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P.A. van Brakel

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TO WHOM IT MAY CONCERN

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Department of Business Informatics
Tshwane University of Technology
Pretoria

Prof D van Greunen
School of ICT
Nelson Mandela Metropolitan University
Port Elizabeth

Further enquiries:

Prof PA van Brakel
Conference Chair: Annual Conference on WWW Applications
Cape Town
+27 21 469 1015 (landline)
+27 82 966 0789 (mobile)
Understanding mobile money and mobile payments acceptance in Kenya

P.K. Wamuyu
United States International University-Africa
Nairobi
Kenya
kanyiwamuyu@yahoo.com

Abstract

The use of mobile money, mobile payments and other related mobile financial transactions in Africa vary from one country to another, as it is dependent on the level of technology maturity and the country’s social-economic development. The study investigates usage patterns and diffusion of mobile money in day-to-day person-to-person money transfers using mobile telephone, mobile payments and integration of mobile money in financial services in Kenya. The study also explores the underlying social and economic factors influencing successful use of mobile financial transactions in Kenya as compared to the rest of Africa. The study employs a survey questionnaire and focus group to collect data from respondents. The study results provides important lessons in mobile financial transactions management as well as development of new and improvement of current mobile financial transactions’ products.

Keywords: Mobile money, mobile payments, mobile financial services

1. Introduction

Mobile money transfer is the exchange of monetary value using mobile cellular telephone from a registered mobile money transfer service subscriber to the other. Over the years mobile telephones have been used mostly for voice and short message services. The capacity to offer additional advanced services such as money transfers, Internet access, managing bank accounts, receiving special promotions and getting stock quotations as well as initiating purchase or sales transactions has increased the level of mobile telephone usage. Mobile money transfer services allow people to pay for goods and services as well as download their money to their bank accounts. Mobile money transfer in Kenya was introduced on 6th March 2007 through M-Pesa by Safaricom. Today, the services of mobile money transfer are offered by six different service providers. These are: Safaricom's Mpesa services (http://www.Safaricom.co.ke); Tangaza Mobile Pay Limited's Tangaza Pesa (https://www.tangaza321.com); Bharti Airtel’s Airtel Money services (http://www.africa.airtel.com); Essar Telecom’s YuCash (www.yu.co.ke); Orange Money’s Iko Pesa (http://money.orange.co.ke) and MobiKash Afrika Limited’s MobiKash (http://www.mobikash). Even though mobile money transfer services were targeted for the majority of the unbanked Kenyan, the technology has continued to evolve allowing M-Commerce transactions as Kenyans keep on experimenting on making any kind of payments using mobile money transfer services. Table 1 gives the financial transactions and related services offered by the Kenyan six Mobile Money Transfer Services. The data is compiled from the respective service providers as at July 2012.
Objectives of the study

This study seeks to investigate important factors that influence usage and diffusion of mobile money in day-to-day person-to-person money transfers using mobile telephone, use of mobile payments and the integration of mobile transactions in financial services.

Research questions

The study is guided by the following four research questions.

1. What is the extent of use of Mobile Money and Mobile Payments in Kenya?
2. How has mobile money and mobile payments been integrated with other financial services in Kenya?
3. What are the social and economic factors influencing the use of Mobile Money and Mobile Payments in Kenya?

The motivation for this research was drawn from a look at the huge success of mobile payments and mobile money transfer services in Kenya as opposed to the low uptake of the same services in other African countries.

Table 1: Mobile money transfer service offering in Kenya

<table>
<thead>
<tr>
<th>Services and benefits</th>
<th>Bharti Airtel Airtel Money</th>
<th>Safaricom M-Pesa</th>
<th>Yu YuCash</th>
<th>Mobikash</th>
<th>Mobile Pay Tangaza</th>
<th>Orange Money Iko Pesa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depositing money</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sending money</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Withdraw cash</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Buying airtime</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ATM withdrawal</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Manage the account</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pay bills</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Download money from the mobile account to a bank account</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Top up the mobile account from a bank</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

2. Mobile money and mobile payments

Mobile payment is a wireless-based electronic payment system that supports payment for a transaction using one’s mobile devices such as cellular phones, smart phones, and personal digital assistants (Gao et al., 2005). Wilcox (2010, pg. 2) defines mobile payment as “payment for goods or services with a mobile device such as a phone, Personal Digital Assistant (PDA), or other such device” while the United States Federal Reserve¹ defines

¹ http://www.bostonfed.org/economic/cprc/index.htm
mobile payments as purchases, bill payments, charitable donations, payments to another person, or any other payments made using a mobile phone.

Mobile money facilitates mobile payments hence M-commerce. United Nations Conference on Trade and Development defines M-commerce as buying and selling of goods and services using wireless hand-held devices (UNCTAD, 2004). Today mobile device users are increasingly interfacing and interacting with mobile commerce (m-commerce) systems (Wang and Liao, 2007).

Mobile Money is the stored money value held on a cellular mobile device that could be used in paying for goods or services, sent to another subscriber or converted back to cash. Kenya Tanzania and South Africa share the Vodafone’s proprietary mobile money transfer product M-PESA. M-Pesa was launched in Kenya in March 2007 and in August 2010 in South Africa. M-Pesa Services have also been launched in other countries as indicated in Table 2. Mobile Money transfer services are offered through a network of agents each licensed by the service providers. By the end of 2011 there were 50,471 agents offering mobile money transfer services in Kenya (CBK, 2012), Tanzania has 15,000, while the number of agents in South Africa by the same time was about 4000 (Vodacom, 2012).

Table 2: M-Pesa products offering globally

<table>
<thead>
<tr>
<th>Country</th>
<th>Date launched</th>
<th>Provider</th>
<th>Product name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>March 2007</td>
<td>Safaricom</td>
<td>M-PESA</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>February 2008</td>
<td>Roshan</td>
<td>M-Paisa</td>
</tr>
<tr>
<td>Tanzania</td>
<td>April 2008</td>
<td>Vodacom</td>
<td>M-PESA</td>
</tr>
<tr>
<td>Fiji</td>
<td>June 2010</td>
<td>Vodafone</td>
<td>M-PAISA</td>
</tr>
<tr>
<td>South Africa</td>
<td>August 2010</td>
<td>Vodacom</td>
<td>M-PESA</td>
</tr>
<tr>
<td>Qatar</td>
<td>November 2010</td>
<td>Vodafone</td>
<td>VMT</td>
</tr>
</tbody>
</table>

Source: [http://www.vodafone.com/content/index/about/about_us/money_transfer.html](http://www.vodafone.com/content/index/about/about_us/money_transfer.html)

In 2011, the Mobile Money transfer services moved Kenya Shillings 1,169.15 billion through the agents among 19.4 million registered customers (CBK, 2012). While mobile payments have been very successful in Kenya most other markets are yet to record success (Poustitchi and Wiedemann, 2007) with the exception of Austria, Spain, Italy and Scandinavian countries (Ondrus and Pigneur, 2007). In Asia Pacific, Japan and South Korea are leaders in the adoption of mobile payment; a phenomenon attributed to the close knit relation between the stakeholders (Bradford and Hayashi, 2007) a contrast to the Kenyan social and economic landscape which is characterised by mistrust among most people. Carr (2011) attributes the difference between successful implementations of mobile payment services in the Asia Pacific region and failure in Europe and North America to the ‘payment culture’ of the consumers that are country-specific. This study aims at identifying that unique attribute that has led to mobile payments success in Kenya.

3. Research methodology

The research used a combined qualitative and quantitative research approach. The quantitative part of the study was a survey using a questionnaire while the qualitative part of the study was done using focus group discussions.
The survey questionnaire administered contained items to measure mobile money usage, access and challenges encountered while using mobile money. The sample population for this research was composed of mobile money users from Embakasi area of Nairobi during the months of May and June, in 2012. The sample was selected randomly from customers visiting M-Pesa agents in different shopping malls within Embakasi. The respondents were approached and informed about the purpose of the survey in advance before they were given the questionnaire. A total of 160 questionnaires were completed in five different locations over the study period.

Two focus group discussions were held with the aim of gaining insights into the Mobile money and mobile payments users’ shared understandings of everyday usage of mobile money services. Zimmerman and Perkin (1982) indicates that focus groups allows the respondents, under the guidance of the moderator, to talk about the topic that is believed to be of special importance to the investigation, answering questions of how and why people behave as they do. A focus group is a group of individuals selected and assembled by researchers to discuss and comment on the topic that is the subject of the research from their personal experience (Paul et al, 1996). Each of the two focus groups had eight participants. The focus groups evaluated mobile money adoption and usage using Expectance Confirmation Theory (Bhattacherjee, 2001) and the Rogers five characteristics of technology adoption (Rogers, 2003) that are believed to speed up the rate of widespread adoption and diffusion of an innovation. The reason for employing the two theories in the study is to understand why users have continued to use mobile money services and to interpret how they perceive the use of mobile money services for their payments and money transfer services. The focus group would be used to validate the results of the results of survey questionnaire.

4. Result and analysis

The survey results helped identify the extent of mobile money transfer services usage while the focus group discussions helped uncover the characteristics of Mobile Money that influences its adoption and the users’ intentions to continue using it rather than discontinue.

Kenya has a diverse and mature mobile money transfer services and mobile payment acceptance as compared to South Africa. In case of M-Pesa services, Vodacom’s South Africa M-Pesa has 4000 agents and 850,000 users while Kenya’s Safaricom M-Pesa has about 38,000 agents and more than 15 Million customers. Safaricom M-Pesa usage is high in Kenya and the number of uses continues to grow. Before mobile money transfer services were introduced in Kenya, people conducted their transactions using cash and if there was need to send money between two different locations especially between urban and rural areas, this was only possible through other people, public buses and matatus or the Post office. The study respondents used to send money as indicated in figure 1 before the introduction of the mobile money transfer services.
Figure 1: Money transfer services before mobile money

Sending Money before M-Pesa

0 20 40 60 80 100 120 140

People
Public Transport
Posta

Sending Money before M-Pesa

Mobile money usage

From the study, the respondents indicated that they use mobile money for various transactions. In Kenya, the use of mobile money ranges from person-to-person transfers, bill payments and buying goods as indicated on figure 2.
Person-to-person money transfers had the highest usage. The use of customer initiated payments such as buying of goods and paying bills is also widely used by many respondents. Buying goods is face-to-face payments paid by the customer for immediate purchase of goods as a form of C2B payments while paying bill is non-face-to-face payments paid by the customer for utility where the customer has a prescribed account number for the receiving organisation to identify the customer’s remittances. The basic assumption would be that the users of mobile money loads money on their accounts immediate transaction and load again for another or anticipated transaction. But the study respondents were also using their mobile accounts as mobile wallets to hold money for emergency payments as well as a form of a savings as indicated in figure 3.
Integration with financial systems of the country

The use of mobile money to access banks account has also taken root in Kenya while card-less transactions at the ATMs has the highest usage of the three mobile money access through the banks as indicated in figure 4. The figure indicated in figure 4 do not include the users of M-Kesho, which is a mobile account jointly managed by the Equity Bank and Safaricom. M-Kesho has more than 790,000 account holders. Fourteen banks in Kenya allow their customers to conduct banking transactions from the comfort of their mobile phones through Safaricom USSD platform.

Figure 4: Integration with financial services
Challenges

Use of mobile money has its own unique challenges in successfully conducting transactions as well as risks associated with holding money in a mobile account. The respondents indicated that delays caused by outages and dot cons as some of the challenges in using mobile money services as shown in figure 5. 23% of the respondents felt that use of mobile money transfer services was expensive while 24% of the respondents have either lost their money through Fraud or having sent it to the wrong number. 20% of the respondents indicated that they have registered for more than one mobile money transfer in order to overcome challenges brought about by outages which result to delays in transaction completion.

Figure 5: Challenges associated with using mobile money

Focus Group results

The focus group discussions were informed by two information systems theories namely the Expectation Confirmation theory (Bhattacherjee, 2001) and the Diffusion of Innovations (Rogers, 2003). Their responses regarding mobile money usage are summarized below:

Focus Group 1 discussion

Theme: Mobile money characteristics that makes influences its initial adoption

The focus group members have been using M-Pesa services since 2007 for person-to-person money transfers, buying goods as well as paying their bills. Characteristics of any innovation including mobile money transfer services tend to influence the user’s adoption
decision. The group members were asked to critically analyse the characteristics of M-Pesa that influences its adoption based on the Rogers’s (2003) five innovation characteristics. These are relative advantage, compatibility, complexity, trialability and observability.

**Analysis:** In the discussion that followed, the focus group expressed how mobile money transfer services vividly fit these five characteristics.

1. **Relative advantage:** Relative advantage is associated with reduced inconveniences and saving time and money. The Mobile money services have the relative advantage over the three traditional ways of sending money as it is more convenient, safer and affordable way of sending money. The users can be able to send money from easily accessible agents and at any time of the day. The users are also able to buy airtime and pay their utility bills without the hustles and long queues found in most service providers’ cash offices. The convenience of using mobile money is illustrated by Dahlberg *et al.* (2003) which indicates that mobile payment services can be used anytime and virtually anywhere.

2. **Compatibility:** The Mobile money services easily integrate in an individual life as a mobile wallet and eases on how one buys airtime, goods and services. As members of the group has always had to carry cash for their transactions, mobile money services gives them a secure way of having their money with them. M-Pesa menu is also offered in Kiswahili which most people can understand. The M-Pesa is also compatible with the culture of sending money especially to relatives living in rural areas thus being compatible with the users’ experience.

3. **Complexity:** It is easy to use M-Pesa as it does not require advance knowledge or a sophisticated phone. The menu options are easy and straightforward and less in complexity. It is easy to understand how mobile money works and use it. In most cases, the use of mobile money is spontaneous.

4. **Trialability:** Most members of the focus group first received money when not registered with any mobile money service provider. This gave them the experience of how mobile money services works and started by buying airtime (limited uses) before eventually comfortably paying for other goods and services. Because a SIM card comes with a preinstalled M-Pesa menu, it is easier for a user to look at it and understand its working hence reducing fear of using the new technology.

5. **Observability:** The successful use of mobile money services in person-to-person money transfer services has continued to elicit new and innovative ways of using mobile money services. It all started by allowing users to conveniently send money to the relatives in upcountry which created positive reactions and now members of the group believe that M-Pesa can be appropriated for anything any time. Mobile money services are now common knowledge and people can attest to its benefits. Observability can also be related to what Jack and Suri (2009) refers to latent demand in financial services that a majority of the population can identify with.
Focus Group 2 discussion

Theme: Mobile money continuance intention

The second focus group discussions were to gauge the user’s satisfaction with the mobile money services based on their initial expectations on the services and the actual performance of the mobile money services after they had adopted the services. Bhattacherjee (2001) indicates that users’ continued Information Technology usage is usually different after gaining experiences from using the technology from the expectations before using the technology. Bhattacherjee (2001) conclusion is that continued usage of any Information Technology is determined by user satisfaction, extent of user confirmation and perceived usefulness. The group members were asked to critically analyse their intention to continue using mobile money services based on Expectation-Confirmation Model of continued IT usage based on Bhattacherjee (2001).

Analysis: The critical discussion that followed reflected on why the users will continue rather than discontinue using M-Pesa.

Perceived usefulness: Participants perceives M-Pesa to be useful, it makes their life easier while allowing them to accomplish monetary transactions safely and quickly. M-Pesa is very useful as a mobile wallet as the user does not have to walk with liquid cash always. Any user who perceives M-Pesa services as useful will continue to use it. The M-Pesa as a mobile wallet does facilitate miro-payments in micro-trading.

Confirmation: The participants experience with M-Pesa was better that their initial expectations in terms of service levels, affordability and convenience. The conclusion was that the participants overall expectations from using M-Pesa were confirmed.

Satisfaction: The participants overall experience of M-Pesa was very satisfying, very pleasing and absolutely delighting especially when paying electricity bills as well as paying for goods and services.

Continued usage intention: The participants intends to increase their use of M-Pesa in future as new product offerings are added as well as continue to use the services for its original intent of person-to-person money transfers. This agrees with Duncombe (2009) which attributes success of mobile payments to the ability to transfer small denominations incorporating low transaction costs and the ability to operate cash-in and out systems.

5. Discussion and conclusion

The introduction of Mobile Money services was intended to help reach the unbanked in the society. To some extent, this was successful as mobile money transfer services strongly attract users because of its high convenience and low cost. Most economies such as the Kenyan market the banking services were very expensive and mobile wallet seemed a greater thought for the unbanked population. But over the last few years, the Kenyan market has witnessed the introduction of low-cost bank accounts targeting the low income mass market. This has affected the use of mobile wallet for savings as most people prefer to have money on their mobile wallet for emergency payment over the savings. From the study all the respondents had conducted a financial transaction using their phones. This is
high compared to Ghana where only 7% of its mobile users have used mobile money transfer services (Frempong, 2009) and South Africa where only 43% of mobile phone users have made a financial transaction via their phone (Rao, 2011). In South Africa, Rao (2011) points out that consumers are only able to purchase digital goods such as music, ringtones, games and wallpapers as well as carry out mobile banking. The biggest beneficially of mobile payments are the micro-traders who are able to conduct secure transactions in busy and congested market places. This concurs with Esselaar et al., (2006) which indicates that micro-traders can capitalize on the services availed through mobile phones by conducting affordable micro-transactions by going the m-payment way.

Mobile money transfer services have enhanced banking services through interchange of monetary transactions between the mobile wallet and the bank accounts. This is an indication that mobile money transfer services complement the banking services. The low number of users who transfer money between the bank and their M-Pesa accounts is an indication that it is not only about the innovation but any technology must complement all aspects of people life. Mobile money transfers have also solved most of the hassles people go through when paying for services such as requiring one to carry cash or looking for change after making payments. Even though 57% of the respondents indicate that the use of mobile payments services is expensive contradicting Hughes and Lonie (2007) that mobile transaction fees are usually less than most of the other payment options when making small payments, most users will use mobile payments because of it convenience and security. However, when transacting large sum of money the cost of transaction using mobile money services is higher than the other available options even though Wamuyu et al. (2011) showed that affordability does not significantly affect the intention to use m-payment but in Malaysia perceived cost is a barrier to m-commerce adoption (Wong and Hiew, 2005).

The Key to mobile money services adoption is Kenya is its appropriateness to micro-payments in micro-trading as well as majority of the population can identify with.

References


