markets to their fully-justified position as real customers, on a par with other higher-income population markets.

Second, to achieve success in the BOP, new business models are proving a necessity for the BOP – a willingness and ability to move away from traditional 'A' market models (high gross margin, high unit cost) and adapt to the economic realities of the (now more fully understood) consumers. As a corollary, BOP-specific products and services (as opposed to stripped down versions of top-of-the-market products and services) designed around better knowledge of the customer, and based on purpose-built advanced technology seem to be finding traction.

Third, successful entrants are building from the ground up, engaging local communities deeply and are appreciating the potential size and strength of the market and thus committing for the long haul.

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