Factors Influencing the Uptake of Mobile Banking in Developing Countries: A Case Study of M-Pesa in South Africa

Adheesh Budree and Kent Howard Williams

M-Pesa (M representing mobile and Pesa being the Swahili word for money) is one of Africa's largest mobile payment solutions initially aimed at banking the unbanked across the continent. M-Pesa was originally developed and successfully launched by Kenyan based mobile operator Safaricom in March 2007. It was then launched by Vodacom in partnership with Nedbank for the South African market in August 2010 using the same consumer model. While M-Pesa in Kenya now boasts a customer base of 9.7 million active users and 15 million registered users (GSMA, 2012), South Africa's version has struggled to gain traction with a registered user base of 1.2 million after two years (Bizcommunity, 2012). From the little research that has been conducted thus far into the South African M-Pesa implementation, a number of reasons have been cited to explain this including the comparatively small footprint of the retail stores that M-Pesa was made available in South Africa as compared to that of Kenya, the cumbersome and complicated regulatory environment in South Africa and differing socioeconomic contexts leading to a lack of understanding and therefore usage by consumers in South Africa. The aim of this paper is to solidify research into the South African M-Pesa implementation by comparing the socioeconomic factors that could have impacted on the successful implementation of M-Pesa in Kenya to that of South Africa. A mixed method research using registered M-Pesa agents as participants was used. The findings highlight the similarities and differences between the socioeconomic factors/contexts of the two countries. Three main factors stand out in this study, specifically: 1. a larger footprint and greater diversity of stores offering M-Pesa services aimed at country-specific M-Pesa target market; 2. a solid and wide-reaching communication and consumer education plan at time of roll-out and ongoing and; 3. implementation of a concise and simple process and communication enhancements around the regulatory environment in South Africa that can support mobile banking. This study provides key socioeconomic and policy recommendations that can aid in the successful banking of the unbanked through mobile banking across similar markets in developing countries.

Track: Banking, Economics

1. Introduction

Current literature hypothesizes that mobile phones have the potential to become low cost accessible accounts or delivery channels for financial services, in particular electronic money and mobile banking (Boateng & Duncombe, 2009). The reason for this is that there exists an inherent need by the poor for low-cost financial services that
could be delivered by the mobile phone (Boateng & Duncombe, 2009). Some examples of successful mobile banking implementations in developing countries can be seen in Pakistan with EasyPaisa and T-Cash in Haiti (Acharya & Kshetri, 2012). Mobile payments or “branchless banking” have become a key catalyst for financial inclusion and make use of agents to penetrate areas where the poor live and work (Dermish et al., 2012).

M-Pesa in Kenya has proven to be a resounding success with Safaricom having over 77% market share in the mobile network environment, and a 9.7 million M-Pesa user base (GSMA, 2012). It has a powerful brand presence and marketing has been geared to reflect “national sentiment,” as well as delivering a clear message aimed at the customer needs for financial services (Mas and Morawczynski, 2009; Dermish et al., 2012). However, South Africa has struggled to reach a tenth of this in over two years since launch. With the Nedbank group priming to relaunch the M-Pesa brand in South Africa, together with launches announced in both Afghanistan and India under the name M-Paisa, this study is aimed at identifying the key socioeconomic differences that led to the initial demise of the M-Pesa brand in South Africa as compared to the successful implementation in Kenya using the same roll-out model in order to make recommendations that could influence a successful uptake of mobile banking in a developing country context.

This paper is one of the first academic investigations in the M-Pesa implementation in South Africa and is aimed at widen the current body of knowledge by looking at an example of mobile banking implementation that was not as successful as the countries on which the implementation model was based, and key lessons that can be learnt from this. A full literature review was conducted followed by a quantitative analysis of transactional data and qualitative interviews with retail branch managers in which M-Pesa outlets were based. The findings from this investigation are presented together with key learning and recommendations on future implementations.

2. Literature Review

Tobbin (2012) states that within the developing world many rural people are deprived of basic services such as water, electricity and banking, and yet still have access to a mobile phone, the number of which has long exceeded people with bank accounts. Mobile money service is revolutionizing how customers gain access to financial services especially in the developing world where the poor have been excluded from formal banking services (Ngugi, Pelowski & Ogembo, 2010). “Mobile money” (GMSA, 2012) schemes are operated by mobile network operators using their infrastructure with the primary purpose of “mobile-enabled” schemes being “cash substitution,” or low denomination means of payment (Dermish et al., 2012).

Transformational approaches to mobile banking are aimed at targeting product offerings to the unbanked market, since they make up the majority of most developing countries. Porteous (2006) and Mayer & Klein (2011) list the key elements of a transformational mobile payments proposition as a safe method to keep money, the ability to cash-in and
out at convenient locations, reasonable service fees and the ability to do P2P (person to person) money transfers, particularly for transfers to relatives living far away. Some products are offered entirely by banks and some entirely by mobile network operators; and even in a partnership between a bank and a mobile network operator (Porteous, 2006; Donner and Tellez, 2008).

Heyer & Mas (2009) show that mobile money should at a bare minimum assist in three ways, firstly increase convenience by reducing travelling and queuing times; secondly due to the virtual element of mobile money increase safety of transactions for users when transacting through the mobile device as it is inherent that by instantly transacting live users begin to trust the system; and finally mobile money offerings through their footprint of agents and outlets, give the user a greater control on where to transact, which helps “protect privacy” and “reduce corruption.” In addition Heyer & Mas (2009) identify three features of a mobile money business as “volume, speed and coverage”, the combination of which suggests a highly scalable business model as momentum of transactions increases. They go on to demonstrate that latent demand, coverage and quality of existing alternatives, openness of regulation, quality of retail infrastructure and market landscape are key to assessing a country’s readiness for mobile payments / mobile money offerings (Heyer & Mas, 2009).

The usage of mobile banking and in particular, payments by means of mobile phones, has increased in recent years in South Africa, with consequent impacts from a legal and regulatory point of view. South Africa is a developing economy with a large unbanked sector. First National Bank estimates nearly 13 million South Africans are not with a bank and therefore makes them a target for mobile banking (Clark, 2012). Recent research statistics demonstrate that the penetration level of South Africans with mobile phones is increasing, yet the regulatory landscape is not entirely conducive to greater financial inclusion (Lawack, 2013).

According to Mayer & Klein (2011) mobile payments do raise “significant regulatory and competition issues”, which implies that a number of risks inherently exist that need to be mitigated through regulation and compliance. In South Africa only a banking institution can participate in the national payments system. A non-bank led operator such as Vodacom must either obtain its own banking license or form a strategic partnership with a bank (GMSA, 2012). Mobile financial services such as M-PESA are required to follow the FICA (Financial Intelligence Centre Act), Anti Money Laundering (AML) and Counter Terrorism Financing (CTF) procedures. This includes that users have to identify themselves with a photo ID-card during registration as part of the KYC (Know Your Customer) procedure and when withdrawing money (Camner, 2009).

Socio-economic factors of the country in question also play a substantial role in the successful roll-out of mobile banking. According to media reports, approximately 32% of South Africa’s adult population remains unbanked which further perpetuates current economic inequalities that the country continuous to face. In the mobile commerce and payment context, previous studies recommend that one of the key attributes impacting the relative advantage of mobile technologies and services is their independence of time and location (Carlsson et al, 2006).
However, according to (Comninos et al, 2009) the unbanked are unbanked for a reason, as they will only transact if the costs in doing so are cheap or free and it is convenient, safe and reliable. Acharya & Kshetri (2012) identify socio-economic conditions, rapid diffusion of mobile phones, increased efficiency and lower costs, convenience and new initiatives as driving factors in a mobile payments ecosystem. This highlights a critical link between financial inclusion and mobile payment systems strategy.

On the other hand, (Dermish, A. et al., 2012) claims that access to financial services is also hindered by the lack of information and customer service. It is also not feasible for financial institutions to pay out small amounts of cash from “poor people” through branches. These low value transactions do not provide enough of a recorded financial history to providers in order to evaluate the credit potential of these individuals. These factors in part make it unattractive for financial institutions to offer products specifically to address the needs of the poor.

As highlighted earlier, there is a clear lack of literature available on the implementation of M-Pesa in South Africa and the learnings from this implementation.

3. The Methodology and Model

M-Pesa was made available at points of sale at one of the largest retailers in South Africa, together with outlets in Nedbank and Vodacom branches. The sample of this study consisted of the registered Vodacom M-Pesa outlets belonging to this retailer over the period October 2010 – July 2012. The main M-Pesa transactions processed at POS in store were new customer registrations, cash deposits, cash withdrawals and cash transfers to both M-Pesa and non-M-Pesa users.

In order to test the key factors influencing the uptake of mobile banking in a developing country environment, a mixed method study was conducted including a qualitative study with one-on-one and telephonic interviews with branch managers of the top ten performing retail branches across South Africa. The transaction volume data was used as input to the quantitative analysis and the data was evaluated across transaction volumes, number of new customers, regional analysis and branch analysis. Approximately eight thousand nine hundred and forty nine transactions were taken into account across nine hundred and twenty seven branches based in eighty five geographical areas.

The interview questions were based on a combination of the TAM (Technology Acceptance Model) and UTAUT (Unified theory of acceptance and use of technology). This was combined with the insights extracted from consumer data made available by the retailer on M-Pesa transactions in the top retailer branches.
4. The Findings and Recommendations

The research showed quantitatively that annually the number of transactions increased 102% suggesting that the business was in fact growing. The year-on-year growth in new customers, however, did not grow at the same rate as the number of transactions. The 13,681 customers in 2011 only increased by 7.15% to 14,660 in 2012. Four key types of transactions were offered by M-Pesa, namely Depositing cash, Giving cash, Withdrawing cash and New customers. When observing the overall number of transactions versus transaction type over the two-year period by category (Depositing cash, Giving Cash and Withdrawing cash) there were increases. However, when looking at the new customer intake, which did not really grow as expected. Most stores showed a decline in the number of new customers joining the service offering, while other stores showed a remarkable increase. An example is the East Coast and Zululand areas which grew by more than 800% and 500% respectively. While stores in the Bushveld and the Garden Route respectively only managed to get 5.5% and 11.2% of the number of customers they had before.

Figure 1: Number of transactions per transaction type

Overall transaction volumes increased across the 2011-2012 periods and of interest was the fact that only 6% of the branches were responsible for 30% of the transactions. The number of new customers did not grow significantly enough between 2011 and 2012. Coupled to this was the fact that a significant number of regions showed a decline in customer numbers. The branches that recorded the lowest number of transactions averaged only 0.38 transactions per day whereas the 3 branches with the highest number of transactions recorded 6.18 transactions per day. These figures highlight that the issue did not lie in the usage of M-Pesa services, but rather the initial sign-up of consumers to the mobile banking solution.

This is supported by the qualitative responses, with most consumers stating that M-Pesa was easy to use once it had been explained to them. There is also evidence from the qualitative research to justify that customers were upset when the service offering
from the store. Based on the quantitative and qualitative analysis M-Pesa was a well-received service offering.

The customer profile of a typical M-Pesa user falls into two categories, namely a 'youth' group and a 'migrant labour' group. The youth group are users that are typically between the ages of ages 18-30, tech savvy, unemployed and/or studying or working part-time. This group makes use of M-Pesa services to receive money that is mainly used for transport fees, food, clothing, airtime and groceries. The most prominent group in South Africa, however, is the migrant labour group, made up of working class, full-time employed individuals (ages 31-40) making use of M-Pesa services to send money to support family members and dependents in different areas far away. These are typically urban residents who are more likely to use mobile money in order to send money, while individuals on the receiving end of transactions were found in rural areas. This is due to urban individuals having migrated from rural areas in search of work and now find themselves breadwinners depositing money for their dependents that are far away, usually from a rural area where ATMs are scarce and where bank fees are exorbitant. As per the demographic split, poor rural women are the least likely to make use of these services, whereas urban men above the poverty line would make more use of M-Pesa services.

The research indicates that the Capricorn, situated in the Limpopo province, has the highest number of deposits over the initial research period. Capricorn is home to one of the largest citrus farms in the southern hemisphere. Comprising mainly of lower income communities including those who leave their homes to find work on the farms would mean they would be more likely to send money home frequently. According to Stats SA (2013) the Nkandla region encompasses nearly 115,000 inhabitants, spread relatively sparsely over a large area. Poverty is prevalent, with 44% unemployment. It also said to be one of the poorest areas in Kwazulu Natal. A thousand seven hundred and two cash withdrawal transactions took place in Nkandla representing the highest amount in 2012. Sundumbili Mandini in kwazulu Natal had the highest new customers in 2012 with just over 1000 new registrations for the year. The area also with a large number of low income earners mostly depend on government employment as well as on agriculture. Southern Free State features in the top 10 areas in South Africa that were able to attract
new clientele, but well below forecasted levels in comparison to the second year of operation in other African countries.

These figures highlight that the areas in need of banking access are split across both urban and rural, with the demand for cheap depositing and saving of funds in urban areas and withdrawal capabilities in rural areas existing. In light of this, the argument by authors such as Toyama (2009) that due to the increasing penetration of mobile phones even into poor communities, mobile payment schemes continues to bring formal financial services to the "unbanked" are valid. These areas have not seen substantial banking sector investments in their areas and hence are more likely to embrace mobile money. This implies that mobile banking has the potential to reach remote corners of the socio-economic and geographic spectrum.

Based on the consumer and geographical profile of M-Pesa users, it is also essential though that a comprehensive explanation is given to a first time user to ensure proper use of the system. Qualitative responses to the research conducted indicate that a proper and thorough communication plan was not followed during and post roll-out, which led to fewer new customer sign-ups. This was also hampered by slow and unreliable systems as well as a long registration process due to legislative requirements.

One of the key reasons highlighted from a business perspective that the system was discontinued by retailers is that it disrupted their primary retail business, including the bottlenecks created by the long registration process. These bottlenecks caused long queues and frustrated customers, especially during busy periods like month end. Another disruption was a lack of float money made available for M-Pesa transactions. A number of stores weren’t prepared to perform cash withdrawal transactions during the morning or unless a number of retail sale had already been performed. This points to a need for dedicated M-Pesa terminals or personnel, which may not be ideal to exist only in a retail environment, which again implies the need for a wider footprint of available
outlets. It is also a viable option to expand the South African footprint using existing ATM networks and partnering with other financial services businesses.

As per the responses, a number of additional services can be offered to increase the usage and clientele of M-Pesa. Sixty percent of respondents indicated that the option to purchase electricity should be made available. The other services, indicated below, have a lower response rate as these services already have a large South African footprint.

Table 1: Suggested additional services

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-border money transfers</td>
<td>10%</td>
</tr>
<tr>
<td>Bill payments</td>
<td>10%</td>
</tr>
<tr>
<td>Purchase electricity</td>
<td>60%</td>
</tr>
<tr>
<td>Funeral cover</td>
<td>5%</td>
</tr>
<tr>
<td>Lotto</td>
<td>5%</td>
</tr>
<tr>
<td>Loans</td>
<td>10%</td>
</tr>
</tbody>
</table>

A 2009 Ernst and Young Mobile Money report warns that constraints such as fraud, security, business models, financial regulations and legislation, lack of technical interoperability and user experience could however hamper the widespread adoption of mobile money.

As M-Pesa relaunches in South Africa, local media suggests that South Africa’s strict banking and cellular regulations are one of the largest hurdles for mobile money to achieve success. South Africa has both a Mobile and Financial Services registration. The Financial Intelligence Centre Act (FICA) and Regulation of Interception of Communications and Provision of Communication-related Information Act (RICA) serve as substantial barriers, as many informal traders do not want to go through the process, or cannot justify the administration of FICA, without sufficient customer demand.

M-PESA in Kenya is not as tightly regulated as banks as according to the Kenyan banking act, Safaricom is not operating as a bank. As long as the money is in transit and is not used for anything else, the operator is not qualified to be a bank. This is not the case in many other countries like South Africa, where accepting deposits from the public easily qualifies an operator to be viewed as a bank (Camner, 2009). While legislation is required in South Africa to manage both the mobile and banking environments, a proper communication plan and an express mobile banking process together with trained personnel can not only lessen the time taken to register a new consumer, but also avoid disruption of the retailers primary business.
5. Summary and Conclusions

Lachaal & Zhang (2012) forecast that mobile coverage on the African continent will expand and the number of users increase to 735 million by the end of 2012. The Mobile Money Africa 2013 conference held in Johannesburg, 27 – 29 May 2013 stated that, “Africa has been the hotbed for mobile money, accounting for 15 of the top 20 countries in the world by mobile money usage. As the market enters its next phase of development, the time is ripe to form new partnerships and develop new offerings to capitalise on the growing number of transactions. With an estimated 80% of adults still unbanked, the potential for growth is enormous. Combined with new developments in commercial payments and a youth market with strong loyalty to mobile channels, the size of the opportunity becomes clear. However, it is becoming an increasingly relevant medium in developed markets too. Not necessarily as a standalone service but as part of a broader multi-channel digital payments portfolio."

A number of key findings and recommendations can be gleaned from the study overall. This includes that while most M-Pesa consumers found the process easy to use, there was a clear lack of communication plan to consumers leading to a lack of trust in the system and avoidance due to ignorance. The footprint of available outlets offering M-Pesa as well as the location of participating outlets was also a major factor in the uptake by consumers, as consumers found availability of in-store M-Pesa facilities lacking. In addition, current banking and mobile regulation makes it difficult for registration of new consumers in store, which can be addressed by making banking regulation adjustments. The socio-economic and banking environment must also be taken into account as a country such as South Africa already has a robust banking environment, and mobile banking therefore does not have to be a stand-alone product, but rather a banking option for the currently unbanked to be able to enter the banked fold.

The study has been successful in that it identified the key areas that impact the implementation of a mobile banking solution and left room for recommendations for future implementations including the revision and proper communication of legislation to make provision for mobile banking, as well as the need for a significant footprint and solid communication during roll-out to ensure that there is adequate exposure to the solution. Therefore, this study and its recommendations can not only aid the M-Pesa re-launch in South Africa, but can also play a pivotal role in understanding the factors to consider in roll outs of mobile banking in developing countries.

References


Comninos, A. et al., 2008. M-banking the Unbanked.


GSMA, 2012 “Mobile money for the unbanked: Safaricom M-PESA’s H1 FY13 Results: A portrait of a maturing mobile money service”


