

Exploring Factors Affecting Mobile Money Adoption in Tanzania

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Abstract

This paper presents the findings of a study which aimed at exploring factors affecting mobile money adoption in Tanzania. This study was based in Dar-es-salaam whereby the findings were collected through interviews and questionnaires were distributed to various mobile phone users.

Findings of the study concluded the low adoption of mobile money in Tanzania although it is needed as customers feel that it helps them save time. Several service providers are available and what determines the customer's choice of the provider is its agent's availability. Moreover it shows that in order for mobile money services to be adopted customers should be aware of it; it should give them expected value and have usability qualities.

The main factors affecting the adoption are poor agent network and poor user support. Other factors are insufficient service awareness, high transaction cost, fear for money safety, unfriendly interface design and lack of procedure training.

The paper is suitable for all mobile money service providers; it recommends that they should create awareness of their services, make sure it creates value and has usability qualities.

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1. Introduction

Technology has been a continuous agent for change in people's lives in both developed and developing countries. The use of Internet is changing how things are done; the invention of e-commerce which is the exchange of goods and services over the internet is even growing closer and closer to the users since the invention of m-commerce which involves all kinds of electronic transactions by use of mobile devices.

Blanca and Pablo [2008] view m-commerce as a means at which people get services such as communication, information and entertainment. It was first introduced in Finland in

1997 and now used throughout the world bringing services at people's hands whereby with a single click a person manages to save a lot of time and difficulties in getting what he wants [Rashad and Mohamed 2011].

Mobile money has been mostly adopted due to the wide spread use of mobile phones which have become central to the lives of most people in developed and developing countries; this is also seen by GS1 [2008] which notes that in the past 10 years mobile phones have changed the way we live and work. *"It is more likely that you will forget your keys than your mobile phone when you leave home in the morning"*.

Tanzania is one of the developing countries where mobile phones are widely adopted and used. According to Intermedia [2011] 78% of Tanzanians had access to mobile phones in 2011. While TCRA telecom status report of June 2012 shows that the total number of subscriptions is at 28,024,611 million of which there are citizens with more than one sim card [TCRA 2012b].

In January 2000 BOT the regulator of all monetary issues in the country issued a guideline for the introduction and operation of card based e-money products and schemes [BOT 2000]. The aim was to promote non cash based instruments and mitigation of the risks that threaten the stability and confidence in national payment system.

In 2007 Mobile phone financial service was introduced [BOT 2012] and the mobile phone companies started introducing the product in 2008 Vodacom being the first with M-pesa followed by Airtel which at that time was known as Zain in 2009 with ZAP which was later changed to Airtel money [USA department of commerce 2010].

This study focused upon factors affecting mobile money adoption in Tanzania with the case study being Airtel money use in Dar-es-salaam.

2. Literature review

Mobile money use

Several studies on mobile money have been conducted in both developed and developing countries some focusing on the adoption issues and others had other subjects of the area.

The InterMedia [2011] conducted a Tanzania mobile money tracking study with the aim of identifying trends in uptake and use of mobile money. In the 2011 study results showed that there is low adoption of e-money although the level of awareness is high. Some of the identified reasons are network problems, people's knowledge in using the service since there is no help available, poor agent customer service, people are aware of the service but not its benefits and others do not find it reliable, trustworthy or convenient.

Demombynes and Thegeya [2012] conducted a study on Kenya's mobile revolution and the promise of mobile saving. The study aimed at examining the mobile saving phenomenon due to the mobile revolution that has transformed the lives of Kenyans

providing not just communication but also basic financial access in the form of mobile phone based money transfer and storage.

An exploration of factors affecting the adoption of mobile financial services among the rural unbanked in India was also conducted which aimed at identifying drivers and inhibitors for adoption of mobile financial services and compared results with existing studies. The above studies show that the areas has been widely studied but each researcher had a different specific area of focus and coverage likewise this study had its own focus point which is exploring the factors affecting Airtel money adoption in Tanzania.

Challenges in Mobile Money Adoption

Despite the availability of devices that support mobile money transactions, customers are yet to adopt due to several challenges that exist. Mallat [2007] identify security, privacy and social influence as some of the challenges. Grosche and Knospe [2000] on the other hand emphasize on security as the main e-money adoption challenge which has both physical and technological solutions that will involve both the user and the service provider. Technological solutions for security concerns involve authentication and authorization and use of security protocols such as secure socket layer (SSL) and WTLS. InterMedia [2011] mention other challenges to include network problems, literacy rate and no clearly defined policies and laws on e-money.

The service providers are responsible to overcome these challenges to enable speedy adoption process of the service. They need to create a relationship with the customers to introduce them to the product, teach them about it and create a loyal relationship throughout the customer life circle stages which are reach, acquisition, conversion, retention and loyalty [Cutler and Sterne 2000]. The aspect of creating a relationship with the customers is known as customer relationship management (CRM) which involves the deployment of strategies, processes and technology to strengthen an organization relationship with a customer throughout the life circle from marketing and sells to post sales services [Susy and Jean 2005]. The customer relationship strategies involve customer loyalty creation, branding, customer satisfaction, customization and trust [Bull, 2003].

Conceptual Framework

The study considered the fact that in order for mobile money to be adopted there are two sides to be considered which are the service providers' side and the customers' side.

At the service providers there are two main areas; the Technology side and business side. Technical people are responsible in making sure the technological platform is in place and through interview the researcher found out what is done. Business people are responsible to bring the product to the market and make sure customers are aware of it and use it, the study also used interview to find out what is done.

Customers will adopt the product only if they are aware of it, it has value and it has usability qualities. Fig 1 below shows the conceptual framework of the customer side of the study. The framework consists of three independent variable of awareness, value and usability which if combined will result into adoption of Airtel money. In this case awareness means the knowledge customers have about the product, value is the quality or performance which comes from the customers overall assessment of the utility of the product

based on perception of what is given and what is received. Lastly Usability represents the easiness of using the system which is determined by interface design,

procedure training and user support [Blanca and Pablo 2008].

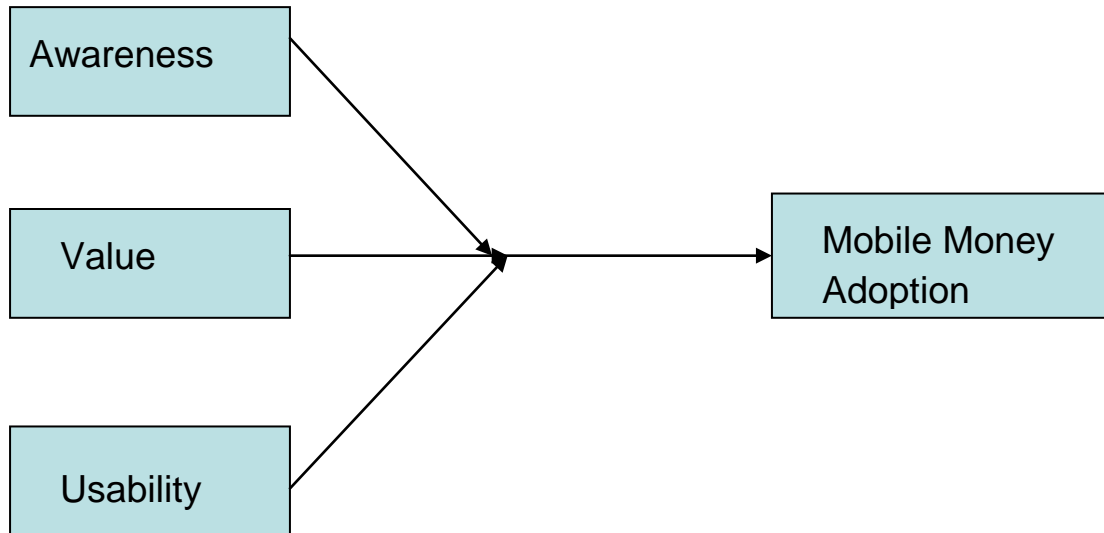


Fig 1 Mobile money Adoption

3. Methodology

The research design used in this study was the Case study since it allowed the researcher to perform the study on a single social unit or institution. Also case study enabled Airtel money to be studied intensively since all efforts were directed towards it. Case study also allowed triangulation which is the use of different sources in collecting evidence [Adam and Kamuzora 2008].

Primary data was collected from three groups where several techniques were employed. These groups are Airtel money business department staff, Airtel money technical department staff and Airtel customers in Dar-es-salaam. Interview was conducted on Airtel money business and technical staff as the researcher obtained greater depth information this way. It was also flexible, got high response rate, wide coverage and complete information although it was more expensive, time consuming and lack of anonymity that limited the amount of information issued. [Adam and Kamuzora 2008].

Questionnaires were used to get information from the customers and Swahili language was used in this process as it is the first language in Tanzania whereby the researcher managed to get much response this way. This made sure the questionnaire was clear and easy for the respondent to answer [Saunders et al. 2007].

The sample was selected using simple random sampling whereby a sample size of 150 customers was involved where each municipality had 50 representatives. Then 4 people from Airtel money business and technical side were involved [Adam and Kamuzora

2008].

Data collected was prepared for analysis by editing, summarizing and classifying. Then towards analysis coding was done. Both qualitative and quantitative method of data analysis were used. For qualitative

analysis description was used and for quantitative analysis multiple regressions and multiple correlations was done with the support of SPSS statistical package [Kothari 2004].

4. Findings

Respondent's characteristics

The respondents came from Dar-es-salaam involving the service provider and the customers from the three municipalities. From the service provider interviews were conducted while on the customers questionnaires were distributed of which 145 were valid and used for analysis. It involved both male and female with age ranging from 18 to above 55 with different income, education level and employment status. The results indicated a greater percentage of male than female most of them belonging to the age group of 25 to 34, with secondary education level and most of them are employed and self-employed as indicated in fig. 2.

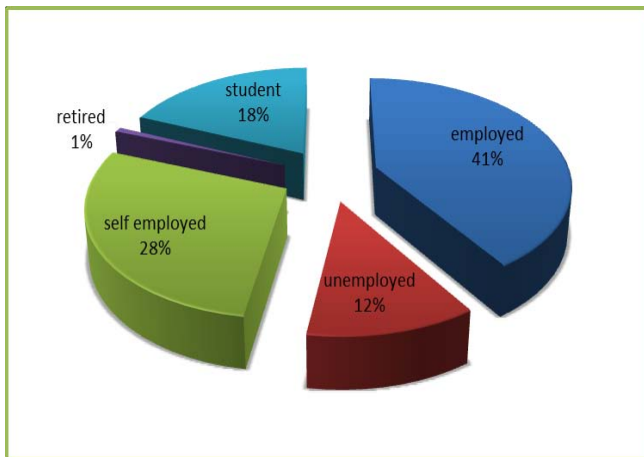


Fig. 2 Respondents employment status (Source: Research data)

Mobile money service provider selection

The services provided by Airtel are a result of the need realized by customers whereby the responding customers identified several factors that drive the need for e-money the most important one being time saving meaning that with e-money one can easily go to

the agent deposit cash in a short time then proceed with any other transaction while the last factor is money saving as seen in table 1.

Table 1. Factors driving need for Mobile Money

	<i>Factor</i>	<i>Percentage</i>	<i>Position</i>
1	Convenience	54.5%	2
2	Money saving	28.3%	5
3	Easy financial movement	42.1%	3
4	Time saving	60.7%	1
5	Safety	29.7%	4

The realized need for e-money has made most telecom companies to provide e-money services, this brings a challenge to the customer on selecting the best provider. There are several factors that the customer considers in selecting a service provider the most selected factor is agent availability as indicated in Table 2.

Table 2. Factors considered in selection service provider

	<i>Factor</i>	<i>Percentage</i>	<i>Position</i>
1	Network availability	46.2	5
2	Network reliability	47.6	3
3	Agent availability	54.5	1
4	Ease of use	53.8	2
5	Transaction cost	40	7
6	Service reliability	43.4	6
7	Agent reliability	24.1	8
8	Convenience	46.9	4
9	Trust	17.2	9
10	Service registration	7.6	10

Not having the most important factors to a single provider make most customers use more than one provider. In this study only 12 customers (8%) were seen to use only Airtel money as e- money product although all are Airtel customers as seen in fig.3. This

shows that most Airtel customers need e-money but do not use Airtel money; they depend on other providers for e-money as seen in fig. 4.

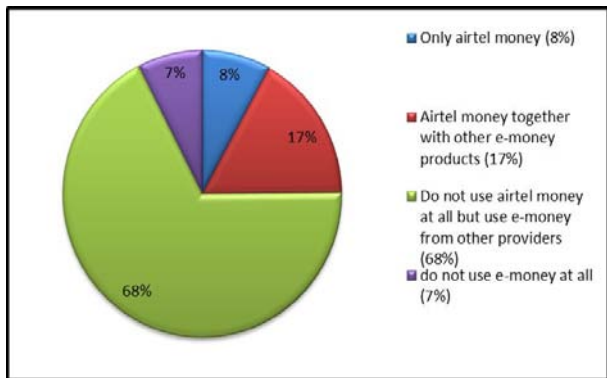


Fig. 3 Airtel Money Use

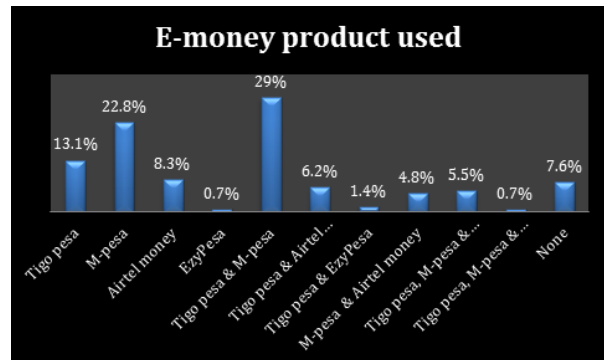


Fig. 4 Mobile money product use

Technology used to support Airtel money

Airtel Tanzania is currently using the 3.75G technology which is an updated version of the 3G that has high speed that enables fast and reliable Airtel money transactions. According to Cyril and Gan (2008), the increase in use of e-money will boost 2G, 3G and other versions of wireless technologies to be used.

The reliable technology is supported by a database that has succeeded to keep customers data safe and of high integrity. Customers can access this data and perform transactions through the interface that is menu driven. Whereby most respondents agreed that the interface is readable; the language used is understandable, it is easy to learn and the displayed information is complete.

Network failures are a common problem with all service providers which is either due to the dependence on the undersea fiber optic cable SEACOM which when disturbed affects all networks or due to other technical problems.

Customer relationship strategies for Airtel money

Airtel money business department has adopted the customer centric way of doing business as has been identified in this research findings. They follow the five steps of the customer life circle as defined by Cutler and Sterne (2000), these steps are reach, acquisition, conversion, retention and loyalty. Whereby the findings indicate that the Airtel money business department reaches their customers through ATL (Above the line) communication that involves the use of media that is television, radio and newspapers. Interested customers are then acquired, provided necessary information so as to learn and understand the product. Convinced customers are then converted into paying customers and are encouraged to use Airtel money due to its characteristics of wide coverage and opportunity for the un-banked.

Airtel money business department tries its level best to retain their customers and encourage new customers by having promotional activities such as having the ability to send and receive money below Tsh100,000 free and having free airtime top up as you pay bills through Airtel money.

Barriers for Airtel money adoption

The results of this study show that the adoption of Airtel money is low due several barriers which are grouped as awareness, value and usability.

Airtel money business department is struggling to create awareness of the product but still most customers are not aware. Moreover awareness also involves the customer's awareness of the Airtel money agents of which results showed that most customers are not aware of agent location and the ones known are not at a walking distance from the customer's location. Unfortunately most available agents are out of business although they still have billboards

that show that Airtel money is available.

Value is gained by product availability, cost and security. Airtel money customers said that sometimes the product is not available which makes them go for other providers. They also said that the costs incurred in performing the transactions discourage the use of the service as the senders pay both for the sending cost and withdrawing cost. Customers are also concerned with money safety and are reluctant to use the service for this reason.

Usability involves interface design, procedure training and user support. Airtel money interface is seen to be comfortable with the exception of complete information displayed as it does not display the recipient's name before a person confirms a transaction to avoid sending money to the wrong recipient. More over procedure training is not provided to a satisfactory level, most customers as well as the agents are not well trained to use the system. When a customer tries to use the service and finds it difficult and there is no one to assist then they will turn to another provider who provides training and support.

Lack of user support also creates a barrier in using the product as customers face different problems of which once they are not attended well and on time then the customer will stop using the service and will encourage others not to use it as well.

Multiple regression results

This study indicates that mobile money usage is successful only if the customer is aware of the product, gains value from the product and has usability qualities. The multiple regression conducted on these variables proved it to be true.

The results showed that the model can determine the results at 70% from the coefficient of determination $R=0.696$. The correlation is also significant since the probability value P

$= 0.000$.

This indicates that use which is dependent variable can be determined by awareness, value and usability and that there is a relationship between the independent variables and the dependent variables. Whereby the prediction equation is:

$$Y=1.8 + 0.059 X_1 + 0.044X_2 + 0.51X_3 + e$$

Whereby

Y is the dependent variable Use

X₁ is Awareness

X₂ is Value

X₃ is Usability

Once all the three variables are in a good state then customers will adopt the service.

5. Analysis

The findings of this study indicate that the introduction of mobile money has been of great advantage to most people between the ages of 25 to 34 with secondary school education level, the majority being those

who are also the working class, which means that they are involved in money transactions .This shows that mobile money is used by most of the Tanzanians, who need mobile money products as they enable them to save time and in a convenient way for them to send money to friends, loved ones as well as enabling them complete their business transactions.

Although the majority of customers using mobile money with reference to the results of this study are either unemployed or self-employed they do not see mobile money as their answer to their problem of being unbanked. Given their employment status most of them do not have required collateral to fit into the banking system. For a self-employed person you need to have a registered business to be in a good position to hold a bank account of which most find it difficult to go through the required logistics. However they do not consider mobile money as a money saving tool.

Telecommunication companies have come up with the mobile money product as they see it as one of the main services their customers need. The customers are faced with the challenge as to who is the best service provider. For this case the study shows several factors that customers consider in selecting the best mobile money service provider. The most common factor used by most of the customers in the service provider selection is the agent availability followed by ease of use together with network availability.

We have seen earlier that customers need mobile money services in order to save time. This makes sense as the issue of agent availability is the first factor in selecting mobile money service provider. If a person wants to send money to a friend and decides to save time by using mobile money, then he would not wish to waste time looking for the agent hence he will use the agent that is easily available near him. Apart from the agents availability, in cases that most service providers have agents around as in most urban areas the customer will chose a service provider whose services are easy to learn and use without assistance and also whose network is reliable.

Vodacom Tanzania has managed to spread its M-pesa agents in most areas in the country making it the mobile money service with most users. You can find a person using other providers for communication but when it comes to mobile money he shifts to Vodacom and use M-pesa. This has resulted into some customers not understanding that there are several other mobile money products from different companies, ending up calling all of them M-pesa.

Mobile money has managed to make customers save time as well as create a convenient environment for money movement. With this comfortable environment, customers do not really care much about the transaction cost. They are ready to pay for the reliable service, although airtel decided to make money transactions free of charge people are not really using it because they do not have a good agent network.

Trust was also seen one of the least factors in selecting service provider this means that customers are comfortable with the service providers and the issues of trust and security are not big issues in the use of mobile money products. People are comfortable and hence feel that their money is safe.

In order to use a mobile phone, customers need to register the sim card whereas in order to use mobile money services they need to register for the service. Airtel has come up with a strategy that a customer will only register once meaning that when you register the sim card then you automatically register for airtel money services. This is a good thing as it requires the customer to go for registration just once but the customers do not see it as a big factor they are ready to go for several registration processes as long as they get a good service.

After identifying why customers need mobile money and the factors customers use in selecting the service providers, this study identified that out of the four available mobile money products, M-pesa was the most used mobile money in Tanzania. This could be because they have a good agent network compared to other providers. The second one was seen to be Tigo pesa then Airtel money and lastly Ezy pesa. All this was collected from Airtel customers.

Airtel money on the other hand has very few users because of having a very poor agent network and their customers receive poor support. Thus, although airtel has wide network coverage throughout the country, good technological framework, has no registration for airtel money and free transaction cost their customers have not adopted to use it.

In the process of adopting mobile money the study found out a relationship between awareness, value and usability. In order for customers to adopt mobile money they need to be aware of the product, that it should provide services with value to the customer and it should have usability qualities. Although all mobile money service providers are struggling to create awareness of their services still more efforts are required since some customers need to hear something several times in order to understand. Awareness involves customer's awareness of the service, agent location and the benefits brought by using the service.

Value is gained by service availability, service cost and security. Customers will use mobile money service if it is available, has reasonable transaction cost and is secure. Moreover usability is another important factor whereby customers prefer services that are easy to learn and use. Usability involves interface design, procedure training and user support. Most of the interfaces of the mobile money services are friendly with menus in Swahili language which enables a quick understanding for most Tanzanians. It is important that the recipient's name appears before the customer confirms a transaction to avoid error of sending money to the wrong person. Tigo pesa has managed to have such features which other providers should implement it as well.

Procedure training should also be provided to customers to enable them perform the transactions without needing assistance. User support is also very important as it should be provided through customer service centers online as well as customer service points in physical office of a provider. Most of airtel money customers complained of lack of user support which make some of them shift to other service providers.

Once all these factors are kept in place then it will be easy for customers to use the mobile money products. All mobile money service providers should make sure that they create awareness of their products, make sure that their products create value and have usability features.

6. Conclusion

The study aimed at exploring the factors affecting mobile money adoption in Tanzania with the objective of finding out the criteria used by customers for mobile money service provider selection, the technologies used to support mobile money, customer relationship strategies used throughout the customer life cycle for mobile money and the barriers for mobile money adoption where by it was found out that the level of adoption is low and there are barriers to its adoption.

The study found out that customers need mobile money because it saves time and also it is convenient enabling any time anywhere transaction. With these reasons the agent availability and ease of using a service plays a very big part in the selection of the service provider. Airtel money is lowly adopted because it has a problem with the agent network which is not well distributed and makes it difficult to save the purpose of time saving and convenience and also the customer support provided is not satisfactory.

There are several barriers in adopting mobile money which could be grouped as lack of awareness, not meeting customers' value expectations and usability issues. Multiple regression results showed a relationship between these variables.

The study recommends increase in advertisements, improvements in agent network and user support. Other studies can be conducted in other regions in Tanzania and should consider all other mobile money products.

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