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CASE STUDY

Sub-Saharan Africa • Kenya

Vodafone and Safaricom Kenya: Extending the Range and Reliability of Financial Services to the Poor in Rural Kenya

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Sector • ICT & Financial Services

Enterprise Class • Southern & Northern MNCs

Summary

In Kenya there are less than two million bank accounts serving the country's population of 32 million people. The reasons for this disparity include the high cost of banking and the fact that the majority of the people have low incomes with a large percentage of them living on an average of one dollar a day. Such people do not feel comfortable interacting with commercial banks that typically target middle and upper income customers. Micro-Finance Institutions (MFIs) such as Faulu Kenya do successfully provide financial services for the poor, but they are hampered by poor infrastructure and low levels of technology.

In order to address this problem Safaricom Kenya, one of the two mobile service providers currently operating in Kenya, developed an appropriate technology. The result was MPESA, an electronic money transfer product aimed at making financial transactions faster, cheaper and more secure. MPESA allows transfer of money between individuals, transfer of money between individuals and businesses, cash withdrawal and deposit at registered retail outlets as payment for goods and services through the mobile phone short message service (SMS). MPESA account holders can deposit or withdraw money into or from their virtual accounts at Safaricom vendor shops or at an increasing number of outlets such as supermarkets and petrol stations. Once the money is their accounts, they can use it to pay bills, transfer to other people or purchase goods and services.

In October 2005, MPESA trials were successfully launched in Kenya, featuring eight Safaricom dealer shops and 450 Faulu Kenya clients and concluded in May 2006. Vodafone Group Plc provided 990,000 Sterling pounds and DFID 910,000 pounds sterling to finance the pilot project. Consult Hyperion a British ICT firm developed the technology that was utilized by mobile service provider Safaricom Kenya through dealers, retailers and MFIs among others. The product has been successfully launched by Safaricom and plans are underway to recruit more financial institutions and retail outlets. Trials on new training methods for potential MPESA users are also under way. Vodafone also plans to introduce the system in other developing countries.

Introduction

The lack of an efficient, affordable banking infrastructure is a contributing factor in the persistence of poverty in rural Kenya. The country's rural areas are home to two-thirds of the country's population, yet in many of these areas, banking infrastructure is almost non-existent. Even in urban areas where the remaining one-third of the population is to be found, the majority of people still do not use any formal banking systems. The statistics speak for themselves: there are less than two million bank accounts serving the country's population of 32 million people. The reasons for this include the high cost of banking and the fact that the majority of the people have low incomes, with a large percentage of them living on an average of one dollar a day. Such people do not feel comfortable interacting with commercial banks that typically target middle and upper income customers and are geographically remote from them.

Several initiatives have demonstrated that low-income people living within the informal cash economy could be profitably served through financial products and services that are realistically tailored to meet their needs. Micro-Finance Institutions (MFIs) are a case in point. Based on the pioneering work of Grameen Bank, MFIs have proven that lending to the poorest people can be profitable. Kenya has several well-developed Micro-Finance Institutions that provide credit to low-income earners. However, MFI activity is hampered by the difficult conditions they operate under, characterized by low levels of technology and a lack of proper infrastructure. A case in point is the telephone system. Although the landline telephone system has existed for almost a century in Kenya, it has never reached more than 300,000 subscribers and certainly not low-income people. Until the advent of mobile telephony in 2000, most Kenyans did not have access to communication services.

One of the challenges faced in offering financial services for the low-end of the market is money transfer. Among the middle and upper income brackets more options are available including electronic money transfer among commercial banks, the automated teller machine system and businesses such as Western Union. These options are expensive and therefore not suitable for the poor. In fact, the options available to the poor are severely limited, yet the poor have as much need for money transfer services as upper and middle-income people. This need ranges from receiving wages to paying for goods and services to sending money to schoolchildren. The Kenya Post Office (known as Posta) did have a system in place for transferring money through postal orders, but it was notoriously inefficient. Posta is currently in the process of reinventing itself to compete with rivals such as Western Union, but it has a serious credibility problem to overcome. There are also numerous small-scale enterprises offering similar services. However, there are currently none that are significant in reach and scope. For example, some transport firms offer such services along the routes they serve. The service offered is necessarily limited and therefore relatively expensive.

The need to tackle these challenges compelled six organizations to collaborate to develop a solution. Vodafone Group Plc, Safaricom Kenya, Department for International Development (DFID), Faulu Kenya, Microsave and Commercial Bank of Africa entered into a partnership aimed at addressing this gap. As a result, on 11 October 2005, Vodafone and its affiliates introduced MPESA, a mobile phone technology aimed at improving the efficiency of micro-finance organizations by making money transactions faster, cheaper and more secure.

The Partnership

MPESA was an original idea of Vodafone. Vodafone initiated discussions among the partners with the overall aim of extending social benefits to mobile phone subscribers. Safaricom Kenya provided the local mobile telephone network, Vodafone and DFID funded the pilot project, Faulu Kenya provided the micro-finance clients who pilot tested MPESA and the Commercial Bank of Africa was the banker to MPESA. A further description of the partners and their complementary roles in this initiative follows below.

VODAFONE GROUP PLC

Vodafone Group Plc is a global mobile network provider, offering a wide range of mobile telecommunications services. The firm has equity interests in 27 countries and partner networks in an additional 32 countries. Safaricom Kenya is one of the partner networks. In 2004, Vodafone introduced a Social Investment Fund worth five million pounds sterling (US$9.8 million). The mission of the Fund is to help catalyze the development of products with not only commercial viability but also a high social value.[1] Using this fund, Vodafone has been able to develop other innovations such as the Vodafone speaking phone for the visually impaired and the Vodafone mobile text phone service that enables the deaf to have conversations with their normal-hearing counterparts. From the Social Investment Fund, Vodafone committed 990,000 pounds sterling (US$1.9 million) towards the MPESA pilot project, which constituted 52 percent of the total amount needed to carry out the trials.

THE DEPARTMENT FOR INTERNATIONAL DEVELOPMENT (DFID)

DFID is the arm of the British government that manages aid to developing countries. DFID, through their Financial Deepening Challenge Fund[2] (which funds the piloting and development of financial services amongst poor communities) invested 910,000 pounds sterling (US$1.8 million)[3] in the MPESA pilot project, which was 48 percent of the total budget for the trails. Together, the money from Vodafone and DFID was collectively used to run the pilot project. Some of the costs included replenishing floats at Safaricom MPESA dealer shops to ensure availability on demand by the MPESA subscribers.

SAFARICOM KENYA LIMITED

Safaricom Kenya Limited is the leading mobile telephone operator in Kenya, with over six million subscribers, 1,000 employees and ten retail shops countrywide. It was founded in 1997 as a branch of Telkom Kenya, which remains the country's only landline telephone service provider to date. In May 2000, Vodafone acquired 40 percent of Safaricom's shares, while the government of Kenya retained 60 percent. Safaricom aims to remain as the leading mobile network operator in Kenya and is currently the most profitable company in the country. Safaricom announced Sh12.2 billion (US$175 million) in pre-tax profits for the year at the end of March 2006, from a turnover of Sh34.9 billion (US$499 million). The reported profits were made from serving 3.9 million subscribers.[4] The company had grown to six million subscribers as of February 2007. Since the year 2000, when mobile telephony entered mainstream society in Kenya, Safaricom and the other mobile service operator Celtel have provided communication services for over nine million Kenyans, many of these being low-income people. Safaricom Kenya provided the local telephone network for the MPESA pilot project.

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[1] Vodafone website. Available at www.vodafone.com/article/0,3029,CATEGORY_ID%253D30403%2526LANGUAGE_ID%253D0%2526CONTENT_ID%253D278612,00.html.

[2] http://www.financialdeepening.org/default.asp?id=1&ver=1

[3] The conversion uses the mean exchange rates in Kenya for January 2007 where 1 USD is Ksh 70 and 1 pound sterling is Ksh 136

[4] Kenneth Kwama. October 31, 2006. "The Next Big Thing". *The Standard.*

FAULU KENYA

Faulu Kenya is a micro-finance organization operating in most parts of Kenya. Faulu has a client base of 100,000 low-income people who borrow sums of money ranging from US$300 to $20,000. The great majority of Faulu clients borrow sums at the lower end of this scale. The lending model is group-based with the clients organized into groups that mutually guarantee members for their loans. The group applies peer pressure on members to repay, since future loans to the rest of the members are dependant on debtors repaying. The model has been highly successful in Kenya with MFIs reporting a 96 percent loan repayment rate (commercial banks average 75 percent). Faulu Kenya was selected for the pilot based on its nationwide coverage, accessibility to the low-income earners and its capacity to integrate the new technology with existing operations. Faulu partnered with the other organizations to evaluate MPESA’s potential as a means of disbursing and recovering micro-finance loans. Four hundred and fifty Faulu clients participated in the pilot. They were organized into 21 groups, each with a Faulu field officer. The groups were selected by Faulu Kenya to represent both their urban and rural-urban clients.

COMMERCIAL BANK OF AFRICA

The Commercial Bank of Africa is the largest privately owned Kenyan bank whose primary focus is corporate and institutional banking. Its efforts and resources are channeled towards providing an efficient, personal and stress-free banking experience to corporations, foreign missions, NGOs and the high-end of the personal banking market. The value in every MPESA account shadows real money held in the MPESA system.

MICROSAVE

Microsave is an NGO funded by DFID (among others) that provided micro-finance industry experience and expertise.

The MPESA Technology

DEVELOPMENT OF THE PRODUCT

After an incubation and development period by the partners, trials to prove that the MPESA concept would work for microfinance organizations were launched in Kenya in November 2005. With eight agent shops recruited from Safaricom dealerships, MPESA trials took off in Central Nairobi, in Mathare (a Nairobi slum) and in Thika (a market town an hour’s drive from Nairobi). The trial involved 450 clients of Faulu Kenya.

The developed system was named MPESA, and it enabled the use of mobile phones to transfer money between virtual accounts. The system allows customers to use mobile phones like a debit card, with transactions being implemented through text messaging. The MPESA solution was to allow users to make four basic types of money transfers:

- Transferring between individuals
- Transferring between individuals and businesses

- Cash withdrawal and deposit at registered retail outlets
- Disbursement and repayment of loans

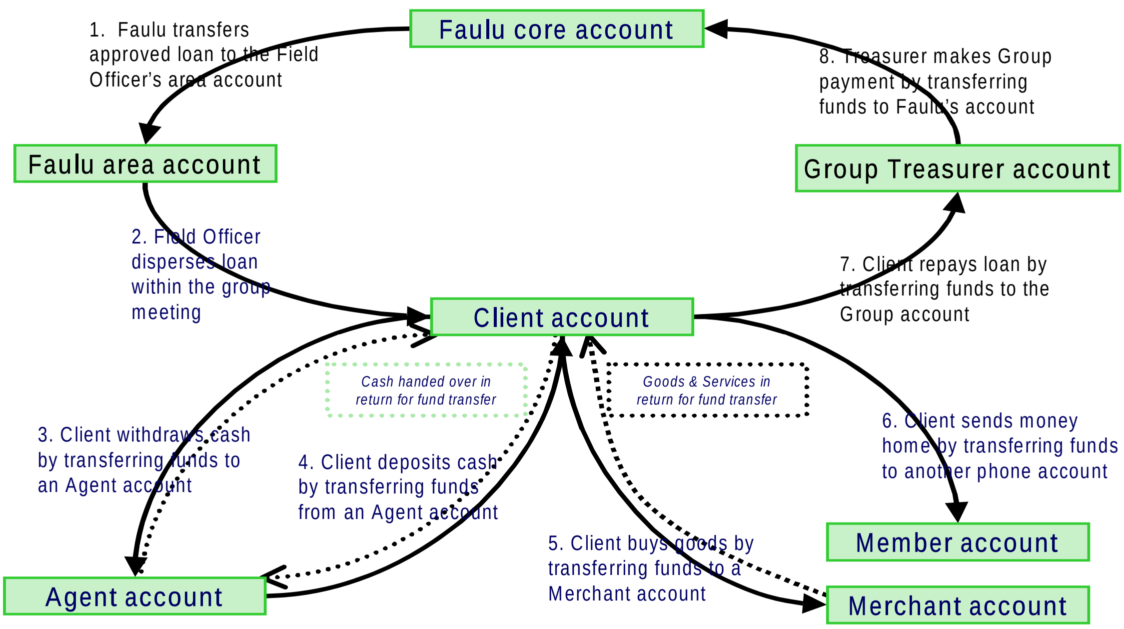
The system would also enable customers to access account information such as balances and payments. After the pilot, the system evolved away from loan activities.

HOW MPESA WORKED

At the start of the pilot, the clients selected to participate were issued cell phones equipped with a special subscriber identity module (SIM) card. The special SIM card enabled the virtual transactions to be tested. Clients holding MPESA accounts applied for micro-finance loans in the normal way, but when the loan was granted, they were not given a cheque or cash. Instead the money was transferred from Faulu's MPESA bank account into the Faulu field officers MPESA account. The field officer then dispersed the loan via SMS to the micro-finance clients at a group meeting. The client then had many options: she or he could withdraw cash from an authorized agent shop, transfer value to other individuals or pay for purchases from merchants.

Clients of Faulu may turn their loans into cash by visiting nearby authorized retailers such as Safaricom shops or other outlets and transfer credit from their phones to the shop, receiving cash in return. The retailers receive a commission for each transaction. The clients also have the option of paying for goods and services by transferring value from their accounts to the retailers' MPESA accounts. Figure 1 illustrates how loans are released from Faulu MPESA account and subsequently used in transactions.

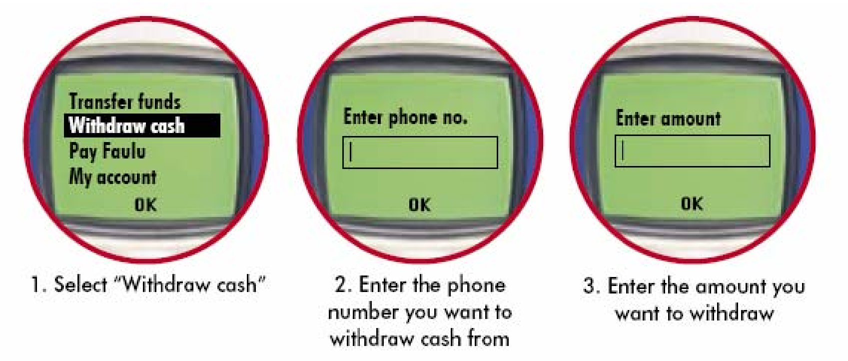
Figure 1: The M-PESA Process: Client Money Movement



Source: Lonie, S (2005)

Customers wishing to withdraw money from their MPESA accounts first need to see the agents to confirm whether the amount of cash they need is available. If the cash is available, the customers will navigate to the MPESA service menu and choose “withdraw cash.” On the mobile phone screen, customers are taken through simple, pre-programmed instructions that will have them enter the phone number from which they want to withdraw cash (the agent’s number), the amount they want to withdraw and their secret personal identification number. The pre-programmed instructions will guide the customers in confirming the details they have entered and in texting them to MPESA, upon which they receive an SMS from MPESA confirming that they can withdraw the cash. MPESA will send the agent an SMS, authorizing him or her to issue the cash (see Figure 2).

Figure 2: Withdrawing Cash at an Agent’s Shop



Confirmation of the transaction

Source: Lonie, S. (2005)

Similarly, to top up a MPESA account, one needs to make a visit to the MPESA agent shop with the cash they want to be entered into their MPESA account. The agent will then send an SMS to MPESA, which moves the money into customers' accounts. In turn, the customers receive an SMS from MPESA confirming that the money has been sent into their accounts and that they can give their cash to the agents. The agent receives an SMS as well, confirming that the money has left their account and that they can accept the customers' cash.

MPESA works off a new generation SIM card with specially designed software. Subscribers with old SIM cards who want to open MPESA accounts have to replace them with the new generation SIM cards. This is easily done at mobile dealerships for a small fee. From every transaction, the MPESA Operations Account receives a small fee from the appropriate party. During the pilot, Faulu Kenya related transactions such as client withdrawals and transfers were based upon a set fee schedule. Current charges for all MPESA users range from Ksh 30 to 400 (US$0.43 to $5.71) for transfer transactions based on the amount transacted. For example, to send money to a registered MPESA user, one would pay US$0.43 for sending US$35 and US$5.71 for sending US$500.

MPESA Pilot Results and Feedback

As the MPESA pilot project evolved, the key benefits of the system were found to be the following:

- Security– MPESA was a safe way to send money, and customers had no need to carry cash.
- Convenience– Using MPESA negated the need to travel to the bank and queue
- Efficiency– Customers can bank money and pay loans without leaving their businesses or homes
- Simplicity– MPESA is fast and easy to use

Feedback gathered from the participants in the MPESA pilot also identified issues that needed to be further addressed:

- Training is needed for people unfamiliar with mobile phones
- Training is also needed for people who are unfamiliar with banking
- Wireless access– some of the more remote areas of Kenya are still not covered by mobile networks
- There is need to further integrate the existing processes within MFIs to accommodate MPESA

Development Impact

MPESA's pilot phase was concluded in May 2006; therefore, its full potential impact is still to be determined. However, if the results of the trial are any indication, the new product is likely to have a remarkable impact on its consumers- especially micro-finance clients living below one dollar a day and unable to acquire formal bank accounts. The impact of MPESA, a product that uses mobile phone technology, can be analyzed in terms of time, cost effectiveness, security, development of new markets and business growth. The benefits are expected to cut across gender and age groups.

TIME

The new system saves time for both consumers and banking service providers, such as MFIs. Consumers are able to access financial services without the need to visit banks or teller machines. Micro-finance institutions have the advantage of profitably availing services to customers they would not otherwise have been able to serve.

COST EFFECTIVENESS

Through the MPESA system, clients are able to move any amount of cash at a reasonable fee. This is particularly favourable for the poor who engage in very small transactions that are uneconomical to perform through banks. Likewise, employers can send daily wages to their employees in small denominations cheaply and conveniently. Payment of services can be made at minimal expense since they will be in a position to transfer the money through the phone, thus saving on transport costs. MFIs also experience a reduction in the costs related to loan disbursement and administration. All of this results in considerable savings.

GROWTH OF BUSINESSES AND NATIONAL GDP

The fact that MPESA can potentially be incorporated into micro-finance institutions means that the concept has the capability to stimulate entrepreneurial activity in the low-end of the market. This means that micro- and small-scale entrepreneurs, such as green grocers, barbers, shoe shiners and the like making barely one dollar a day, will have access to MPESA as a banking facility. This translates into opportunities for business growth. According to a research report from Vodafone, a nation with ten mobile phone holders for every one hundred people experiences growth in Gross Domestic Product that is 0.6 percent more than other comparable nations with much lower mobile phone penetration.[5]

SECURITY

MPESA has reduced the risks involved in handling money, since customers do not deal in cash but instead transact using mobile phone accounts. This is a much more secure system. MPESA uses personal identification numbers for security and will freeze accounts on suspicion of fraud.

GENDER SENSITIVITY

Women have equal opportunity for accessing money transfer as well as men so long as one is a mobile telephone subscriber with Safaricom Kenya. However because Kenyan women tend to have a heavier workload (and lower income) than men, they are likely to benefit more in terms of time saved and cost effectiveness.

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[5] Derived from A talk by Chief Executive of Vodafone, Arun Sarin on “Mobile Technology - A catalyst for social economic growth in developing Economies,” presented in British Museum on 20 February 2006.

Challenges

Before the MPESA pilot, there were worries that the new system would turn out to be too complicated for the illiterate consumer. To tackle this problem, Vodafone and Safaricom decided to encourage Faulu to provide consumer training. The training was very successful, because even those with low levels of literacy were able to use the system effectively. There were also concerns about the system's security, both in terms of encryption and physically. Vodafone easily solved this by including both a PIN and an account freezing protocol in their system.

The new system still has to face various challenges including the fact that some consumers may be unable to use the system, the reality that low-income consumers are largely unfamiliar with banking procedures and the absence of mobile telecommunications networks in some parts of Kenya. Each challenge is further described below.

INABILITY TO USE MOBILE PHONES

Mobile phone technology is a relatively new concept in Kenya and is utilized by less than a third of the country's population. Thus, the majority of Kenyans first need to be converted into mobile phone users before they can be converted into MPESA account holders. Also, consumers with very low levels of literacy may find it difficult to use the text messaging function of mobile phones.

UNFAMILIARITY WITH BANKING PROCEDURES

Due to high rates of poverty and illiteracy, coupled with a lack of exposure, many people in Kenya do not have bank accounts and are not familiar with the procedures for depositing, withdrawing and sending cash; nor are they familiar with the procedures for receiving and repaying loans. Such people, living mainly in remote areas, may find the new system too sophisticated and may resist Vodafone's attempts to introduce it to them.

MOBILE NETWORK HAS A LIMITED REACH

Some areas in Kenya are not covered by Safaricom's mobile phone network. These areas consist of very remote places inhabited mainly by the very poor. Such people have limited access to the new product.

Innovations

The above challenges not withstanding, MPESA still remains a valuable case study of digital financial transfers in action. MPESA's innovations include the following:

- Replacing cash with electronic money among low-income people
- Applicability for both urban and rural poor
- Radically reducing transaction costs for the poor
- New functionality including remote payments or other monetary transactions

Scalability & Replicability

The MPESA system is meant to provide the poor with efficient, reliable and affordable banking services and to simultaneously stimulate business operations that provide the poor with a means of livelihood and employment. To turn these intentions into reality, Vodafone and its partners plan to expand MPESA to other local MFIs and banks so that they can reduce transaction costs and more easily provide access to affordable loans for micro-entrepreneurs. Safaricom and Vodafone benefit from the system by charging a small fee for every transaction conducted through the system. By keeping transaction costs very low, millions of Kenyans can be drawn into the new system, resulting in millions of transactions being conducted through the system daily and eventually creating bigger profits for Vodafone and Safaricom. The MFIs on the other hand, would make profits through the interest they can charge on loans and through the fees that they can charge for all the transactions they would conduct for their clients through the MPESA system. DFID can benefit by succeeding in their mission to reduce poverty in Kenya.

The trials have already proved the viability of transferring money and accessing loans through MPESA. Currently, Vodafone and Safaricom and their partners are preparing to launch MPESA into the mainstream Kenyan market. The preparations involve, among other things, the recruitment of financial institutions and agents and the trial of new methods of training. Safaricom and Vodafone also intend to introduce the system into the field of low-cost international money transfers. For a long time, the provision of these services has been the territory of Western Union and other foreign firms that have charged high fees for their service. With the advent of MPESA, the fees are likely to tumble. Vodafone also intends to roll out the system in other countries where it has a presence, including Tanzania, Egypt, Albania and Fiji.

The MPESA model is replicable by any mobile service provider for any MFI or banking service provider in the low-end of the market, as well as in any developing country where such businesses exist. Although the technology was piloted for MFIs, the money transfer function is likely to transcend this sector. During the pilot, the test group used the system to transfer money among individuals and even topped up the money in the MPESA accounts using airtime credit. This was despite the fact that all individuals in the test group were clients of an MFI and that the test was basically for loan activities of the MFI. Such activity accounted for almost 30 percent of the usage of MPESA during the pilot. Therefore, it appears safe to assume that when the technology is launched in March 2007, this activity will become more and more important. The need for fast, efficient and safe money transfer exists among all low-income people.

Conclusion

Safaricom plans to further expand its subscriber base by 800,000 new subscribers by mid 2007, most of whom are expected to be the rural poor. In order to effectively serve this new market with the MPESA system, Safaricom intends to implement the following:

- Expand network infrastructure in rural areas with increases in base stations
- Expand offerings of cheaper, flexible tariffs: Safaricom is working on a pricing strategy that will take into account the low-income levels in rural areas
- Partner with Motorola to offer cheap phones with longer battery life as part of new tariff packages for rural customers who often have limited access to electricity

Safaricom already sells airtime in small units costing US$0.68, and airtime is already transferable among consumers. Both of these features have proved very popular among low-income consumers, and this is expected to further promote MPESA among the poor for the benefit of everyone involved.

References

Andrew, H. 2005. "Mobile Microfinance: Vodafone's Africa Initiative." Centre for the Study of Financial Innovation.

Centre for the Study of Financial Innovation. Official website. Available at www.csfi.org.uk.

Commercial Bank of Africa. Official website. Available at www.cba.co.ke.

Consult Hyperion. Official website. Available at www.chyp.com.

Digital Money Blog. 2006. "Mobile payments and Microfinance."

Digital Money Blog. 2006. "Mobile banking in Africa."

Kwama, K. 2006. "The Next Big Thing." The Standard. 31 October 2006. Available at http://www.eastandard.net/mag/mag.php?id=1143960361&catid=49

Lonie, S. 2005. "How Cell Phone Technology Can Mobilize Microfinance." Vodafone Group plc.

Lonie, S. 2006. "Mobile financial services for the third world Kenya pilot." Vodafone Group plc.

Microsave. 2004. Virtual Conference on E-Banking for the Poor.

Safaricom. Official website. Available at www.Safaricom.co.ke.

Vodafone. Official website. Available at www.vodafone.com.

Interviews

Kagoi, James. Safaricom Dealer. Superior Phones Ltd. 2006.

Kimani, Joseph. Trainee Development Officer, Faulu Kenya, Ngara Branch. 2007.

Kiiru, Samuel. Faulu Kenya Client. Electronics Dealer. 2006.

Maina, Lydia. Safaricom Dealer. Virtual Mobile Ltd. 2006.

Njoki, Lillian. Senior Development Finance Officer, Faulu Kenya, Ngara Branch. 2007.

Waiganjo, Patrick. Trainee Development Officer, Faulu Kenya, Thika Branch. 2006.

Watoro, Gerald. Faulu Kenya Client. Restaurant business. 2007.

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The information presented in this case study has been reviewed and signed-off by the company to ensure its accuracy. The views expressed in the case study are the ones of the author and do not necessarily reflect those of the UN, UNDP or their Member States.

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