

Mobile Banking Services in South Africa: The Case of M-Pesa

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Abstract

Mobile banking systems have revolutionised business transactions in developing countries by paving the way for the conduct of electronic commerce transactions via mobiles. As a result, people in developing countries can now participate and partake in the global digital exchange which they were previously denied due to the digital divide. An example of a mobile banking technology that has been very successful in most parts of Africa and used for sending and storing money is M-Pesa. This study investigates the M-Pesa phenomena, amongst the rural township communities in the Western Cape of South Africa with the purpose of understanding the perceptions of the township community towards mobile payments – specifically M-Pesa. The results indicate that although M-Pesa services have shown to be easier to use and less riskier than traditional means of financial transacting; to ensure M-Pesa success, there is a need for (i) an aggressive continuous awareness programs necessary to publicise the service; and (ii) additional functionalities to allow customer retention and use of the service given the presence of competitors service such as money market transfer systems. To arrive at these findings, the study followed an interpretive approach in which in-depth interviews were conducted.

Keywords

Developing countries, mobile banking, M-Pesa

1. Introduction

E-Commerce has for the past years been nonexistence in developing countries due to contextual challenges of technological, social and institutional factors. One of the technological factors that have deterred the growth of E-Commerce in developing countries has been the lack of suitable payment instrument and corresponding payment system such as debit and credit cards, e-banking, and electronic checks (Dani and Krishna 2001). Although developing countries try to implement and use electronic payment systems, the task appears to be incomprehensible as such systems remain complex and difficult to implement and maintain, especially for developing countries that do not have the infrastructure, necessary institutional arrangements and financial resources to cover the costs associated with the implementation (Po et al 2007).

However with the introduction of mobile phones, electronic transactions seem possible via mobile banking. Mobile banking is the provision of banking services such as depositing, withdrawing, sending and saving money, as well as making

payments via mobile networks using mobile phones (Bångens and Söderberg 2008). This paper investigates the use of a mobile banking technology called M-Pesa, amongst the rural township communities in the Western Cape of South Africa. The focus is in understanding the perceptions of the township community towards mobile payments. These communities are usually the unbanked and are “predominantly rural poor people that live in a cash-based economy which is highly informal” (Bångens and Söderberg 2008). To carry out the study, an interpretive approach using semi-structured interviews to collect data was adopted because the approach allows for the explicit recognition to the world of consciousness and humanly created meanings and shows evidence of investigation of the phenomena within the specific cultural and contextual settings from the perspective of participants (Ngwenyama and Lee, 1997). In this study, M-Pesa participants are viewed as active sense-makers, engaged participants, and creators of life in their settings and their identities emerge from discourse (Alvarez, 2002). An interpretive approach therefore provides this study with a rich realm of resources from which the M-Pesa phenomenon can be investigated. The rest of the paper is organised as follows: Section 2 presents related work on Mobile electronic payment system. The methodology and analysis of the study is carried out in section 3. The findings of the study are depicted in section 4, followed by the discussion in section 5. Section 6 concludes the study.

2. Mobile Banking: M-Pesa

The fast diffusion of mobile telecom networks has enabled mobile banking service operators to deliver basic financial services to the financially excluded poor by drawing on the geographic coverage of mobile networks and diverse needs of the client base (World Economic Forum 2011, Bångens and Söderberg 2008). Mobile services for example mobile payments have been suggested as a solution to facilitate micropayments in electronic and mobile commerce, and to provide an alternative for the diminishing use of cash at point of sale (Mallat 2007). Although mobile payments are still restricted to a few geographies, largely because of strict banking regulations and large populations of the unbanked (Medhi et al 2009); they are still suitable for proximity and micro-payment and have the potential to revolutionize methods for paying products and services (Ondrus and Pigneur 2006).

One example of a mobile technology that has revolutionised the practices of doing business in Africa has been M-Pesa - an innovative mobile banking technology targeted to serve the unbanked market which have consequently no formal earnings, rely on farm income, live on ‘welfare’ from friends and family, have irregular income or earnings too small to save (Hughes and Lonie 2007, Finscope 2007, 2006). M-Pesa allows millions of previously unbanked people to move money quickly, securely and across distances, thereby allowing them to take advantage of services that are considered out of reach in many parts of the world. M-Pesa not only facilitates the safe storage and transfer of money, but “by allowing money to flow electronically rather than physically, M-Pesa lessens, and in some cases eliminates, many of the spatial and temporal barriers to money transfer” (Morawczynski and Pickens 2009). The technology facilitates trade, making it easier for people to pay for, and to receive payment for, goods and services such as electricity bills which “can be paid with a push of a few buttons instead of traveling to an often distant office with a fistful of cash and waiting in a long queue; consumers can quickly

purchase cell phone credit (“airtime”) without moving” (Jack et al 2011). With M-Pesa, no bank account is required as subscribers can deposit and withdraw money at a number of M-Pesa agents. As a result of the accessibility of this service, M-Pesa adoption rate has increased quickly, and has become one of the most successful mobile payment systems in Africa (Mas and Morawczynski 2009). In South Africa however, M-Pesa is relatively new with only three years in operation. Although new, it is believed that it can play a critical role among the migrants who migrate from poor rural areas to large metropolitan cities for work purposes. According to Cross (2003), “these migrants remit considerable amounts of money to their families”. Traditionally the money is sent via traditional financial systems which poses a problem for most family members in rural areas because owning a bank account is luxury that they cannot afford. Against this background, M-Pesa could serve as a solution to not only migrant workers and their families but to all unbanked South Africans.

3. Research methodology and data analysis

The study was explorative in nature and followed an interpretive stance so as to better understand the user’s social reality through the contextual interpretations of multiple, dynamic realities of the mobile payment phenomena (Avgerou 2001, Ritchie and Lewis 2003). Interviews were used to gather data using open ended questions in order to facilitate descriptive responses. Two groups were interviewed: M-Pesa users and M-Pesa agents who are M-Pesa service providers within the community. Due to the limited number of users and the newness of the service, only 11 M-Pesa users agreed to partake in the study. The M-Pesa agent sample consisted of 25 participants ranging from senior managers, M-Pesa champions as well as those whom were responsible for servicing M-Pesa customers within the communities. Although the sample size is small, given the newness of the technology; it is important to note that the study is interpretive in nature and such studies do not restrict themselves to such generalisation as would have been possible if the study had been strictly based upon statistical sampling. Interpretivist research does not ‘prohibit the researcher from extending his or her theory to additional settings’, but, instead, allows for generalisation in its own right (Lee and Baskerville 2003).

The data analysis followed a general inductive approach because of the newness of the technology in the community. Analysis commenced with the transcription of the audio interviews. This process firstly involved the translation of all interviews conducted in Xhosa and Afrikaans into English; and secondly ensuring verbatim documentation of those interviews. For each interview, the process of transcription followed immediately after the interview so as to take advantage of recall memory and thus increase accuracy of non-verbal transcriptions. After transcription, the corpus of data was subjected to rigorous pattern identification process of reviewing the data, making notes, and sorting the data into more structured categories (themes) that can explain the data. The focus was on identifying themes and patterns that emerge as being important to the description of the M-Pesa phenomenon through a process of carefully reading and re-reading the data. This analysis approach has the power to report people’s experiences, perspectives, and meanings, whilst examining the ways in which events, realities, meanings, and experiences come about (Braun and Clarke 2006). The themes generated from this inductive approach follow a

process in which data coding is done “without trying to fit it into a pre-existing coding frame, or the researcher’s analytic preconceptions” (Braun and Clarke 2006). As such, the process was highly data-driven to allow “research findings to emerge from the frequent, dominant or significant themes inherent in raw data without the restraints imposed by structured methodologies” (Thomas 2003).

4. Research findings

Five main themes emerged from the data analysis as depicted in Table 1. The findings are discussed below.

Theme	Explanation
Awareness	Cognizance of M-Pesa potential opportunities
Perceived usefulness and relative advantage	observing the direct benefits and indirect benefits of using M-Pesa in comparison to existing innovation; degree to which M-Pesa is perceived as being better than its precursor
Perceived ease of use	Complexity, problems and convenience with usability; not difficult to understand
Risk and trust	secure financial transactions in electronic environment (confidentiality, data integrity, authentication, and non-repudiation, anonymity and privacy)
Market pressure	pressure from trading partners such as consumers and suppliers

Table 1: Emerging themes

4.1. Awareness of M-Pesa services

M-Pesa users became aware of M-Pesa services through a friend, family member or a colleague. It was established that if a person saw a friend or family member making use of a new service they also were more inclined to use the same service as well. This however was still subject to how beneficial the service was and to community leader peer pressure. Peer pressure was a contributing factor to both awareness and adoption because according to M-Pesa agent₂₀, *most rural communities still have the mind-set that they do only what the elders tell them to do. So they don't want to move away from the old way of doing things and therefore end up not making use of the new products that are out on the market such as the M-Pesa payment service... It's all about the community and what the community elder says goes - understand?* Thus perception of the service and user’s attitudes towards it was highly affected by social influences of family members, friends and community leaders.

Although friends, families and community leaders played a significant role in the awareness of M-Pesa; users insisted on a thorough awareness campaign by the M-Pesa providers. They recommended that the M-Pesa logo on the container shop be amplified because it is *too small and people find it difficult to locate which of the containers in the community actually offer the M-Pesa service* (User₁₁). These sentiments were confirmed by M-Pesa agents who collectively indicated that the advertising was not very clear and consumers were confused about what the service actually does and how best it can benefit them. The agents established that without a

thorough awareness programs such as M-Pesa focus days, promotion programs which are currently taking place, M-Pesa adoption was likely to dwindle. They also cautioned that awareness must not be geared towards promotions only but should also focus explaining how M-Pesa actually works and how it would be beneficial if adopted.

4.2. Perceived usefulness and relative advantage

As for those who had adopted M-Pesa, their perception of the service was that it was to provide them with an alternative inexpensive method to traditional financial services irrespective of location. M-Pesa was used for numerous activities ranging from saving accounts (User_{1,8}), money transfer to and from family members (User₅) *because it was an easier and more convenient way than traditional banking* (User₄). User₃ explains: *most of us have families in Eastern Cape who don't have bank accounts...they can now go to any M-Pesa Agent and get the money that we send them from this side*. In addition to convenience, users found the service affordable and *actually cheaper than your normal bank accounts* (User₉). However, 27% of users perceived M-Pesa as a service from which they could obtain free airtime and text messages (sms). User₁₀ explains: *initially people sign up for the free services such as airtime and sms, but later once we are aware of the benefits we sometimes continue using the service for other activities or simply abandon it...but most of us started with the need for the free services*.

M-Pesa agents were in agreement with user's perception that the services was aimed more at consumers who were not in proximity of financial services or banking facilities; and to those who found traditional financial services an expensive method of banking (Agent₁₁). Agent₂₁ explains: *I think its coz most of the people here in Khayelitsha come from Eastern Cape. They then have to send money back home but the financial facilities aren't as prevalent as they are here in the Western Cape. Therefore, the user feels more comfortable using the M-Pesa service as his family have access to a mobile phone making it more convenient for them to receive the money*. M-Pesa services were also frequently sort out for and used by asylum seekers or foreigners with no South African identity documents which are a prerequisite for traditional banking. The general tendency as observed by Agent₁₁ was that *some users did have the wrong intentions when opening an M-Pesa account and that was to obtain the initial benefits of the free services*. Agent₂₃ explains: *they open accounts to get the free airtime and the free sms's offered after you register for the service...customers who sign up get 20 sms's ...as a result, some users open M-Pesa accounts initially but don't use them afterwards... ...but this does not mean that all of them wouldn't use them. No, others just don't have the need for the account as of now, but could so in the near future*. These observations support User₁₀'s report that some users start off with the intention of obtaining free services and later on could potentially be transformed into loyal M-Pesa users.

4.3. Perceived ease of use

Although all M-Pesa users found the service relatively easy to use compared to other financial services such as banking and mobile banking; M-Pesa agents were not convinced because they *were confronted with consumers who just don't know how to*

use their phone and would therefore not be comfortable or confident when making M-Pesa transactions....and when this happens they tend to use competitors services such as money transfer as they only need their ID (Agent₁₆). Some agents indicated that when such customers come for registration, agents engage with them in training on how to make transactions. Agent₆ indicates that with sufficient training users will eventually be able to utilise the benefits that M-Pesa offers.

4.4. Risk and trust

Issues associated with risk and trust of M-Pesa services were not perceived to have a significant factor to adoption as they were mentioned by only 18% of users. The remaining 80% showed complete trust in the service and its infrastructure. User₂ explains: *it [M-Pesa service] uses the PIN number and is very safe... my money is safe. You see, no one would want to steal a phone as compared to money...so I put the money in M-Pesa for safekeeping when I travel 'cause I know its safe there - it reduces the risks of losing my money in case of a robbery.* The risks associated with remembering traditional bank account number was minimised via M-Pesa because it was perceived easier to remember a person's mobile phone number than a bank account number. This benefit minimised the risk of sending money to a wrong account. In addition, M-Pesa users didn't have to present their identity document whilst making a transaction and as such felt more comfortable as the risk of losing one's identity document or bank card was reduced: *I can simply do banking without my bank card or ID (User₂), I don't have to carry it [ID] - I am scared that I could lose it you know (User₃).*

4.5. Market pressure

45% of M-Pesa users indicated that the services are very limited and they would like to have more services. For example, User₁₀ explains that *additional functionalities that would be more useful are to buy electricity and airtime as well as to pay my other accounts using my mobile phone.* User₄ also emphasises this point: *I think they need to add electricity purchases in the future.* User₃ adds the need for a further functionality: *I would prefer to get paid my salary through M-Pesa.* M-Pesa agents confirmed the need for M-Pesa to diversify their services due to consumer needs. Agent₂₃ specifically indicated that diversification could ensure customer retention. He explains: *There were competitors who offered some of the services which consumers are in need of, for example, I know competitor X is already doing so and our customers always come in and ask us why we are not providing the same service...you see, other financial services available to customers are much easier to make use of and therefore the customer would rather make use of them, for example money transfer markets instead of M-Pesa. With money transfer markets all the user needs is their ID and then they send the money to the relevant person. That person will get a reference number that will need to be presented on requesting the money. People find this method of transferring money much easier as they don't have to learn anything as there will be someone else doing the whole transfer for them.* It was apparent that the incorporation of other services was of paramount important to M-Pesa's success given the competition from other financial services such as money market services. Money markets are retail money transfer services that allow a user

to transfer money to another retail partner across a geographical area using an Identity document.

5. Discussion

The findings indicate that M-Pesa awareness in rural communities was low due to the poor visibility of the M-Pesa service providers (the agents shop) as a result of the M-Pesa advertising logo sign. Awareness has been reported as a challenge in other countries as well and has in fact been regarded as one of the key factors for ensuring M-Pesa success (Mas et al 2010). In this study, awareness was also positively influenced by family, friends and community leaders. The impact which social relations have on awareness and ultimately adoption is significant. Thus creating awareness should be one of the top priorities of M-Pesa service providers. Awareness could result in adoption but continuous use of services can be effected if users found the service relatively easy to use and beneficial. The findings indicate that M-Pesa users were comfortable with using M-Pesa services. However this was contradictory with the agents who service those customers. A possible explanation to this could be that most users were still at the initial stage of enjoying the free services and had not transformed into habitual loyal users who actually use the service for what it was designed for. Whilst enjoying the free services, users engage only in the process of sending short text messages and making phone calls – a process that they are already conversant with. However in order to perform an M-Pesa transaction, more is required. Nevertheless users who had traversed to performing financial transactions using M-Pesa still found the service easy to use and this is what made them recommend the service to their families and friends. Ease of use has been documented in literature as one of the factors that ensured customer take-up or acceptance of a given innovation (Daniel 1999). They also found the service beneficial and better than alternative methods of traditional banking. Based on the usefulness of the service, consumers recommended the service to their families and friends who were also equally eager to adopt the technology. These findings confirm that the fact that users will accept an innovation if they perceive it would help them to attain desired performance (Par et al 2004, Teo et al 2004). M-Pesa in this study was able to reduce the distance between users and their families, specifically between migrant workers and their families in rural areas.

However as indicated by the World Economic Forum (2011) “other intangibles such as perceived trust in a service provider’s brand, personal relationship an individual holds with their local agent and the endorsement from relevant peers all play a role in adoption” (World Economic Forum 2011). These intangibles were quite visible in our study. One of them was the issue of risk associated with using the service. Risk has been described as an important factor that consumers consider before adopting an innovation is the level of risk involved (Sathye 1999). In this study, M-Pesa users found the service risk free and were able to trust the services because bank cards and account numbers were no longer necessary whilst performing a transaction and thus the risk of losing those items was minimised. By not requiring bank cards and the remembrance of account numbers, M-Pesa improves its customer’s confidence and trust by keeping to a minimum the personal data required from the consumer (Par et al 2004). However to remain competitive, M-Pesa needs to reconsider the differentiation of its services because the pressure from trading partners such as

consumers and suppliers has a significant impact on technology adoption behaviour. Consumers in this study have distinctive expectations of the services such as paying for utility expenses and receiving salary via their M-Pesa accounts. This market pressure could require that M-Pesa service providers provide these features due to the specific request for it by their trading partners in the industry sector (Van Akkeren and Cavaye 1999) or a strategic necessity to maintain competitiveness in the industry (Teo et al 2004).

6. Conclusion

Developing countries lag towards E-Commerce has been as a result of a lack of suitable payment instruments. However, with the introduction of mobile payment instruments such as M-Pesa, E-Commerce is paving way for mobile commerce. Such instruments, specifically M-Pesa, allow for both money transfer service as well as payment for traditional e-commerce transactions because M-Pesa as a mobile banking service provides services such as depositing, withdrawing, sending and saving money, as well as making payments via mobile networks using mobile phones (Bångens and Söderberg 2008). Mobile banking systems have now become appropriate tools for transforming banking as they provide services tailored to fit the currently unbanked in developing countries. This study investigated the perception of mobile banking, specifically M-Pesa in South Africa. Although M-Pesa is relatively new in South Africa in comparison to other countries, the result indicate the need for (i) continuous awareness programs necessary to publicise the service; and (ii) additional functionalities to the service. Because rural communities tend to have limited financial resources, they would be more reluctant to adopt M-Pesa if they do not perceive the potential benefits. With limited services offered by M-Pesa, users are likely to switch to competitors where they perceive they could obtain positive effects of their technology. Thus for M-Pesa to be successful, awareness and differentiation of services are two important factors necessary for customer retention and continuous use of the service. The contribution of this paper is on alerting Mobile banking providers to pay attention to these two critical factors that could potentially allow them to increase financial access to the low income and often unbanked consumers and thereby, ensuring effective social and financial development amongst the low income and unbanked market.

7. References

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