

# ICT4D

**MOBILE BANKING –  
FINANCIAL SERVICES  
FOR THE UNBANKED?**



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The views and interpretations expressed in this report are the authors own and do not necessarily reflect those of The Swedish Program for ICT in Developing Regions, SPIDER.

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## Foreword

SPIDER is committed to promote the deployment of ICT for development in developing countries. Mobile Technology has seen an unprecedented development and growth during the last few years and it is becoming a major catalyst for economic and social development. Hundreds of mobile applications ranging from games to GPS and mobile health to mobile banking have been developed, while prices for both handsets and air-time are decreasing. Hence, mobile communication is becoming increasingly affordable for the poorer segment of the population. Worldwide, there are fewer than one billion bank accounts, but more than three billion cell phones. Can mobile operators fill a gap to bank some of those currently not served?

It is fascinating that in the Philippines, more and more people are using mobile phones to take out and repay loans, pay bills, buy goods, make donations, transfer cash and even purchase fast-food burgers; and according to the Asian Development Bank, the service is available to more than 95 percent of the population.

This publication is a result of the SPIDER commissioned study where the objective was to see if any conclusions can be drawn regarding mobile banking as a viable alternative for rural sub-Saharan Africa. This study provides a snap-shot of the current situation and analyses the possibilities and the prerequisites for broader diffusion of M-banking in Africa.

The enthusiasts tag M-banking as double leapfrogging, the first one from landline to mobile and the second one from traditional banking to virtual banking, but the picture is not all that rosy. Challenges and uncertainties remain, for example to reach a deeper understanding of demand, usage, and impact amongst lesser-off market segments. A further challenge is to balance the regulatory evolution between openness towards new entrants and approaches on the one hand, and consumer protection and market confidence in financial systems on the other.

We hope that the findings of this study will act not only as a catalyst in raising the awareness about the potential of M-banking in Sub-Saharan Africa but also facilitate in the development of international regulatory frameworks for monitoring and regulating m-payments.

Dr Afzal Sher  
Director, SPIDER

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## Acronyms

ABSA	Amalgamated Banks of South Africa
AML	Anti Money Laundering
ATM	Automatic Teller Machines
CBA	Commercial Bank of Africa
CBK	Central Bank of Kenya
CEO	Chief Executive Officer
CFT	Combating the Financing of Terrorism
CGAP	Consultative Group to Assist the Poor
DFID	UK Department for International Development
DRC	Democratic Republic of Congo
EAC	East African Community
E-Commerce	Electronic Commerce
ECOWAS	Economic Community Of West African States
FNB	First National Bank, South Africa
FSD	Financial Sector Deepening Trust, Kenya
GDP	Gross Domestic Product
GSM	Global System for Mobile communications (originally Groupe Speciale Mobile)
ICT	Information and Communication Technologies
ICT4D	ICT for Development
ID	Identity (or identity card)
IFC	International Finance Corporation
ITU	International Telecommunication Union
KSh	Kenyan Shillings
KTH	Royal Institute of Technology, Stockholm
KYC	Know Your Customer
M-banking	Mobile Banking
MNC	Multinational Corporation
M-transactions	Mobile Transactions
MTN	Mobile Telephony Networks Holdings (company group, in this case the South African company)
NGO	Non-Governmental Organisation
SABA	South African Bank of Athens Ltd
SACCO	Savings and Credit Co-operative

## ACRONYMS

SADC	Southern African Development Community
Sida	Swedish International Development Cooperation Agency
SIM	Subscriber Identity Module
SMME	Small, Medium and Micro Enterprises
SMS	Short Message Service
SPIDER	Swedish Program for Information and Communication Technology in Developing Regions
STK	SIM Toolkit
USD	Unites States Dollar
USSD	Unstructured Supplementary Service Data
ZAR	South African Rand

## Executive Summary

This report focuses on the role of Mobile Banking and its potential to provide basic banking services to the vast majority of ‘unbanked’ people in sub-Saharan Africa. The rationale for M-banking as an appropriate tool for transforming banking stems from two observations; traditional retail banks do not deliver services tailored to fit the currently unbanked, which has led to a gap in the market. Further, the fast diffusion of mobile telecom networks has enabled M-banking service operators to draw on the geographic coverage of mobile networks and diverse needs of the client base. Hence, the common assumption behind M-Banking ventures is the potential of mobile phones as a channel for undertaking financial transactions. The objective of the study is to take a fresh look at the current M-Banking experience in a selected number of countries using primary and secondary data from the existing pool of literature.

A key market driver for the diffusion of mobile banking services is increasing income levels and permanent employment. This is corroborated by literature reviews that show that most unbanked have consequently no formal earnings, rely on farm income, or live on ‘welfare’ from friends and family (Finscope, 2007). Moreover, irregular income, earnings too small or earnings too small to save are also reasons for not having a bank account (Finscope, 2006). What is demanded across income levels is the need to “move money”, i.e. remittance that is a common phenomenon in sub-Saharan Africa which includes remittance from abroad as well as from urban to rural areas.

The importance of Telcos should not be underestimated, being in control of the mobile telephony networks. However, the Telcos seldom operate independently and in most cases team up with a traditional retail bank to complement their core competence. Three distinct models have been identified; telco-led, bank-led, and an independent “hybrid” version. The oldest model is actually the bank-led that was introduced as an extension or add-on to existing services; not for reaching new customer segments. Increasingly and more recently traditional banks are looking into M-Banking as a means to acquire new customers from previously unbanked segments. The “hybrid” model comprises an innovate way of offering M-Banking across mobile networks in cooperation with telcos and banks, but spearheaded by a non-incumbent firm.

From the case illustrations presented a number of lessons can be learned. The case of WIZZIT tells us about the cumbersome innovation process for a small player to overcome market inertia in spite of technological success. Market uptake is slow, which is a result of user need and behaviour rather than technological reasons. M-Pesa's relative achievement in Kenya with an offer that is more simple and limited has in a short period of time diffused to a large number of users, points to other factors of success such as building extensive agent networks, cash in/out systems suited for a cash economy, and the advantages of offering a reduced set of services. Retail banking has low credibility amongst the unbanked, and to switch from add-on M-Banking to transformational banking will require a substantial shift in customer focus.

A major blocking mechanism for increased use of banking services has been the bureaucracy involved in acquiring an account. The process for signing-up as an M-Banking customer is somehow simplified but client's safety and money laundering require KYC (Know Your Customer) procedures. Since rural population rarely holds national ID documentation, a number of alternative means of verification have evolved such as letter from village heads and employers. The lighter control of M-banking is justified by the regulatory enforcement that limits ceiling amounts for transactions and account balances.

M-Banking regulations also affect the preferred model of operator entry, such as the need for a banking license or a partnership with a bank, limitations on transactions, management of float and deposits, and other consumer protection measures.

The study's review of M-Banking boils down to four main areas that have a bearing on its role in providing financial services for the unbanked: a) real demand, b) the drivers for further market development, c) role of policy and regulation, d) investment incentives.

Unbanked are predominantly rural poor people that live in a cash-based economy which is highly informal. This is the current situation which will not change unless economic development takes off. But unbanked people are willing to adopt new technologies when they meet real needs; i.e. solve a problem worth paying for. The study pinpoints transactions or remittance as the strongest market driver for the time being.

The M-banking markets that show high growth rates are driven by such explicit demand; e.g. M-Pesa in Kenya. Whether M-banking will support economic development or follow in its track is not hitherto verified in the existing pool of evidence. More advanced M-Banking behaviour among the previously unbanked is yet to begin. M-Banking should rightly be viewed as M-transaction based on the study's observation.

Policy and regulation has so far been fairly liberal to ongoing M-Banking ventures by allowing operation under exemptions or non-banking license. Hence, from the perspective of regulators M-banking has not been seen as fully-fledged banking but as a hybrid between Telecom and banking. There are different interpretations, South Africa with the more strict and bank-like regulatory framework, whereas Kenya has taken a totally different stance; M-Pesa is not defined as "banking".

The motivation to invest varies, but short-term profits are not a pivotal driver. Marking future territory, lowering churn rates (the frequency by which a mobile operator's customers change operator), and strengthening the brand are a few possible motives for offering a service with seemingly low rates of return. Most likely M-banking operators with financial solidity, probably drawn from other business areas, will be able to wait for future revenues.

To conclude, future diffusion of M-banking depends on the organizing of markets and the interplay with regulation. Technology per se will not comprise the main hurdle but how to meet the real needs in a dynamic market place.

The donor community has been more active in pursuing studies than directly intervening in the market. Generic support to enhance awareness of M-banking is one possible task at hand, and another is to facilitate development of international regulatory frameworks to cater for international standards and future international mobile transactions. The relationship between M-banking and economic development should be better understood before substantial support is considered.

## Acknowledgements

This study on M-Banking took place between February 2008 and September 2008, with field research conducted in South Africa, Kenya, and Tanzania between March and July 2008.

First, thanks to SPIDER for providing the financial means to carry out the study, and a special thanks to Karoline Beronius of SPIDER for support and feedback.

More importantly we would like to express our gratitude to all – see interview list – who took the time to discuss M-banking with us. Your experience and knowledge forms the backbone of this report.

Lennart Bångens  
Björn Söderberg

## Background

Banking services using mobile phones (M-banking) have been available in developing as well as developed countries for several years, but it is not until recently new modalities of applying M-banking have started to diffuse rapidly to previously unbanked people. The main driver for the rapid development is the new M-banking services that are less expensive and have a geographical footprint defined by the reach of mobile networks in contrast to services offered by traditional retail bank branches, that are out of reach for many people in rural areas from both an economic and geographical perspective. The main benefits to rural users are affordable, fast and secure transactions. The topic is interesting as M-banking access amongst previously unbanked groups is believed to have a direct, positive effect on users, positively affect a transition from informal to formal transactions and hence alleviate poverty and add lubricant to the overall economic development machinery.

### M-banking in brief

Mobile banking, or M-banking, is the term we use to describe financial services delivered via mobile networks using mobile phones. Normally, such services include depositing, withdrawing, sending and saving money, as well as making payments. (Using a laptop and an Internet connection as the link to the bank would instead be referred to as Internet banking.) M-banking is by Porteous (2006)<sup>1</sup> separated into two categories; additive and transformational, where the additive model uses M-banking as an extra access channel for existing clients. This model is the most commonly used amongst retail banks. The transformational category is according to Porteous categorized by business models that draw upon existing telecom and agent/representatives infrastructure, run by new or alternative banking actors, and has a geographic coverage and pricing with the potential to attract previously unbanked segments. Further, it may also have a transformational effect in terms of formalising previously informal transactions and hence bringing people and their financial assets into the formal economy.

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1. Porteous, David (2006), *The Enabling Environment for Mobile Banking in Africa* (DFID / Bankable Frontier).

Branch based retail banking services are usually outside of geographic and affordable scope for the average rural user in Sub-Saharan Africa, and more advanced M-banking services offered by retail banks would typically require a handset that also is too costly for most people. Rather, in parts of Asia, Latin America and Africa, transformational models have evolved. In e.g. Sub-Saharan Africa, transformational M-banking markets in South Africa, Kenya, and Democratic Republic of Congo (DRC) have been growing fast, but there are few successful initiatives elsewhere.

M-banking initiatives in Sub-Saharan Africa are generally launched by banks, telecommunication operators (telcos), by an independent entrepreneur or by any combination of the above. Besides revenue, telcos also have another motive; their clients are less likely to switch operator if they are hooked up to an operator-specific banking service.

The transformational services currently launched in sub-Saharan Africa are cheaper to produce, hence cheaper to buy, and do not require expensive handsets. What *really* makes them inexpensive compared to conventional retail banking services is that they are not backed by bank branches, but by an agent network that clients interface with to sign up, deposit or withdraw money. (In South Africa, WIZZIT clients use ATMs for cashing out.)

Transformational M-banking is still in many aspects virgin land; business models are still to prove themselves, policy making and regulating bodies are still to formulate appropriate frameworks, and a sense of careful, tentatively positive trial period attitude is noticed as M-banking market figures slowly are picking up.

“Transformational” M-banking is the main focus of this paper, and when we discuss “M-banking” further on, we normally refer to M-banking services with the transformational characteristics as defined by Porteous mentioned above.

### The ICT evolution in Sub-Saharan Africa

This section is aimed at the reader that is new to ICT (Information and Communication Technologies) and ICT4D (ICT for development) issues. There is ample further, free reading online on ICT4D for readers new to the topic.

Although it still has far to go, the ICT evolution across Sub-Saharan Africa has moved significantly forward for the past decade. The rapid expansion of mobile phone networks as well as GSM market uptake following liberalization and deregulation is the most frequently used example when trying to describe this evolution.

There were, according to ITU, 271 million mobile subscribers in Africa in 2007, compared to 15 million in 2000. Internet subscribers (i.e. excluding Internet café usage) in Africa were according to ITU about 9.7 million; up from 1.2 million in year 2000. The figures above include the more penetrated Northern African markets. In Southern Africa, South Africa dominates with high penetration of 40 million mobile subscribers<sup>2</sup>, mostly pre-paid.

Behind these impressive growth figures hides both urban and rural market expansion. Although it is very common for people in urban areas in Sub-Saharan Africa to have a mobile phone, the situation is less certain for people in rural areas. If rural people reside in an area with GSM coverage and can afford a phone, he or she may have one. Or, maybe more likely, he or she has access to someone else's phone, and hence has a shared phone arrangement, with or without an individual SIM card.

It is on these mobile networks M-banking services can travel seemingly effortless across distance, and which constitutes the bridge that many donors now put their hope to. M-banking services are believed to have a real development impact, as it can bring financial services to previously unbanked people. We will look briefly at how these services are needed, demanded, supplied and used in other sections of the report.

There are however still many rural areas that have never seen the sight of any terrestrial based mobile services, not to mention absence of any type of fixed connectivity or electricity grids. These areas are still today outside of service coverage, not only by telecom operators and other utilities, but also by banks and financial services. For people in these areas the only technical available connectivity solutions are satellite-based ones, which of

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2. Source: [www.vodacom.co.za](http://www.vodacom.co.za) and [www.mtn.co.za](http://www.mtn.co.za). These two mobile operators dominate the South African market and the third player Cell-C has a small market share.

course are not within the financial means of most people. Needless to say, people in such areas are also out of any Internet- or M-banking service range.

### **The case for M-banking and common current standpoints**

M-banking has increasingly been heralded as the tool for bringing financial services to the largely unbanked population of Africa. Its potential to transform the livelihood of people – who previously have been outside the formal financial sector – is the key rationale put forward. Firsthand it will provide affordable and secure services that will facilitate financial transactions, primarily money transfer, for the previously unbanked. This is much more convenient for rural users, compared to today's more time-consuming options. It may even serve as the inroad or eye-opener to large segments of the population that are accustomed to a cash-based economy. Hence, they will gradually become a part of the formal financial systems which potentially will turn them into bank customers, which led to the term “transformational banking.” The rationale hinges on the assumption that once included in modern financial systems, poverty can be addressed in a more efficient manner.

As a word of warning or caution, there is little evidence yet to verify the prospects of serving unbanked through M-banking models and their impact on poverty alleviation. There is still a monumental gap between the visions and the mundane “financial reality” of poor people in sub-Saharan Africa. The harsh reality is that only 1% of the sub-Saharan population is banked and a substantial part of the rest lives in a cash-based, subsistence, barter-trade economic environment. Relying on GDP per capita data from the region, the majority survives on less than one USD per day, which means there is an extremely small window for savings. The North-South and urban-rural divide has created a need for distribution of wealth through remittance; mostly within extended families but also between friends. E.g. even in the most developed economy in Sub-Saharan Africa, South Africa, 45% have nothing remaining when the monthly bills are paid (Finscope, 2005). A second observation is the low reliance on formal employment as a source of income; only 4% in Tanzania has earnings that easily could be transacted through the bank systems (Finscope, 2007). Most people are self-

employed, selling produce from the farm or work in the informal sector which typically all are cash-based in sub-Saharan Africa.

To sum up, two lines of thought can be discerned in the ongoing debate on M-banking for development; one side argues that by providing more structured financial services to the unbanked, socio-economic development will follow in its track. Then there is a strand that merely views banking and financial services as pieces of a larger puzzle that need to co-exist with other components in a synergistic manner to trigger development. That is, there is no single quick fix for development.

### SPIDER and the rationale of the project

SPIDER, the Swedish Program for ICT in Developing Regions, is a Swedish national centre created to unify ICT for development knowledge resources and make them available to developing countries. SPIDER is created as a multi-stakeholder network consisting of a web of institutions, organisations, companies and individuals committed to promoting ICT for development by sharing resources and utilising synergies. Behind the program stands Sida, the Swedish International Development Cooperation Agency and KTH, the Royal Institute of Technology, Stockholm, where SPIDER is hosted. Amongst governments, academia, the private sector and civil society, SPIDER forms partnerships with and assists developing countries with promotion and deployment of ICTs to reduce poverty and promote economic development, in line with the UN Millennium Development Goals (MDGs).

SPIDER has identified the M-banking area as an interesting and relevant one. SPIDER has previously taken part of a Sida paper on the same topic focussing on the Philippines, but this current paper is the result of the first project that SPIDER conducts on M-banking with a Sub-Saharan focus. Internally for SPIDER, this paper serves as a baseline study as well as an inventory of commercial, regulatory and supporting initiatives primarily in the two countries visited; Kenya and South Africa. Market conditions, stakeholder structures as well as the current status and market uptake of existing commercial initiatives have also been judged being interesting angles, after a few years of operation. Adding to current market uptake, it has also been our ambition to provide a fresh and critical look of the M-banking phe-

nomenon in visited countries. Actual usage of M-banking services and impact are of course issues of immense importance; for this small project we were however able to draw such knowledge from existing sources. Although usage data do exist to some degree<sup>3</sup>, relevance to poverty alleviation and actual impact to date has been little discussed in the openly available sources we have come across. Hence, in existing documentation and research we have reviewed, there is a lack of an in-depth and balanced analysis of whether or not M-banking activities to date have had any impact on poverty alleviation amongst previously unbanked groups. We will discuss this further in our final chapters.

To the layman, interested organisations and individuals new to the topic, this paper as a whole may serve as an introduction, while the final chapters also may be of benefit to more experienced M-banking executives, policy makers, regulators, consultants and civil society.

The authors have a background in development issues in general, and in particular ICT's and private sector development, including market access to financial services. Both SPIDER and the authors emphasize their humble attitude towards the vast amount of research and knowledge available in this field.

### Methodology

This paper was developed after a desk review of literature, interviews with banks, mobile operators, M-banking stakeholders as well as during collection of primary data in South Africa and Kenya. The countries were selected because of their relative position in promoting and implementing M-banking ventures. The two countries represent the majority of M-banking users in sub-Saharan Africa.

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3. In addition to the material in the reference list of this report, FSD Kenya (<http://www.fsdkenya.org/>) will during the latter part of 2008 release a market report on M-banking services in Kenya, which may disclose interesting facts on needs and usage in Kenya. At the finalization of this paper however, FSD's field work had not yet commenced.

The first phase of the study involved a review of literature on M-banking at a general level such as conceptual papers and experiences from other countries mainly in developing countries. The identification and separation of general vs. specific issues led to various priorities for the two target countries. The literature review then focused on the already ongoing efforts to launch M-banking in the two case countries.

The next phase of the study involved identifying the stakeholders to be interviewed and the development of an interview manual. The main data collection took place in March and May, 2008.

## Definitions

### M-banking

By M-banking we refer to financial services delivered via mobile networks and performed on a mobile phone. These services may or may not be defined as banking services by the regulator, depending on the legislation of the country in question, as well as on which services are offered. Hence, we may refer to an initiative as M-banking service even though it would not fall into the banking definitions under that particular country's regulatory regime.

As described previously, M-banking is by Porteous (2006)<sup>4</sup> separated into two categories; additive and transformational, where the latter is categorized by a new type of services that could attract users from rural areas and poorer segments of the market, and hence can have a transformational effect. When we casually use the term "M-banking", we refer to transformational M-banking services

### M-transactions

Transactions such as remittances and payments delivered via mobile networks and performed on a mobile phone.

### Retail banks

By the term retail banks, we refer to conventional banks that offer services to individuals from the public.

### Banking

To conduct banking normally means one or both of the following: a) receiving from the general public money on current, deposit, savings or other similar account repayable on demand, or b) paying or collecting cheques drawn by or paid in by customers. Hence, banking is viewed as holding accounts in a branch office, which does not suffice as a definition for M-banking. We deem that it in our reasoning is more appropriate to view banking in a wider context to also include branchless banking and sim-

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4. Porteous, David (2006), *The Enabling Environment for Mobile Banking in Africa* (DFID / Bankable Frontier).

ple money transfers between parties not holding accounts. These services are customarily defined as money transactions but we have chosen to view them as a sub-set of banking.

# M-banking: the potential to serve the unbanked

## Introduction

This chapter presents the findings of the study, which are drawn from primary as well as secondary data sources. The second section, *Banking realities in Africa*, deals with profiling of banked and unbanked people in order to understand their different banking needs. It also discusses the type of services in demand, and what either causes the unbanked to stay unbanked, or triggers the unbanked to search for more advanced financial solutions. The section that follows, *The scope for M-banking: stakeholder perspective*, explores M-banking mainly from a banking and telecom perspective. The following section, *A snapshot of M-banking initiatives in Africa*, sets the scene for M-banking in sub-Saharan Africa. This section comprises three cases of M-banking mainly drawn from South Africa and Kenya. The final section, *Regulation in M-Banking*, highlights the role of regulation in influencing the salient features of M-Banking services.

## Banking realities in Africa

*Banking explored:* M-banking is increasingly seen as the new tool to bank the previously unbanked. A first issue to clarify is the dichotomy banked-unbanked: is it just black and white or are there other ways of being served? Banking is more than stepping into a branch office as the word M-banking indicates. Branchless banking is an additional way of accessing banking services without physically visiting a branch such as using the Internet or mobile phones. Apart from retail banks, numerous intermediary forms of financial services providers have mushroomed in sub-Saharan Africa. This is largely as a result of the poor historical outreach of retail banks. Micro finance institutes, SACCOs (Savings and Credit Co-operatives), NGOs (Non-Governmental Organisations), peer-pressure groups, traditional savings groups, etc. meet the demand for credit and savings without qualifying as banks. The informal economy has been a salient feature of sub-Saharan Africa for a long time, and dramatic changes will not occur overnight.

Instead of riding on the hype of M-banking there is a need to take a fresh look at the target group in order to understand the potential of transformational M-banking, if any. Considering the lifestyle and earnings of unbanked people, to stay unbanked may be a sound choice until their economic situation has reached a certain threshold level – should we maybe

take a more humble stance on the short term potential of M-banking? In order to address the fundamental issue, there is a need to further clarify the role of users' profile such as education, level of income, employment, urban – rural settlement, type of earnings, remittance intensity. Hence, there is a need to better understand the demand for financial services among the unbanked vs. the currently banked.

*Profiling bank markets:* A first distinction is the banked vs. the unbanked parts of the population. In sub-Saharan Africa large portions of the populations are still unbanked though there is great variation among the countries. In South Africa e.g. the banked – unbanked represent respectively 51 – 49% (Finscope, 2006). In Tanzania, only 9% have access to formal banks and 89% either have no access or rely on informal financial services whereas in Kenya the number of banked people is higher (19%) and only 38% are unbanked. Botswana and Namibia show similar profiles as South Africa while countries like Uganda and Zambia portray similarity to Tanzania<sup>5</sup>. The habit of using someone else's bank account means that access is actually higher for certain segments of the unbanked. This is more common within families with few members having formal employment<sup>6</sup>.

*Profile of banked vs unbanked:* What features banked vs. unbanked? Drawing from Finscope data, the marked difference is employment security as formal employment is the strongest correlation to accessing and using formal banks. Most unbanked have consequently no formal earnings, rely on farm income, or live on 'welfare' from friends and family (Finscope, 2007). Moreover, irregular income, earning too little or earning too little to save are also reasons for not having a bank account (Finscope, 2006).

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5. The level of development (GDP per capita) is equally skewed between the two "camps": South Africa (4960), Namibia (2990), Botswana (5180) and the LDCs; Kenya (530), Tanzania (340), Uganda (280), Zambia (490). Source WDI (2005), currency USD.

6. In many sub-Saharan countries, banking costs are perceived as high, and the majority of the population is excluded from formal employment.

*Profiling services:* What services do banked and unbanked people demand? The prime reason for holding an account is to save money in a “safe” place, but is often triggered by employers’ wish to pay out salaries to accounts rather than in cash. Most accounts have limited number of transactions, and as soon as salaries are paid, money is withdrawn; this is the case for 39% of accounts in South Africa (Finmark, 2007). The low-income accounts in South Africa – so called Mzansi – shows a higher instant withdrawal at 46%. Even in a country like South Africa, the level of sophistication is low among low-income earners who mainly are the ones using the account for withdrawal, only. For instance, ATM cards are used by 31% and debit cards by 14% (ibid.) in this group whereas high-income earners commonly use the service; 85% and 51% respectively.

Remittance is a common phenomenon in sub-Saharan Africa which includes remittance from abroad as well as from urban to rural areas. The Finaccess (2007) Kenyan study states that whilst around 16% have received remittance from within Kenya only 2.8% have received remittances from abroad. Sending money within Kenya is done by 16.9% whereas remittance abroad is minimal. The most common means of transferring money is to use a friend who is travelling (52%), followed by nationwide bus coaches (25%), and remittance services through Western Union or MoneyGram (23%). Bank transfer, cheques, money orders are not often used. At the time of the Finaccess study no one indicated using M-Pesa. Data from Senegal points to similar remittance patterns (Gamos, 2007).

*Drivers for transition:* Income levels and employment have the closest correlation to use of financial services, which means there are average threshold levels for stepping inside the formal banking sector. In Tanzania the transition takes place in earning levels per month around USD 80 whereas the crossover level is around USD 110 in South Africa. Lowering the entry level has also a clear effect on the diffusion of bank products. The Mzansi<sup>7</sup>

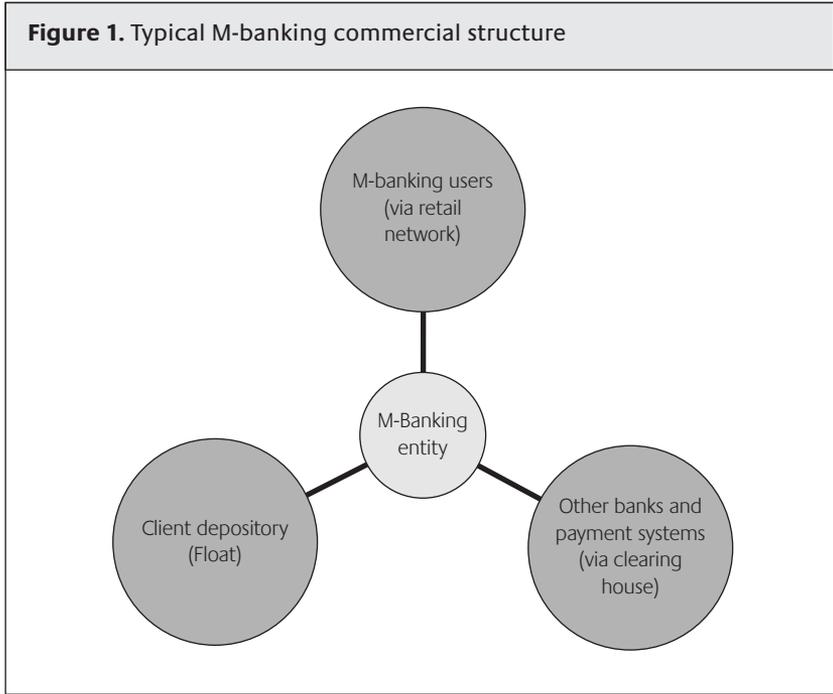
accounts introduced in South Africa in 2004 have speeded up the use of banking services by previously unbanked. It is estimated that within two years around 1.2 millions such accounts were opened (Porteous, 2008). The bureaucracy involved in becoming a bank customer should not be underestimated, which comprises a main barrier in most sub-Saharan countries. The requirement to submit employer's certificate, referral letters, permanent address and P.O. Box may sound trivial but serve as major obstacles to most common people. These hurdles may in fact support the diffusion of M-banking, as such accounts often come with ceiling amount restrictions, which allows for lighter control mechanisms.

### The scope for M-banking: stakeholder perspective

M-banking has evolved rapidly over the last few years in a number of sub-Saharan countries with South Africa and Kenya in the lead. The development is mainly an answer to the gap in retail banking that excludes the majority of the population but also seizing of business opportunities on the back of the fast growing mobile phone markets. There is also the so-called additive M-banking which is offered by retail banks to existing customers as an add-on service where the reason for investing was to provide additional services to the current customer base. This sector has however lately changed M-banking objectives in favour of extending services to the unbanked (Van Wyk, 2008). Most efforts to reach out to the unbanked – as stated previously, referred to as transformational banking – has predominantly been carried out by telcos (such as Safaricom, Celtel, MTN) and new entrants in cooperation with telcos and banks. These are classified as three distinct models; telco-led, bank-led, and an independent “hybrid” version. Business rationale for the various models is such as retail banks interest in high-value services to existing customers whereas low-

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7. Mzansi is offered by the banking sector in South Africa and an account can be opened at Absa, Nedbank, Standard Bank, FNB and the Post Office. It is designed for customers who never had a bank account before. There is no minimum balanced required but there is only one free cash deposit per month. The account comes with a Visa Electron debit card at a cost of ZAR 30.



income segments are seen as low- or no profit business, as well as telcos’s additional motivation to keep churn rates low and increase revenues in the GSM network.

Hence there are three models: M-banking initiatives are so far lead by i) a bank (in partnership with one or more mobile operators), ii) a mobile operator (that may be in partnership with a bank) or iii) another company drawing upon partnership with one or more mobile operators, a bank, or both. The simplified figure above (Figure 1) illustrates how main commercial stakeholders are organized in a generic M-banking structure.

The models that have surfaced and regarded as relatively successful in terms of gaining market acceptance amongst previously unbanked groups, are from the mobile operator- and “another company” types. Existing bank-lead initiatives can of course be regarded as successful from a profitability, branding or customer loyalty standpoint, but have so far gained little ground in terms of market acceptance amongst previously unbanked market segments.

What makes a particular business model successful, and why do we see these various types of ventures emerge on different markets? Is one model better than the others? In addition to the plain fact that the company who identifies a business opportunity and decides to pursue the idea represents a bank, a mobile operator or “another company”, there are of course several aspects that will affect the business model in a particular country.

The only mandatory component in the business model on the supply side is the mobile operator. Regardless of who you are as a promoter of the initiative; using a mobile platform requires access to one or more mobile networks. Hence it is technically possible for mobile operators to pursue an M-banking initiative on its own, regulation permitting. This is for example the case with M-Pesa in Kenya, which is backed by telecom operator Safaricom. (M-Pesa argues however that it foremost is a remittance service, and its activities have not been defined as banking by the Kenyan regulator. This is currently being disputed by Kenyan retail banks.)

The legal and regulatory frameworks set the rules of the game. In both the cases of retail banking and telecommunications as separate areas of regulation, policies and regulation have matured – not at all to perfection, but to a level where major uncertainties in most places are removed. In *mobile banking* however, policies are still to a large extent to be formulated. Central banks are, by and large, aware of the currently unbanked millions, and are reluctant to prematurely crack down on sustainable, commercial initiatives that may bring financial services to currently unbanked people. Both in South Africa and Kenya we have noticed a carefully positive attitude, when at the same time central banks must look after important obligations such as consumer protection and anti money laundering measures. Mobile banking services are new animals on the financial services savannah, and policy makers and central banks are still figuring out what the risks and the benefits are.

Telecommunications regulators seem to generally take the position that mobile operators already are licensed to transfer information over mobile networks, and that this license also includes financial information. Regulatory risks pertaining to telecommunication regulation is hence small, given that the operator in question looks after its general license commitments.

Banking policies and regulation are of paramount importance in terms of choice of M-banking model. Some central banks have for example made it clear that it is not tolerated that companies not holding a banking license are conducting M-banking activities (for example taking deposits) even in smaller scale. In such a country, for example South Africa, M-Banking entrepreneurs will have to team up with a banking license holder that can guarantee to the regulator that the initiative adheres to the rules. In South Africa this has led to M-banking operators WIZZIT teaming up with Bank of Athens and MTN Banking with Standard Bank.

### A snapshot of M-banking initiatives in Africa

M-banking is not yet a decade old but has received considerable attention. Three cases will be described more in detail; WIZZIT of South Africa, M-Pesa of Kenya, and a typical, generic retail bank's M-banking offers. The cases have been subject to study in the past which will be used in combination with survey data to illustrate the current position of M-banking. Each is drawn from separate M-banking models earlier described. WIZZIT is a typical independent "hybrid" that has teamed up with Bank of Athens partly for regulatory reasons. Retail banks such as FNB and Nedbank of South Africa are illustrations of the bank-led model, and M-Pesa is an example of a telecom operator, Safaricom, that has entered into M-banking.

#### *WIZZIT: an entrepreneur in M-banking*

WIZZIT is a South African start-up company that in 2002 began to discuss how to serve the unbanked in South Africa. Initial market research by the company found that there was a huge need to design a product that would offer "affordable transactions that will enable sending cash to family, paying rent, and buying airtime." (South African Wireless, 2005). The need to establish a loan facility at this stage was seen as low. The potential market WIZZIT foresaw was the 16 million unbanked that would require low-cost solutions in order to be introduced to bank-like services. Research also indicated that unbanked are unbanked for two main reasons; high cost of retail banking and difficulties to access. The principle according WIZZIT's CEO Brian Richardson is to build trust and "transactional history" and once this is done you [WIZZIT] can start offering other products (Mav-

erick, 2005). Retail banks in South Africa have historically not focused on the poorer segments of society that have been excluded through explicit and implicit barriers. The existing fee structure, charging as much as 25–30 percent of smaller deposited amounts deters most financially weaker from seeking formal banking services (Richardson, 2008).

To find the appropriate technology that would meet requirements and user profiles WIZZIT spent considerable time to develop the interface and keep costs down. The actual launch was in November 2004 with an M-banking system that works across all networks, on all phones (even old ones), and requires a simple registration and set-up procedure.

WIZZIT operates under the so-called exemption 17, which stipulates conditions for transactions and balance: maximum balance ZAR 25k, maximum transaction size ZAR 5k (8 ZAR=1 USD, Aug. 2008).

The WIZZIT technology is not tied to a specific telco and works on Vodacom, MTN, and Cell-C networks developed on a USSD (Unstructured Supplementary Service Data) platform. Even the simplest handsets with a 16 K SIM (Subscriber Identity Module) card will operate in the WIZZIT system. Registration is done by agents, the so-called WizzKids, who educate and earn a commission for signing up customers. The number of agents grew to around 1300 in the first year and reached 2000 within 2 years of operation (Financial Mail 2005; Ivatury and Pickens, 2006). Today, there are 3000 WizzKids working on commission basis for WIZZIT; ZAR 20 per registered new customer (iWEEK, 2007).

A CGAP review of M-banking (Ivatury and Pickens, 2006) in South Africa analyzed why customers use WIZZIT: it is “cheaper (70%), safe (69%), convenient (68%), and fast (68%). The service allows the user to check balance, do payments (inter-account, person-to-person, bill payment, airtime purchase), and accessing cash via ATM or branch. The most common activity is to buy airtime followed by balance enquiry, and lastly money transfers (ibid.). It should be noted that buying airtime is by far the most common transaction conducted by WIZZIT customers which represents 40% of all M-banking activities. Money transfer is done once in two months on average (ibid.).

So how successful is the WIZZIT model? The company has not disclosed any exact figures on the number of users but there are estimations

that WIZZIT has around 50 000 customers (ibid.). The company has not yet reached the break-even point according to Richardson (2008) because of the small margins. However, it is expected that the operations will be profitable by the end of 2009 (Krebsbach, 2008). The average monthly cost per user is ZAR 27 (Porteous, 2008) which provides a rough indicator of WIZZIT's turnover. Although the cost is lower than competitors – FNB, Absa, MTN – WIZZIT is a small innovation company with less financial base and is solely dependent on M-banking in stark contrast to competitors' portfolios.

Who are WIZZIT's customers? Does the model reach the previously unbanked? Surprisingly a profile analysis reveals that the customer earns more, resides in an urban area, and has more often formal employment than banked people with mobile phones (Porteous, 2008). It should be noted that "earns more" is relative and the majority of WIZZIT customers makes less than ZAR 1500 per month (< USD 250).

Lessons learned: Cashing out services are still mainly ATM based and do not reach distant rural areas. WIZZIT is not reaching the poorest, yet. WIZZIT is not yet profitable, which may hamper investment in infrastructure and staff. Client's tendency to pay bills, etc. is limited because few potential organisations and companies have signed up to be recipients in the system. The regulatory framework in South Africa has impacted WIZZIT's model; agreement with SABA and the need to set up bank accounts for customers. The cash-out solution is also a result of regulation. On the other hand WIZZIT is a visionary in the conservative banking sector and its mere existence will put pressure on other banking operators to act. In addition, WIZZIT is telco operator neutral, which allows for banking across different GSM networks.

*M-Pesa – Safaricom's Kenya entry in M-banking*

M-Pesa was launched early 2007 by Safaricom and established itself quickly as an accepted M-banking operator by reaching 300 000 customers within three months. There were 1.6 million subscribers already in February 2008, attained within only 12 months of operation (Safaricom Press Release, March 2008). The M-Pesa offer is unique in the sense that no bank account is needed; the customer gets an M-Pesa account instead. Vodafone, part

owner of Safaricom, was the initial driver of the project that started at the concept level in 2003 (Hughes and Lonie, 2007). The rationale and underlying need assessment was based on the assumption that it is the “velocity of money” that drives development. That is, how to transfer money from A to B as swift and efficient as possible. The challenge at hand was to alter and adapt Vodafone’s technology to a totally new and different application; M-banking. This was easier said than done and Vodafone had to work closely on location with Safaricom in Kenya.

The conceptualization and pilot phase took years and started when Vodafone support expertise landed in Nairobi early 2005 (ibid.). The development work addressed six basic issues: i) Safaricom’s capabilities are pivotal for implementation and sustainability, ii) the target audience is the unbanked and the assumption was (our interpretation) that there was no need for traditional bank accounts, iii) the transactions will be carried out with virtual or e-money which necessitates a financial framework to meet the requirements by the central bank. In short, e-money floating around in Safaricom’s system must have corresponding value of real currency deposited at a bank. iv) the technology must work across all types of handsets, even the simplest ones. It was decided that SMS using a platform built on the STK platform (SIM toolkit) for setting up user menus. v) the “offer” must meet a real market need that could relatively easy translate into a demand. Although there is a perceived need for moving money in Kenya, it was not clear if the market was ready for mobile solutions. Discussions with local MFIs convinced Safaricom/Vodafone that the time was ripe. vi) The process of cash in/cash out was seen as the final stumbling block for convincing customers. It was decided to use Safaricom’s existing dealers that had to apply to become M-Pesa dealers as well.

During the pilot phase in 2006 a number of additional challenges surfaced. The agents were quite reluctant to cash out solely based on an SMS, not trusting the system fully. Users’ understanding and skills to handle their mobile phones varied a lot; some could not find the SMS inbox. The learning was typically by doing, testing and showing in small groups. As literacy is an issue, the diffusion of the technology is driven by being ‘shown’ (Vodafone, 2008).

The management of transactions, from Safaricom's viewpoint, was more cumbersome and complex than anticipated which required simplification of procedures. Hence, three main types would be allowed; deposits or withdrawal at agents' office, money transfer person-to-person, and to purchase airtime.

The regulation of M-Pesa's services is not yet formalized by the Central Bank, which has agreed to allow the transactions under the assumption that "remittance is not banking"<sup>8</sup> (CBK; 2008) and should be viewed as a payment service. This means e.g. that deposit taking by Safaricom is not allowed, which would require a bank license. The agreement, apart from M-Pesa's strict control and supervision of transactions<sup>9</sup> and float, there are restrictions on the size of transaction; minimum KShs 100 and maximum 35000 (70 Kshs=1 USD, August 2008). Recently the debate has heated up in Kenya by the retail banks' request to the Central Bank to clearly define rules for M-transactions (Standard, 2008). M-Pesa is aware of the delicate situation but assigns the current success as partly a result of the Central Bank's cooperative and positive standpoint. It should be observed that the issue is about M-transactions, only as Safaricom is unlicensed. 100 percent of the prepaid balances are deposited as a pooled account at a Kenyan bank (CBA).

In comparison with other remittance services, M-Pesa stands out as competitive. The cost ranges from KShs 55 to 400 (USD 0.8 to 5.8) plus SMS charges (lower if both are registered M-Pesa customers) to compare with local Wester Union services that charge around KShs 1750 (USD 25) for sending up to KShs 10 000 (USD 142). The registration process is fairly simple which is done at an agent's office showing a valid national id or pass-

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8. M-Pesa's legal position is clarified against definition of a financial service according to the Banking Act (Chapter 488 of the Laws of Kenya) (Source Vodafone, 2008). According to CGAP, the Kenyan financial sector is not well regulated: "banking law and regulations do not set clear standards regarding the ability to use agents to perform banking functions; in contrast, nonbanks are permitted to perform various payment functions virtually unregulated." (CGAP, 2007).

9. M-Pesa has a complete tracking and reporting system, and is developing anti money laundering measures (Vaughan 2007).

port. The majority of Kenyans carry a national id card. Registration is free but the user must replace the SIM card due the STK platform (though they can keep the same number). An additional edge is the free service to transfer airtime between customers and that money can be sent to any mobile network like Zain (former Celtel). However, the M-Pesa and airtime accounts are totally separate and airtime can never be traded into e-money whereas the reverse applies. Since M-Pesa does not qualify as M-banking, paying bills is not possible. International remittance is not yet endorsed.

But M-Pesa has a number of challenges ahead; the cash-out issue and the unclear regulatory framework mentioned above. Agents' liquidity has the potential to become a real problem. Normally agents finance M-Pesa transactions with liquidity from their other business activities, such as selling airtime, or merchandise in a small shop. When their own liquidity is not sufficient to cover for M-Pesa withdrawals for example on a payday, problems start<sup>10</sup>. Agents may then have to leave their business to get more cash and then transport it back, which leads to both security and loss of income problems. Further, M-Pesa customers can get irritated when they cannot withdraw their cash at the vendor in question, whereby the vendor also may face the fact that his other business activities are being affected negatively.

It is obvious that M-Pesa is a success story just by counting the sheer number of users as a result of the very high growth rate. It is also clear that the market favours the simplicity and cost structure of M-Pesa drawing from the outspoken need to transfer small sums of money relatively frequently. Regulatory issues may however pose a threat to M-Pesa because of the current unregulated situation and their disputed non-banking status.

#### *Retail banks*

Retail banks are conventional banks dealing with individuals from the public and other clients such as companies and organisations. Banks allow for their client to deposit and withdraw money from their accounts, as well as to transact money. They also offer credit to persons they judge reliable and that can present sufficient security in case repayment would fail. Banks profit on the

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10. Pulver, Caroline (2008), FSD Kenya.

retail side come from margins on both lending and borrowing interest rates as well as from fees charged for all sorts of transactions and services. Retail banks in Sub-Saharan Africa have traditionally only had a business interest in the wealthier segments of society, with a given business case built on a cost, revenue, business and shareholder value standpoint. Traditionally, it has also made little sense to do anything else, as banking has required fixed and expensive structures in the form of bank branches and staff, and as these costs would not be possible to carry without clients paying substantial fees. Retail banks and their branches have hence stayed close to financial centres where it has made sense to operate. As mobile banking enters the stage, it is all of a sudden obvious that banking – or at least “light version” banking – is possible to do much cheaper and with much less staff and fixed structure. Many retail banks have offered mobile banking for quite some time, but then as an additive channel for their existing customers, rather than as a vehicle to cover new geographic areas and new customer segments. The fact that many banks have ignored the potential of new customer segments can either depend upon their tradition of doing so, or in a disbelief in the rural customer segment as being potentially profitable [enough]. In South Africa, banks must by law offer a “Mzansi” account, which is a “light version” bank account offered by all retail banks in South Africa. The enthusiasm with which Mzansi accounts are marketed or actively promoted is said to vary amongst the larger banks. Several retail banks have however started to look in the direction of less well off customer segments and rural areas. This may be triggered either by that some banks have arrived at the conclusion that there might be a rural business case after all, or that they are worried of new market entrants that will take overall market shares, regardless if profitability in these market segments is proven to date or not.

## Regulation in M-Banking

### *Policy and regulation*

As indicated above, policy and regulatory frameworks are of utmost importance when considering M-banking business models. Financial policies and regulation is the area that have shown most critical, but also telecommunications, competition and e-commerce policies and regulation do matter.

To understand major financial regulatory issues, we also need to understand the main components of retail payment activities that financial reg-

ulators are concerned of. Financial regulators generally address issues such as consumer protection, financial stability as well as financial integrity aspects (Anti Money Laundering measures, AML; Combating the Financing of Terrorism (CFT); as well as Know Your Customer, KYC).

Regarding *consumer protection*, the main issue is deposit taking. In order to avoid that consumer one day will find their deposited money lost due to the fact that the deposit taker is bankrupt, insolvent or simply vanished, regulators exercise control regarding entities to enter the market as deposit takers. The public is supposed to trust the financial system and its actors, and should not be required to make such risk assessments themselves.

Depending on the entrepreneurs' ability and ambitions – as well as the regulators approach to the matter – a company without a banking license, such as a mobile operator, can opt to liaise with a bank, try to obtain a banking license or negotiate with the regulator under which terms it could operate (i.e. if it could operate without a license under low ceiling amount restrictions). The regulator's challenge is to find a decent balance in between consumer protection and still enable new initiatives to evolve. One could argue that a light version of deposit taking is already conducted by mobile operators, in the form of selling of prepaid call credits. The deposit is then consumed via the cost that placed phone calls and text messages causes, or by a straight transfer to another mobile phone.

Retail banks as well as a new M-banking venture are required to keep satisfying control mechanisms to ensure the *financial integrity* of its clients and their transactions, to make sure that accounts and transactions are not used for money-laundering, terrorism or criminal activities. Typically, financial institutions are required to verify its client's identity and physical address. This is particularly hard in a rural M-banking context, where poorer people rarely have a government acknowledged or issued ID or a formal physical address. Porteous (2006)<sup>11</sup> states that only 22 percent of households in Africa receive regular mail at home. In Tanzania, where M-Pesa recently has entered, the issue has been dealt with by temporarily accept a document

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11. DFID/Bankable Frontier Associates/David Porteous "The enabling environment for mobile banking in Africa" (2006).

from the head of a village that verifies the identity and physical address of an individual. In South Africa, legislation permits for “lighter” control on holders of accounts with restricted limits of transactions and maximum balances (“Exemption 17”)<sup>12</sup>. This light version AML/KYC/CFT legislation has been criticized for being unclear.

An M-banking service provider in a rural setting hence needs – via its rural agent – to ensure the identity and physical address of their customers. The operation’s ability to operate in a rural context consequently depends upon its AML/KYC/CFT procedures’ legal recognition.

The rural M-banking operator’s next problem is how to deal with this identification document. If he or she is far away from a fax, a photocopier or a scanner, there is also a big practical problem related to the transmission of the identification information to the head office. In South Africa, WIZZIT (and their WizzKids agents) struggles with this exact problem, despite the fact that they fall under “Exemption 17”, and now have a system in place where the agent takes a photo of the individual applying for an account, which he or she sends via MMS to the head office. The issue for WIZZIT is that the legal validity of this procedure is uncertain. This relates to the e-commerce legislation in place, which typically defines which electronic verifications and signatures that are legally recognized (such as faxed and scanned documents as well as pin codes in when mobile phones are used for transactions). Voices are raised that it makes sense to shift towards a more risk-based approach, which would increase AML, CFT and KYC measures on identified high-risk elements, rather than the current very wide approach aimed at the public at large. AML/KYC/CFT requirements are there for a very good reason, but they do undoubtedly disfavour rural regions and people without an ID and formal address, despite softer levels of formalities for accounts with restrictions on balance- and transactions volumes. The current M-Pesa roll out in Tanzania has been considerably delayed because of the lack of a national identification system (Voogt, 2008). In Kenya, retail banks are said to have started to lobby the Central

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12. Government Gazette, Regulation Gazette No.: 8103, Vol. 473, Department of Finance, Government of South Africa (Exemption 17).

Bank of Kenya (CBK) regarding the unclear regulations on M-banking operations AML/KYC procedures.

Financial regulators are also concerned with *stability of national payment systems and banking systems*. This is why there is – have to be – a very careful approach and critical scrutinizing of new market models and entrants. Factors that have the potential to affect a country's financial system may have been of marginal importance in their infancy, but as they grow and gain market ground that can have a real impact, both in terms of financial system stability and consumer confidence. That is one reason why regulators struggle over E-money. Money generally has three roles; it is a unit of account, a store of value and as a means to settle claims. Conventional money is currency, normally issued by a central bank. There are however also other forms of tokens for value, both physical and electronic, in the form of gift certificates, casino tokens, shares, bonds, coupons and vouchers, etc. These are used to a limited extent, and do not threaten to compete with the national currency as a more general unit of account, a store of value or as a means to settle claims. Electronic money or M-money has the potential to grow to a significant factor and (to the national currency) become parallel units of account, stores of value or means to settle claims. The consequences of such a scenario include a wide range of aspects such as national financial stability, consumer protection- and confidence, competition and taxation.

As mentioned above, other regulatory areas are also concerned with M-banking ventures. Telecommunication regulators seem generally to have come to the conclusion that being the bearer of financial information is within telecom licensees' mandate. Hence, they have shown a hands-off approach, and will probably do so as long as operators stick to their license commitments in other regards. One future concern for telecom regulators could for example be if a telecom operator engages in an M-banking venture, and as a result its liquidity situation get strained; it may then fail from its telecom operator license's financial stability.

Regulators overseeing competition probably would like to air their views. A main topic includes that new M-banking entrants get access to national payment systems. Further it may consider what happens when the M-banking market evolves. How many players will there be? As the size

and number of users to reach or to be reached by in an M-banking network is an important factor in competition, is there a risk that one player will emerge as the largest one, and other, smaller initiatives die? That could in such case lead to a rural banking monopoly, which of course is not desirable. Further the competition regulator may be interested in if the new market entrant locks up customers to stay with a certain mobile operator.

As financial systems are delicate due to consumer protection, market/consumer confidence and financial stability, and hence tightly regulated, they tend to be short of both innovation and competition. It is therefore crucial that relevant policy makers and regulators have the ability to take on a pragmatic approach, to take into account overall national development ambitions, to critically review and discuss limitations in traditional regulation for new initiatives as well as risks that these new initiatives may bring. In this review, consumer protection is central and of importance to all actors, as consumer protection relates to consumer confidence in banking services (which in many developing countries is weak amongst previously unbanked people). Consequently, consumer protection and consumer confidence is linked to the success and the sustainability of a new venture. It is further important that regulators across regulatory disciplines (finance, payments, AML/KYC/CFT, e-commerce, telecommunications, competition) are discussing market evolution, opportunities and risks as well as the holistic legal and regulatory environment it requires.

Recent mobile systems have shown that innovative solutions can stretch financial services to users and geographic areas that previously have lacked such services. Hopefully we will also see international guiding principles that enable innovative solutions such as international mobile remittances to/from sub-Saharan Africa.

Ample further reading<sup>13</sup> can be found on regulatory environments, for example on e-commerce legislation (acceptance of digital signatures, etc.).

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13. For example DFID/Bankable Frontier Associates: "The enabling environment for mobile banking in Africa" and Ivan Mortimer-Schutts section in Vodafones Policy Paper Series, Number 6, July 2007" "The transformational potential of M-transactions".

## Reflections on M-banking

The study's review of M-banking boils down to the identification of four main areas that have a bearing on the development of M-banking markets. These are i) the issue of real needs among unbanked people, ii) the drivers for inclusion of unbanked, iii) the role of regulating M-banking in speeding up or slowing down diffusion, iv) the motives and rationale for key stakeholders to invest and push development forward.

### Supply, demand and usage

The unbanked are almost exclusively found among the financially weaker in society with hardly any formal income and below the poverty line. Money circulation is there but cash based, and savings are of such petite magnitude that informal schemes dominate. To generalize, the majority of unbanked people live in an “informal” economy far from regulatory and revenue authorities. So what would make them interested in formalizing banking when everything else in their lives is informal? The question is posed as a word of caution to counterbalance the hype about M-banking and its transformational capabilities.

What the review has shown is that unbanked are willing to adopt new technology when it meets a “real” need that translates into a demand for a specific service such remittance or topping up airtime. Hence, in reality M-banking currently competes more with Western Union, Moneygram, and buses than with banks. Market uptake shows that there is a need for convenient and affordable remittance service. There is little data on why remittance is in such high demand but it normally works as “distribution of wealth” in the direction from Diaspora to friends and family in home countries, as well as from urban to rural areas.

The case studies from Kenya and South Africa support the importance of offering a simple and locally accepted service for rapid uptake. Although to compare WIZZIT vs. M-Pesa is not straightforward because the context is fundamentally different such as level of economic development, need for sending money, available options, density of ATM, WIZZIT's resources vs. Safaricom's. We may only hypothesize at this stage, lacking baseline data on the different outcomes. Is it the cash-out model used by WIZZIT that is the barrier, or is demand just less?

### Mobile banking vs. overall development

A more fundamental issue is the transformational power of banking or M-banking. The correlation between formal employment, high income and formal banking has been corroborated by numerous studies but what drives what? There is little evidence of economic development triggered by M-banking. We adhere to the viewpoint that socio-economic development is the main thrust whereas access to basic banking services can support and lubricate economic activity, not create it.

A related issue is to view M-banking as an entry point into formal banking and access to more sophisticated services. Even for this case we have come across no data to support this assumption. On the contrary, newly banked use their bank accounts for withdrawal only. The Mzansi and WIZZIT accounts are fairly new phenomena and many account holders have never had accounts previously, which mean the behaviour may change over time.

M-banking and mobile phone business in general contribute directly to economic development by creating opportunity for income generation. Buying and selling of airtime has become a considerable job creator, in particular in urban areas. M-banking will consolidate the importance of the telecom sector in the economy.

To conclude, sub-Saharan Africa markets are willing to adopt technologies to facilitate *M-transactions* rather than M-banking for the time being. Consumption of M-banking is a different ballgame than consuming M-transaction services from a regulatory, market organizing, and user perspective. M-banking is more of a leap towards formal banking whereas M-transactions in the M-Pesa form are a true “African” solution to solve a current problem; there is no vision of turning M-Pesa customers into bank customers. Whether M-Pesa will comprise a smooth transition to formal banking remains to be seen.

### Policy and regulation

So far policy makers and regulators have taken on a “wait and see” approach to existing M-banking initiatives. The attitude seems to be carefully positive, but regulators will eventually have to clarify the rules of the game. It is not an easy task, as the issue is highly complex on one hand and the M-banking evolutionary pace and curve are difficult to predict on the other hand.

A few aspects are lessening entrepreneurs' legal and regulatory risks, and that is the fact that the services are needed, used and that market uptake is increasing. Further, to withdraw access to financial services from groups that previously have been excluded would – regardless of actual needs and usage – from a political standpoint be very difficult. Increased lobbying efforts amongst well-established banks would however be to expect, not necessarily because banks want to enter the same market segment now, but for example because new market entrants would have the potential to absorb market segments that in the future could become interesting to a retail bank. In Kenya, lobbying is said to have started regarding the AML/KYC/CFT topics<sup>14</sup>. Vodafone claims in a recent presentation<sup>15</sup> that M-Pesa is a payment service, and not a deposit taking financial service, and that this is clarified against the definitions of the Kenyan Banking Act.

One relevant question is whether the AML/KYC/CFT issues are the greatest vulnerability of M-banking actors. Undoubtedly the prevention of money-laundering, terrorism and criminal activities are high priorities almost everywhere. But it is not unlikely that regulators adopt a more risk-based approach and tighten procedures on traceability, monitoring tools, suspicious pattern recognition and warning systems, rather than to crack down harsher on poor people's possibilities to use affordable money transaction services. A more risk-prone approach would be to question how much criminal behaviour or terrorism one farmer is capable of with 2 USD per day, and instead focus on appropriate warning systems which sound the alarm when suspicious transfer patterns occur.

Another area where legislative and regulatory lobbying is to be expected is on consumer protection, and maybe more rightly so. If an M-banking operator goes out of business or gets strained for liquidity there is an obvious risk for the individual. Other areas would be if it from a competitive-

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14. Anyanza, James, The Standard Online Edition (2008) Banks panic over M-Pesa, Sokotele.

15. Vodafone, M-Pesa Mobile Money Transfer, Regulating Transformational Branchless Banking, Windsor, UK, March 2008.

ness perspective is acceptable that you cannot switch your mobile operator without changing banks.

On all the regulatory issues above, as well as on e-commerce policies and on new market entrants access to national payment systems, most actors would benefit from a better defined set of rules.

### Investment drivers and viability

Regarding the various M-banking business models that so far have seen the light of day; all come with pros and cons. The model chosen depends for example upon regulatory environment, access to brand name for marketing of services, how it is perceived on the market as well as financial strength. Even though access to M-banking is believed to bring philanthropic effects, the business models build upon the generation of some sort of profit. That profit however, may not come in the form of direct, hard revenues at the end of the day.

None of the initiatives we have talked to have been particularly keen to discuss profitability. Reasons for this may vary, and it is clear that the motivation to offer M-banking services differs. For example, a telco-owned M-banking operation where the M-banking functionality requires that you retain a certain mobile operator is one such alternative motivation. The revenue here comes in the form of less churn<sup>16</sup> and maybe also as smaller marketing spending. Hence, it may make sense for a telecom operator to cross-subsidize its M-banking operation for some time, forever, or for as long it is allowed to do so. A typical retail bank, which historically has been more focussed on better-off market segments, may have seen its M-banking service as a convenient and loyalty creating extra access channel for its existing clients. A retail bank may also nurse an ambition to “acquire” virgin market shares that may become of future interest as prospective clients’ financial situation evolves.

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16. Churn rate is a measure of customer “loyalty”, and is calculated as the number of customers who discontinue a service during a specified time period divided by the average total number of customers over the same period.

Hence, we know very little about the commercial viability of current M-banking initiatives with existing services offered, volumes and consumer behaviour patterns. As usage increases and rural markets develop, the models that have won the hearts of the market will crystallize. We can assume that the market will continue to grow, along with increased awareness of product offerings. Most likely however, it will grow with the same sort of consumption pattern as we see today (mostly consumed services as remittances and airtime purchases), prior to any dramatic evolution regarding need for more advanced banking services. Most likely we will see a need for more advanced banking services along with the improvement of economic conditions for M-banked people. With this perspective, financial durability amongst M-banking providers may become a key factor if the business model builds upon consumption of more advanced banking services, but also to withstand regulatory uncertainties and potential lawsuits.

What we do know for certain is that the capacity for end users to get cash in and out of their M-banking provider is important, and will remain critical for a foreseeable future. Hence, we also know that agent structures, geographic distribution and agent liquidity are, and will be, issues crucial to success. The requirements for M-banking operator's liquidity will vary with its banking activities, but at least they are not exposed to any credit risk with current models; users cannot withdraw money if the balance in the account is not sufficient.

We also know very little about why there has been such a market uptake on remittances in Kenya, whereas the uptake has been slower in South Africa. It may have to do with the fact that the economic development has reached further in South Africa, or that the services offered in Kenya have been more attractive to the market there than the South African M-banking offers to that market. It may also be that the need for remittances is less in South Africa, or that alternative solutions function better in South Africa than in Kenya. This is clearly an important area to understand to clarify the adoption of financial services in rural markets.

## Concluding remarks

### Key challenges for rapid diffusion

M-banking is diffusing rapidly in sub-Saharan Africa but the pace is dictated by a multitude of factors; general and country specific. The diffusion process resembles a learning curve which takes place at company and organizational level but also at a system level. To develop and adapt technologies that mobile banking utilizes takes time, which is not surprising considering the lack of standards in M-banking. The introduction of M-banking draws upon the successful marriage of two fundamentally different technological platforms; banking and mobile telephony. However, the daunting task of overcoming technological challenges will not constitute the major barrier in the future for fast diffusion in sub-Saharan Africa. Rather the organizing of markets and interaction between market forces and regulatory framework will comprise the key task in virgin markets. We will focus on three related issues; what type of actor should take the lead? Further, how to create a market that efficiently address and troubleshoot blocking mechanisms? Lastly, we discuss the demand-supply enigma.

The first issue might be phrased as who is best equipped to launch M-banking ventures? Small innovative firms like WIZZIT or large MNCs (Multinational Corporations) such as Vodacom (Safaricom<sup>17</sup>)? Mainstreaming, replicating, using standard solutions, and economies of scale all speak in favour of large-scale organizations that easily can copy-cat models and adapt them to a new national context. M-Pesa's launch in Tanzania is such an example. The WIZZIT approach has its advantages when local adaptations are the key to success.

Functioning markets are more than commercial actors, and relies on a system of users, suppliers, research institutions, financial institutes, regulatory authorities, etc. Efficient communication and interaction is required across organizations to sort out question-marks as M-banking treads in unknown territory. Technology is probably the most well-known factor in

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17. Safaricom is not an MNC per se but one of its major owners, Vodafone, is the largest telecom operator globally. Vodafone is as well a 50 percent owner of Vodacom of South Africa.

the equation whereas the management of financial transactions on mobile networks is a new activity for the majority of stakeholders.

The success rate will ultimately draw on the mutually interdependent matching of supply and demand curves. Services offered must address “real” needs as perceived by the target group. These needs must be fairly straightforward converted into a demand for market growth. But the needs will not remain constant over time as the unbanked are just about to discover how M-banking can solve their “banking” problems. Therefore M-banking operators must be flexible in launching offers to suit the financial behaviour of poor people. The case of Philippines demonstrates the need to introduce new features step-by-step as the market grows. Globe, one of the key players, enabled loan disbursements and repayments to rural banks after two years in operation (Porteous, 2006).

### **Donor involvement: further scope for supporting M-transactions**

Donors set substantial hope on M-banking services as a means to bring financial services to previously unbanked groups of society. For example, DFID have (in a co-financing agreement with Vodafone) supported the M-Pesa pilot with a £910 000 grant distributed via Financial Deepening Challenge Fund and IFC have made a direct investment in WIZZIT.<sup>18</sup> These two are exceptions and the bulk of donor support has so far targeted the knowledge pool of M-banking by funding a number of research and consultancy studies. There has been a need to clarify the scope for donor involvement by commissioning base line studies on what M-banking is and means to unbanked and poor people before actively intervening in the market.

We may infer, based on primary and secondary data collected under this relatively small project, that the development potential of M-banking is an amenable avenue of thought. However, despite the vast amounts of research conducted – the argument partly rests upon fairly weak evidential grounds.

Hence, it is important to identify and address knowledge gaps in our understanding. We will do this is by grouping the gaps in two fields; i) the

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18. Nyaoko, William (2008), International Finance Corporation, World Bank Group.

diffusion process, ii) the impact on economic development and poverty alleviation.

Regarding the diffusion process little is actually known about the emergence of a “system”. The interaction among stakeholders manifests that no single actor can launch an M-banking model and it should rightly be seen as an Innovation System. There has been no research of M-banking as a system which would be useful for targeting knowledge gaps in diffusing the service. Such a review should be carried out taken into account several stakeholders’ perspective. An Innovation System survey is of particular interest in countries that do have a knowledge base for designing and developing M-banking models such as South Africa.

Turning to impact and effect on poverty there is presently scant data. We have made the observation that financial behaviour among unbanked is well-known but there are few hypotheses on why banking or specifically M-banking would contribute to economic development. There are a number of issues to address in future research:

- i) Can the current usage of M-banking trigger development?
- ii) Does this usage eventually lead to more sophistication? (such as M-banking services are being used to a significant extent other than for remittances, phone credit top-ups and balance checks.) Hence, will M-banking serve as the starting point to more structured banking?
- iii) Actual impact amongst users of M-banking services. Are there positive feedback loops between advanced users and their capacity to reduce poverty?

This hence suggests that further research very well could be aimed towards a deeper understanding of actual needs, actual uses and impact to date. Such knowledge would not only give at hand what M-banking has achieved to date, but it would also help us to predict the future evolutionary curve and generate a better understanding of the real potential of M-banking in short and long term. As market matures and users’ conditions improve, more advanced user needs will evolve and a deeper understanding of which services really are relevant to users will be important.

On the SMME (Small, Medium and Micro Enterprises) side, we have only come across anecdotal evidence of extended trading and pure business applications as a consequence of enabling functionality of M-banking services. This is a further area where additional research should be motivated given the significance of economic development to alleviate poverty.

Further, there will be a tremendous need to support the development of legal frameworks and regulation. The two countries researched in this project indicate that these are lengthy processes, and dialogue facilitation as well as access to best practice cases are relevant. Other Sub-Saharan countries which have not moved so far in e-commerce or M-banking issues will most likely be in greater need of such support.

At an international level, a closer look at e-commerce and M-banking frameworks in the European Union reveals that the processes are “heavy” and have evolved slowly. In Sub-Saharan Africa, there are platforms for the establishment of internationally harmonised M-banking guidelines, for example SADC, ECOWAS and EAC to name a few. An international level of practices will be required if we in the future are to see international mobile remittances. To support these international processes is clearly one of the more important roles of donors, which could also boil down to coordinated policy and regulator development at a national level in a group of cooperating countries.

Lastly, donors could also engage in brand neutral market education and awareness campaigning. In countries where M-banking is recognized as important for economic development and financial inclusion, donors could sponsor initiatives increasing people’s understanding of what generic M-banking services are, and what they can do.

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