

Challenges of mobile-phone money transfer services' market penetration and expansion in Singida District, Tanzania

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Abstract—This study examined the challenges facing mobile money transfer services and their expansion in Singida, Tanzania. It adopted cross-sectional survey to collect quantitative data from users of mobile money services. It also included agents and service providers' representatives from Aitel Money, Tigo-Pesa and Vodacom M-Pesa in Singida district, Tanzania. It found out that there are significant challenges affecting market penetration and expansion and regular use of mobile money. Lack of financial capital problems for agents, unavailability of network coverage and regulatory barriers to mobile money payment systems were leading to low penetration level in Singida and Tanzania. Reduction of transaction charges, ensuring widespread availability of agents in rural areas, stability of network, regular supply of electricity, training and information to users are necessary measures to increase usage, penetration and expansion of mobile phone money services.

Keywords-mobile-phone money transfer; market penetration; value-added services; transaction charges and stability of network

I. INTRODUCTION

Mobile money and mobile-phone money transfer

Mobile money is a term used to refer the money stored using the Subscriber Identity Module (SIM) card as an identifier as opposed to an account number in the conventional banking sense (Ndiwalana, Morawczynski and Popov, 2011). It is defined by Demombynes and Thegeya (2012) as a system of electronic money account that can be accessed by mobile phones. The users have the access to the account at any point of time provided that there is network availability. A service is considered as mobile money if it fulfills the following criteria (Desai, 2011); (a) The service must offer at least P2P transfers, bill payments, bulk payments, and storage of value (b) A service must exploit a network of transactional agents outside bank branches for cash in or cash out (c) The service must offer an interface for initiating transactions for customers and agents (d) Customers must be able to use the service without being previously banked.

According to Hope *et al* (2012), mobile money is an electronic payment system that enables money transfers to and from an electronic account that can be accessed via an ordinary mobile phone. Customers' accounts are linked to their mobile phone numbers by means of an inbuilt SIM-card application. Physical cash withdrawals and deposits are facilitated by a

network of retail agents. Tobbin (2011:60) explains that mobile-money can be said to include all the various initiatives covering long-distance remittance, micro-payments, and informal air-time bartering schemes aimed at bringing financial services to the unbanked using mobile technology.

Mobile phone money transfer services at global level

According to Desai (2012:5), the mobile money industry is continuing to expand rapidly around the world and there were 150 live mobile money services for the unbanked in 72 countries, 41 of which were launched in 2012. This growth has been driven largely by Mobile Network Operators (MNOs), which operationally run 72.0% of live deployments and 72.5% deployments launched in 2012, where most deployments centered in Sub-Saharan Africa.

The mobile money industry, as measured by the number of deployments around the world has grown rapidly. According to Davidson and Pénicaud (2012:5-6) based on the global survey conducted, at the beginning of 2009, there were 17 mobile money services for the unbanked around the world; as of April 2012, there were 123, with another 93 that were being planned for launch. Based on mobile money transfer, it was found in the same survey that 52 operators who participated in the survey reported having registered a total of 60 million customers as of 30 June 2011. Eleven services were reportedly having more than one million registered customers in June 2011; together, these eleven services accounted for 85% of the registered customers identified in the survey, with the long tail of 40 services reporting the other 15%. Further, from the survey undertaken by Davidson and Pénicaud (2011:7-8) it was also found out that, in June 2011, mobile money service providers processed 141.8 million transactions. Of these, 29.8 million were payments: transfers, bill payments, and bulk payments. The rest were cash in, cash out, and airtime top ups. During the first half of 2011, the volume of transactions and payments processed on a monthly basis by mobile money service providers increased at annualized rates of 59% and 36% respectively.

II. STUDY OBJECTIVES

This study specifically intended

- i. To identify and analyze usage patterns and market performance according to parameters of interest in delivering mobile money service by all providers

- ii. To determine the challenges in expanding the Tanzanian mobile phone money market especially whether the rural areas are fully penetrated by the effective mobile money transfer services
- iii. To undertake market analysis on how unreached market segments can be tapped with full or reasonable adoption rate

III. RESEARCH METHODOLOGY

Research design

This study used cross-sectional survey design, which is defined as a study which gathers information at only one point in time (Frey, Botan and Kreps, 1991:188). The use of cross sectional study implied that data were collected in a particular point in time in the study area with expectation that variables were not likely to change. The field survey was undertaken in the first and second quarter of 2013.

Study area and justification of its selection

Singida district is in central zone of Tanzania bordered by Manyoni and Ikungi districts in the south. On the west it is bordered by Iramba district, while on northern side there are Mbulu and Iramba districts. To the east, there are Hanang and Kondoa districts. Singida Municipality is located in the central plateau of Tanzania between 4° 40' and 4° 53' south of Equator and longitude 34° 30' and 34° 53' East. Singida district council residents are engaged in agriculture and livestock keeping. Some of the remaining population is engaged in businesses.

Singida district is growing fast due to various investment and development activities. The government efforts to construct the central corridor roads are stimulating the expansion of the town and more people are investing in various economic activities. There have been many institutions operating in the town and a few others in the rural areas. To mention a few here, Laboratory Assistant School, Singida School of Accountancy, National Vocational Training centre, Singida Teachers Training Centre, Regional Hospital, Health Center and fourteen dispensaries. Other institutions are Tanzania Public Service college, the upcoming Singida referral hospital and Wind electric project. Singida district is the business area which comprises large number of population that caters for residents from rural, sub-urban areas and Singida town being the focal point, people communicate for different business and remittance purposes that require transactions via mobile money transfer services provided by various mobile phone companies. This made the choice of the study location to be Singida district, both municipal and district council areas.

Sampling design

When conducting research, it is generally impossible to study the entire population of interest. Hence we adopt sampling methods. Sampling design has to specify the population or universe of the study, sampling unit, sample size, the source

list or sampling frame, unit of analysis, parameter of the interest and sampling procedures.

Study population

Study population is all individuals of interest to the researcher. It is full set of cases from which the sample can be taken. The population of interest is defined by the purpose of the research and the research questions (Marczyk, DeMatteo and Festinger, 2005). Study population is further defined as all people that possess the characteristics of interest to the research (Frey *et al*, 1991:131). In order to meet the objectives of this study the researchers targeted both mobile money registered and non-registered subscribers. These subscribers were from three mobile network operators in Singida namely, Tigo, Vodacom, Airtel. Population of Singida district according to the 2012 National Population Census was 375,900 people for both urban and rural areas. Therefore the study population projected was approximately 229,299 persons matching with the tele-density in Tanzania was 61 (61 out of 100 people having a mobile phone) as indicated by the Tanzania Communications Regulatory Authority Report of 2012.

Sample size

Sample size is defined as the size of the population included in the research study (Adam and Kamuzora, 2008). Due to the facts that only three wards of Singida district were covered for this research as there were time and resources constraints and there were fewer mobile money users than the total number of mobile phone service subscribers, data were collected from 132 customers, seven agents, and three mobile-phone service providing company officials. For ensuring validity and reliability and also representativeness of the sample, respondents were chosen among mobile money users from different ages, educational levels, residence of rural and urban areas and both female and males. The sample was chosen proportionately among cellular mobile operators providing for mobile money transfer services in Singida district, namely Vodacom (M-Pesa), Airtel (Airtel Money) and Tigo (Tigo-Pesa) based on information from Tanzania Regulatory Authority (TCRA) as of June 2012 where the market share was 44% for Vodacom, 29% for Airtel and 23% for Tigo. Zantel was not covered due to poor market share as very few customers were found using its Easypesa in Singida district.

Table 1: Sample size for customers/agents/ territory managers

M-money Service provider		Tigo-Pesa	Vodacom M-Pesa	Airtel-Money	Subtotal/ Total
Customers in ward	Utemini	13	20	14	45
	Majengo	14	21	15	55
	Ilongero	9	20	11	42
	Subtotal	31	61	40	132
Agents		2	5	2	9
Company Territory Managers		1	1	1	3
Total		34	67	43	144

The field survey was carried out in three wards of Singida district named as Utemini ward, Majengo ward and Ilongero ward. The reason for choosing this location is that both Utemini and Majengo wards are locations around the urban environment. It was expected by the researcher that they represent the reality for challenges on market penetration for mobile money transfer services in the urban environment of Tanzania. Secondly, the Ilongero ward, the rural area of the Singida district represented challenges for the low density population areas and more remote rural areas where majority of Tanzanians are living. Table 1 shows sample size that was used for data collection.

Sampling frame

Sample frame also known as a source list, is the specific units from which the sample is actually drawn (Frey *et al*, 1991:186). It is an exhaustive list of population members the researcher can obtain. The sampling frame of this study included all those stakeholders of the mobile money transfer services in Majengo, Utemini and Ilongero wards from Singida district area.

Sampling unit

Sampling unit is the basic unit containing the population items to be sampled. The sample units for this study were town center/Jamatini area which represented Majengo ward and Uhasibu area to represent Utemini ward in Singida town, In addition the third area was Ilongero Madukani area for the rural ward in the study.

Unit of analysis

Unit of analysis is the major entity that is analyzed in the survey or the study (William, 2006 and Frey *et al* 1991:188). It is the 'what or whom' that is being studied. Units of analysis are essentially the things examined in order to create summary descriptions of them and explain differences among them. In this study, the units of analysis were customers, grouped in terms of service providers which are three groups that are Tigo, Vodacom and Airtel.

Sampling procedures

Sampling procedure refers to the techniques or procedures used to select the sample. The study used both probability sampling and non probability sampling procedures. These procedures are well elaborated in the following subsections. Probability sampling is based on the concept of random selection (Kothari, 2004). In addition, in probability sampling, each unit in the population has some chance of being in the sample.

Stratified random sampling

For this study, stratified random sampling procedure was employed. In stratified sampling the population was divided into sub groups that the individuals within the groups were of

more homogenous than the total population. This study had Tigo customers' strata, Vodacom strata, and Airtel strata. The individuals who were selected from each of three wards were in any one of these strata. Thus every individual in the strata had equal chance of being selected to constitute the sample.

Purposive sampling

Non-probability sampling is a sampling technique where the samples are gathered in a process that does not give all the individuals in the population equal chances of being selected (Crossman, 2011, Frey *et al*, 1991:134). The non probability sampling procedure employed in this study was purposive sampling. Purposive sample is one that is selected based on the knowledge of a population and the purpose of the study (Crossman, 2011). In this study, representatives and agents of the companies providing mobile money transfer services were from Tigo, Vodacom, and Airtel and they were intentionally selected to give an in-depth knowledge of the study issues.

Parameters of interest

Parameter is the relevant characteristic of population in which the study is interested (Frey *et al* 1991:130). Therefore, the parameters of interest from the population of this study were benefits obtained and difficulties faced from the use and provision of mobile money transfer services. Volume of transactions in terms transfers, withdrawals, deposits, airtime purchases, bill payments and so on were also the parameters of interest.

Data collection design

The study applied various methods and tools for primary data collection. The different methods of gathering information included were: survey, interview and documentary review. Structured questionnaire was used as a tool for data collection from the customers of mobile phone money transfer services and interview guide was used as tool when conducting an interview for agents (*wakala*) and representatives of Tigo, Vodacom and Airtel, companies operating mobile money transfer services in Singida. This combination of sources of data was adopted due to their suitability and for ensuring accuracy of the results.

Field survey and questionnaire

As explained in the research design, to get both quantitative and qualitative data, the survey was made in three wards of Singida district during the first and second quarters of the year 2013 in which a questionnaire was used as a tool. Questionnaire is a tool related to the survey method in the research that collects data over a large sample (Kombo, 2006). It gives the ability to the researcher to collect data from large sample and saves time and other expenses (Frey *et al*, 1991:193). Based on this, the questionnaire was developed and both closed ended and open ended questions were included. However, by using more closed ended questions, the respondents were limited to answer the questions as they were

provided choices. A reason behind choosing this method was that it takes a short time to collect a lot of information and makes it simple in data analysis. The questionnaire used for data collection consisted of two sections. The first section aimed at gathering demographic information about respondents, including sex, age, education and information on income range. The second section aimed at gathering information relating to respondents' mobile phone money usage, market condition and penetration level and challenges associated with mobile money services.

Interview and interview guide

Interview is a method of collecting data which involves presentation of oral or verbal stimuli and reply in terms of oral or verbal responses. Kothari (2004:97) revealed that interviews are, one-to-one discussions, meaning the conversation between the interviewer and the person who is interviewed (Harrell and Bradley, 2009:6). Interview is the method where a researcher uses a prepared interview guide to explore more information pertaining to the specific study. This study applied interview in collecting in depth information from company officials and agents. An interview guide is an articulation of major questions to be posed to interviewee(s) (Frey et al 1991:200). This study employed interview guide as a tool to explore more information and verify claims and information from customers by interviewing mobile phone company agents, representatives/officials. A semi structured interview guide prepared in advance was used to collect information pertaining to the study.

Secondary data sources

Secondary data are data sets that are already in existence, such as census data (Harrell and Bradley, 2009:7). In this research, secondary data were gathered from the offices of marketing officers in Singida from each mobile phone company and also from records completed by agents and from various articles, internet and TCRA website.

Analytical design

A crucial aspect of research studies is preparing the data for analysis, analyzing the data, and interpreting the data (Marczyk et al, 2005). Collected data in this study were processed, analyzed and interpreted to make them useful i.e. to convey their meaning to the readers.

Data analysis is further defined as a process that implies editing, coding, classification and tabulation of collected data (Kothari 2004:122). Analysis of data was using both qualitative and quantitative techniques. Denscombe (1998) holds that qualitative data can be seen as data described as a record of thoughts, opinions, feelings or words. Quantitative data were presented in the form of numbers, frequencies, percentages or descriptive statistics. Prior to entering data into computer program for analysis, questionnaires were organized by coding so that they can be taken for further analysis. Responses for each question in each questionnaire were

clearly screened to ensure clarity of responses. With regarding to the quantitative data, after coding they were entered into computer program known as Statistical Package for Social Scientists (SPSS Version 16, 2007) for analysis. Analysis was done by the use of descriptive statistics whereby frequencies and percentage were generated. Tables, charts and graph were then used to present data.

Demographic profile of customers

This section presents the demographic characteristics of 132 customers of various mobile money services. The sex of individuals has been used to determine the roles individual respondents must be subjected. This might be useful to observe how both gender group's men and women are dealing with similar socio-economic activities. The Table 2 shows that majority of respondents were males at 62.1% and the females constituted 37.9%. The age categories of respondents of mobile money customers are also presented in Table 1. They belonged to different age in years as 42.4% of them were in the range of 20-29 years, 34.8% were aged 30-39 years and 16.7% of respondents were between 40-49 years. Out of the remaining, 4.5% of them were in the age group of 50 years or above. And 1.5 % of the respondents did not respond to the question.

Table 2: Sex, age and educational level of mobile money service customers (n=132)

Sex	Age	Educational level
Male (82) – 62.1%	20-29 years (56) – 42.4%	Primary (18) – 13.6%
Female (50) – 37.9%	30-39 years (46) – 34.8%	Ordinary level (34) – 25.8%
	40-49 years (22) – 16.7%	Advanced level (8) – 6.1%
	50 and above (6) – 4.5%	Diploma (28) – 21.2%
		Degree (28) – 21.2%
		Others (16) – 12.1%

Source: Field data (2013)

The results show that all the customers attended formal education starting from primary schools. It could be observed that many of the customers have attained ordinary level or above as in Table 2 as 25.8 %, 6.1% 21.2% and 21.2% customers completed ordinary level, advanced, diploma and degree levels respectively. Very few of them have just completed primary level. Those customers who lived in urban areas comprised 69.7 % customers covered for the study and the remaining 30.3% were rural residents.

IV. STUDY FINDINGS

Customers' access to banks

This research needed to identify if knowledge and usage of mobile money services could be associated with respondents'

status of being banked or unbanked. A substantial number of customers at 75.8% had access to banking institutions and only 22.7% said that they did not have access to formal banking institutions.

Mobile money usage patterns among customers

All the customers participated in this study accepted that mobile money services brought advantages in their everyday life and benefited them in general. The advantages of these services as indicated by the respondents included elimination of manual paper works, reducing waiting queues, saving time as transactions could be made anywhere at any time. But a greater number of them were criticizing high transaction costs charged by those companies which they claimed that it was not for bottom of pyramid population. On the other hand, those who didn't accept the elimination of manual paper works said there were requirements for registration to access those services since the ID card is insisted as a mandatory to be able to register. This is illustrated in Table 3.

Table 3: Benefits of mobile money services over formal banking institutions

Benefit	Frequency	Percent
Lowering transaction costs	52	39.4
Eliminating manual paper work	82	62.1
Reduce waiting time in queue	110	83.3
Saves time	114	86.4

Source: Field data 2013

Usage rate of different transactions was also ascertained to see which of them were more preferred and used at which rate; the result shows that cash withdrawals and transferring are more or highly used followed airtime purchase. Other transactions used at lower rate were purchase of goods and payment of utility bills. Table 4 shows number of transactions per month performed by customers for various purposes.

Table 4: Average number of times various transactions made in a month by customers

Average transactions/ month	Withdrawals	Transfer	As wallet	Purchase airtime	Purchase goods/ services
1-5	24.2%	53%	57.6%	57.6%	39.9%
6-10	34.8%	25.8%	15.2%	10.6%	4.8%
11-15	27.3%	6.1%	3%	6.1%	0.0
16-20	7.6%	4.5%	0.0	7.6%	0.0
21 or above	6.1%	6.1%	1.5%	10.6%	0.0
Not used	0.0	4.5%	22.7%	7.6%	56.2%

Source: Field data 2013

Challenges facing mobile money market growth

The purpose of this study was to find what are the challenges facing growth, penetration and usage of mobile money

services in Tanzania especially in Singida region. Generally, in Tanzania mobile phone penetration is now at a tele-density of 61 adult population (TCRA, 2013). Usage in mobile money is further low due to different factors. One among them being usage of double/ triple SIM cards by the same subscribers. According to InterMedia (2013:9) study on mobile money use, opportunities and barriers in Tanzania, there was low usage among households in Singida (33% of respondents) and other regions around showing there are challenges facing mobile money services penetration. This shows that the regions have the potential to increase their mobile money services.

Further, an interview with the *M-Pesa* official revealed low usage for Singida for three consecutive months of April, May and June 2013. The number of agents was 700 and number of transactions was very low. The territory manager explained that there were agents who were not achieving even 10 billable transactions per month and therefore were categorized as poor performers. It was reported that on an average each agent was performing less than 33 transactions per day, which implies that the service has not deeply penetrated and regularly used.

The customers have shared their views as to why they do not use regularly the mobile money services and their value added services. Some of the issues are specific to non-users, while others apply to both non-users and users alike. Some of these barriers include a lack of understanding of mobile money services, issues related to agents, security concerns, security risks tied to PIN sharing, problems connected with registration and poor network service, and difficulties in charging phones due to lack of electricity.

Table 5: Challenges hindering MMT services' growth and penetration

Extent of agreement	No phone (%)	Agents' Capital problems (%)	High transaction cost (%)	Network problems (%)	Fraud issues (%)	PIN / ID request (%)
Strongly agree	22.7	18.5	10.6	18.5	7.7	12.3
Agree	33.8	51.5	21.2	30.8	30.8	43.1
Not sure	15.4	16.5	28.8	21.5	17.7	21.5
Disagree	21.5	9.1	28.8	24.6	21.5	9.2
Strongly disagree	6.2	3.0	10.6	4.6	12.3	13.8

Source: Field data 2013

Not owning a mobile phone

The factor that since many people did not own a mobile phone, the scope for them to use the mobile money services was very limited. They can only use friends' and relatives' phones to send or receive money. This makes them non-regular users and they also can't use any value added services such as purchase of utility bills and airtime. The customer response on this being a hindering factor was 56.5% agreed/strongly agreed, while only 27.7% disagreed/strongly disagreed that this was not a reason. And 15.4% were not sure

about this factor's contribution to non usage as indicated in Table 5.

The problem of phone ownership had further challenges. The mobile phone owners among rural residents and those below the poverty line reported that they must pay to charge their phones, as they had no access to electricity. Without a charged phone, actively using mobile money service is difficult. They were complaining of time wasted waiting for mobile phone to complete charging thus wasting time ranging from 6-8 hours. Therefore, without a charged phone actively using mobile money is very difficult.

Agents' unavailability and cash balancing problems

The response on this issue was also strong that if agents were not located in nearby areas, the usage was also limited as it was difficult to access them. This also included lack of adequate capital in terms of float and/or cash money. In rural areas customers found it difficult to reach an agent who had enough money to enable withdrawals or deposit money especially when the amount was above 100,000Tshs.

Seventy percent of all respondents as customers of mobile money explained to have experienced agent-related problems in the past 12 months. The top three problems were the same across all providers: the agent was absent, did not have any/did not have enough e-float, and did not have any/did not have enough cash. Some customers explained how it was frustrating moving from one agent door or outlet to another with answer that they had inadequate float or cash to serve the customers, wasting time and causing delays and not able to achieve the timeliness of the transaction. Apart from those challenges mentioned, others in this category included the working schedule. Most of the agents were closing at 06.00 pm thus limiting the service from working 24/7. Maximum amount of money that could be withdrawn or deposited once as customers claimed was fixed at 1,000,000/= Tshs. per day.

Poor network connectivity and unreliable services

The major factor that hindered large population of customers from using the service was network or service failures. Many times there were network connectivity problems causing customers to receive messages stating that 'service is not available please keep trying, or try again later' or service hanging. This is a more challenging aspect to customers and agents as they were exposed to the risk of losing their cash, wasting time and other problems like loss of customer goodwill. The truth that customers were having no information about *Easy-pesa* was strongly linked to the poor Zantel network across all the rural areas of Singida. Hence its low market penetration. Even if this company network was available in the urban areas, it could not achieve market penetration in mobile money services. Therefore, the enhanced connectivity to rural customers was required.

Lack of information and understanding among non-users

In many cases, non-users were aware of mobile money services but had only a very basic understanding of the uses and benefits. When asked to rate their level of understanding, often most of them said that their knowledge of mobile money was limited to the names of the providers. Agents frequently reported that they do not believe that it is their responsibility to educate non-users or advocate mobile money use. They are willing to explain mobile money to service to customers who specifically ask. But they do not explain or promote mobile money to other customers unprompted. Most agents considered educating customers to be the responsibility of the service providers.

Expensive transaction charges

Most of the customers were complaining about the mobile phone operators seeking to earn more profits from providing mobile money services. Many questions were being posed on double charging i.e. in both transfers and withdrawals. This was raised as to why the sender was charged and at the same time recipients were also charged for the same transaction.

Table 6: Charges levied for M-Pesa transactions 'sending and withdrawals'

Transaction type	Value of transaction (Tshs)		Charging value (Tshs)
	Minimum	Maximum	
Deposit	1000	1,000,000	Free
Sending money to customers			
Registered customers	500	9,999	50
	10000	49,999	200
	50000	299,999	500
	300000	499,999	1000
	500000	1,000,000	1500
Unregistered customers	1,000	9,999	550
	10,000	19999	1,000
	20,000	49,999	1,200
	50,000	99,999	1,900
	100,000	199,999	2,300
	200,000	299,999	3,500
	300,000	399,999	5,000
	400,000	499,999	6,000
	500,000	1,000,000	7,000
Cash withdrawals by customers			
Registered customers	1000	9,999	500
	10000	19,999	1000
	20000	49,999	1300
	50000	99,999	1800
	100000	199,999	2200
	200000	299,999	3600
	300000	399,999	4800
	400000	499,999	6000
	500000	1,000,000	7200

Source: Data from 2013 M-Pesa customers pricing tag

Complaints were also raised on the large amount charged for these transactions. People who used formal banks to send or receive money were charged negligible amount or a little charge comparatively for performing such services. The transaction charges are shown in Table 6 for Vodacom M-Pesa which most of the customers complained as the expensive charges; they had to use the service as there was no easy substitution. More customers rated M-Pesa withdrawal charges as the highest.

With regards to Tigo-Pesa, 44.3% of customers rated it as moderately charged service. This is due to two factors; market share of Tigo-Pesa was lower in Singida than that of M-Pesa. More people were transacting with M-Pesa. Therefore they felt that prices were expensive in M-Pesa compared to Tigo-Pesa. The Tigo-Pesa was able to have much smaller values of transactions at the lower end and the range of charges was also larger compared to the M-Pesa. The Tigo-Pesa accepted transfers as low as Tshs 200 for which the transaction charges were only 10 Tshs. In case of Vodacom M-Pesa, the lowest transfer was Tshs 500 and the lowest charge was Tsh 50. This implied that Tigo-Pesa served more low income population to send and withdraw as shown in Table 7.

Table 7: Charges levied for Tigo-Pesa transactions 'sending and withdrawals'

Transaction type	Value of transaction		Charging value
	Minimum	Maximum	
Deposit	1000	1,000,000	Free
Sending money to customers			
Registered customers	200	999	10
	1000	1999	20
	2000	2999	30
	3000	4999	40
	4000	9999	50
Registered customers sending money to Non-Tigo customers	5,000	9,999	100
	10000	19999	200
	20,000	49,999	250
	50,000	299,999	500
	300000	499,999	1000
	500,000	1,000,000	1500
	Cash withdrawals by customers		
	1000	4,999	500
	5000	9,999	1000
	10000	24,999	1000
	25000	49,999	1250
	50000	99,999	1500
	100000	199,999	2000
	200000	299,999	3000
	300000	399,999	4000
	400000	1000000	5000

Source: Data from 2013 Tigo-Pesa customers pricing tag

On the other hand, the pricing for Airtel Money is more or less lying between the other two competitors i.e. M-Pesa and Tigo-Pesa. About 30.0% of the customers rated it at medium

pricing. The pricing of Airtel Money seems to be higher than Tigo-Pesa. However, the impression from slogan 'send and receive money free' up to Tshs 100,000/= strategy used by Airtel Money during its market entry time has made the continuous long time effect. Table 8 shows the pricing for Airtel Money services.

Table 8: Charges levied for Airtel Money transactions 'sending and withdrawals'

Transaction type	Value of transaction		Charging value
	Minimum	Maximum	
Deposit	1000	1,000,000	Free
Sending money to customers			
Registered customers	500	9,999	50
	10000	49,999	200
	50000	299,999	500
	300000	499,999	1000
	500000	1,000,000	1500
Unregistered customers	1,000	9,999	550
	10,000	19999	1,150
	20,000	49,999	1,200
	50,000	99,999	1,900
	100,000	199,999	2,300
	200,000	299,999	3,500
	300,000	399,999	5,000
	400,000	499,999	6,000
	500000	1,000,000	6500
Cash withdrawals by customers			
Registered customers	1000	9,999	500
	10000	19,999	950
	20000	49,999	1250
	50000	99,999	1800
	100000	199,999	2200
	200000	299,999	3600
	300000	399,999	4800
	400000	499,999	6000
	500000	1,000,000	7200

Source: Data from 2013 Airtel-money customers pricing tag

Fraud/risks in mobile money transfer

As shown in Table 9, 38.5% customers agreed or strongly agreed that fraud/cheating was hindering growth and marketing penetration of mobile money services. Customers claimed that they were often the victims of fraud because in case they have not adequately protected their PIN.

Table 9: Fraud as a challenge to mobile money penetration

Level of agreement on fraud as a challenge	Percent
Strongly agree	7.7
Agree	30.8
Not sure	17.7
Disagree	21.5
Strongly disagree	12.3

Source: Field data 2013

Further they lost access to the mobile money services when their mobile phones were stolen or when they lost mobile equipments for a significant range of time. In case of mistakes in entering recipients' number, the risk of loss was directly borne by the customer. Fraud issues were a matter of concern for many agents, as different fraud modalities and cheating methods were used. Swapping of SIM cards, unfaithful workers, and transfer of money from one account to another unknowingly due to PIN leakage, fake money and fake mobile money withdrawal text messages were commonly observed by both the agents and the customers.

Limited mobile money service varieties

Customers claimed that most of the transactions they were performing were money transfers and cash-outs. Although airtime topping was common through mobile money service, a greater percent of customers have not yet used purchasing airtime through mobile money services. This is because of little information about value added services. This was also due to the fact that customers were not using mobile money services as a wallet. Customers claimed that there was still a scope providing more services through mobile money, this included disbursal of salaries, payment of school fees, provision of micro insurances to cover accidents, crops and livestock failures and other dangers, provision of small loans with a little or affordable interest to unbanked population. Better quality for those service varieties was required because customers claimed that some services were not reliable. Many delays were also experienced and uncompleted transactions were charged. For example, uncompleted and reversed transaction to or from bank were charged and this charged amount was not refunded. So, all those challenges have to be solved to make the mobile money service easily adoptable.

Efforts needed to increasing mobile money market penetration and regular usage

Customers accepted that if efforts were put in increasing more service varieties, they will increase usage of mobile money services. They claimed that customers do not need or may not have money only to send or withdrawals. They may need to utilize that cash for personal issues. So more services that are like reliable bill payments, purchase of goods and services like paying for tickets will facilitate more frequent usage as people will need to travel or buy goods as well. In this regard, the timely response from the service machines will be the key to success and unlike the current situation where there is a likelihood to wait for a longer time to receive these services. For example, getting the LUKU coupon purchased through mobile money services might take longer time.

Improving network coverage

Many customers insisted that more efforts are to be put on covering rural unreached areas. This is because with no reliable network connection, customers were unable to make calls and to make any significant transactions. Absence of

network was forcing people to travel longer distances to avail the service. They were even made to wait for some time to get transaction response. The opinion on the network improvement for both rural and urban areas is indicated in Table 10. In general, customers indicated that more improvements were required in rural areas where substantial population was unbanked. For urban areas also improvement was required due to several occasions of service unavailability and frequent hanging transactions without prior information or notification to users.

Table 10: Degree of efforts needed to improve network connectivity

Degree of efforts for network connectivity	Urban		Rural	
	Frequency	Percent (%)	Frequency	Percent (%)
Highest	30	22.7	54	40.9
High	22	16.8	36	27.3
Moderate	28	21.2	20	15.0
Low	30	22.7	6	4.6
Lowest	18	13.6	10	7.6
No response	4	3.0	6	4.6
Total	132	100	132	100

Source: Field data 2013

Improving agents' presence and financial capital availability

Agents' presence is a requirement along with network availability and reliability in order for mobile money services to penetrate the market and grow. Customer views were that demand was more on rural unreached areas where limited network connectivity is available. Therefore limited numbers of agents were available in rural areas. On the other hand, working capital for agents is a matter of concern in both urban and rural locations. Agents, customers and companies' territory managers expressed their views that reflect on problems related to working capital. Most of agents had limited financial capital in terms of float or cash or both. All groups of these respondents suggested improvement was required in this area to support the mobile money services market penetration and expansion.

Most of the agents were undertaking their mobile money services' agency as a secondary or tertiary business. Therefore, they were likely to diversify the limited capital to other business portfolios as well, depending on the demand or other investment opportunities that were available to them. Those who gave their suggestions on how to improve mentioned that loans can be provided from parent mobile service providing companies or aggregators and attractive commissions would encourage agents to improve their working capital. These can result in improved transaction volume per day.

Table 11: Degree of efforts for increasing agents' financial capital and publicity about valued added services (n=132)

Degree of efforts needed	Increasing agents' financial capital (%)		Publicity about valued added services (%)	
	Rural	Urban	Rural	Urban
Highest	28.8	40.9	24.2	24.2
High	27.3	24.2	24.2	16.7
Moderate	22.7	16.7	25.8	31.8
Low	12.1	10.6	12.1	13.6
Lowest	6.1	4.6	7.6	7.6
No response	3.0	3.0	6.1	6.1
Total	100	100	100	100

Source: Field data 2013

Branding and increased value added services

Customers were suggesting that branding and widespread publicity should go hand in hand with product availability. The ratings made by customers in this study show that moderate efforts were required in both rural and urban areas. Customers provided suggestions that more publicity was required for value added services' varieties, rather than concentrate only on cash withdrawals and transfers, since cash as a resource was scarce and no one can afford sending limitlessly. Customers in this regard highlighted that mobile money service users were not aware of many other mobile money based services. Even if customers have heard of such services, they were afraid of losing their money in an attempt of utilizing those services. Table 12 also shows the percentage of the opinion for that publicity demand where above 70% of customers mentioned that the efforts should be increased in both urban and rural areas. Brand recognition and trust are very important in any industry. Branding is an initial stage. This is what made any outlet to be known as an agent. Therefore, customers and agents suggested that availability of branding materials is necessary. Branding is also required in terms information, such as pricing tags which keeps changing from time to time, thus causing complaints from customers and also in case of introduction of new service. As shown in Table 12, customers suggested that the efforts requirement ranged between moderate and highest efforts amounting to 69.8% and 85.5% for urban and rural areas respectively.

Table 12: Efforts required for branding and increasing service varieties (n=132)

Ranking of efforts needed	Branding (%)		Increasing service varieties (%)	
	Rural	Urban	Rural	Urban
Highest	33.3	19.7	30.2	21.2
High	21.2	18.2	21.2	28.8
Moderate	25.8	28.8	19.7	16.7
Low	10.6	15.2	9.1	15.1
Lowest	3.0	13.6	15.2	13.6
No response	6.1	4.6	4.6	4.6
Total	100	100	100	100

Source: Field data 2013

Increasing mobile money service varieties

The current dominant use of mobile money services was for mostly money transfer and withdrawals of cash sent. Customers suggested that more efforts were required to increase the usage beyond these remittances and airtime topping ups. More service varieties were possible through inviting banks, micro finance institutions and third parties to make the service less reliant on transfer of e-money and convert to hard cash money on the recipient side. An example of low cost service variety is Faraja Bima provided by Vodacom M-Pesa which is mobile micro insurance. People who make a minimum of 10 transactions per month automatically get insured. Many customers were not aware of what it was and how it works. So this poses a challenge for awareness creation about most of the mobile money based service varieties. The customers' suggestions for efforts required in this regard are as in Table 12.

Improving security against frauds/risks and customer care facilities

Some customers reported to have lost their money in many instances by fraudulent practices faced in the process. These customers suggested that improvements were required in terms of security starting from agents or their workers who were likely to be share information of the confidential PIN codes of some customers. This could be misused by some unfaithful agents or workers. A few customers mentioned that they shared their PIN with agents or close family members in case of emergencies. This also posed a threat of security issues.

It was also mentioned by few respondents that some company staff were misusing agents' and customers' trust on them to borrow money from the cash balance available in their mobile money accounts. Subsequently some of these staff went completely disappearing without paying back the cash. Education to the end users and agents was essential to make them aware of all possible frauds, risks and the ways to prevent them.

Table 13: Degree of efforts needed to avoid frauds and improve customer care centres

Degree efforts to avoid fraud	Fraud/risk management		Improve customer service	
	Frequency	Percent	Frequency	Percent
Highest	48	36.4	38	28.8
High	30	22.7	46	34.8
Moderate	24	18.2	20	15.1
Low	10	7.6	6	4.6
Lowest	12	9.1	16	12.1
No response	8	6.1	6	4.6
Total	132	100	132	100

Source: Field data 2013

Table 13 shows customers' ratings about the efforts required against frauds in mobile money services as well. Companies' customer care centers had to provide the immediate support when fraud cases were reported as suggested by a few customers. The ranking for degree of efforts required in both urban and rural were similar as per the views of the customers.

Improving availability of electricity

As mobile phones required charged batteries to be on air, respondents suggested that availability of reliable electric power in both rural and urban areas is a step needed to stable usage of mobile money services. This is because many transactions required prior voice communication before real transaction is made. Subsequently, confirmation or acknowledgement messages were to be sent. All these transactions required an electrically charged phone. Hence electric power was required to sustain the mobile money services. Some respondents suggested that power rationing has to be minimized; new electric projects were required in rural areas where people spent a lot of time travelling to charge their mobile phones at high cost of time and money. All these expected developments would reduce the cost incurred and time spent in kiosks to charge the phones. Table 14 shows the degree of efforts required to enhance electric power availability. Considerable numbers of respondents were insisting that electricity to be supplied to rural locations with more support to the Rural Electric Agency for wind electric turbine project initiated in Singida.

Table 14: Degree of efforts required for enhancing availability of electricity and training to end users (n=132)

Degree of efforts required	Enhancing availability of electricity (%)		Training to end users (%)	
	Rural	Urban	Rural	Urban
Highest	47.0	19.7	37.9	25.8
High	21.2	15.1	33.3	33.3
Moderate	9.1	30.3	7.6	22.7
Low	4.6	15.1	6.1	6.1
Lowest	12.1	13.7	9.1	7.6
No response	6.1	6.1	6.1	4.6
Total	100	100	100	100

Source: Field data 2013

Efforts for training and information to end users

Training and providing information to agents and customers regularly should be practiced as part of marketing efforts by companies' representatives. It will make agents and end user customers to be aware of most of the choices available in mobile money based services and utilize any new product in mobile money services. Though value added services were being advertised in the media, customers didn't even test them due to fear factors as there was doubt about those service varieties. The Table 14 shows customers' opinion on the degree of efforts required about training and information to end users.

V. CONCLUSION

Thus, from results and findings, it is evident that, agents and customers faced challenges when operating mobile phone money transfer services. These challenges included network failure in terms of network outage and frequent hanging transactions, technical questions from customers which were beyond agents' ability to explain, low financial capital and little or lack of technical support from mobile phone operating companies' representatives and aggregators. Presence of many agents in the same locality is a problem that needs to be handled in order to avoid the scramble for a few customers among the agents. Further, a substantial number of customers are reluctant to use services other than transfer and receive of money services. The study revealed that, poor knowledge on benefits of mobile money transfer, limited knowledge on the various applications of mobile money transfer, technical barriers, and problem of cellular networks was among challenges faced by end user customers. A sizeable number of customers indicated that there was a possibility of facing risk of fraud in using mobile phone money transfer. Further the study recognizes that there are challenges due to high transactional charges, limited varieties and limited information on their applications. It is also found from this study that efforts were required in different business areas for future growth and expansion. These range from product renovation, distribution channels that included agents, widespread publicity and pricing design to help mass market adoption.

VI. RECOMMENDATIONS

Network coverage is very limited scarce in rural areas. This is hindering rural population to benefit from telecom services compared to their counterparts in urban areas. The study proposes for mobile phone companies to adopt effective network infrastructures in rural areas so as to extend network coverage and hence increase rural connectivity. It is further recommended that improvements are required for service reliability to increase customer trust, by avoiding service failures. Secondly, prices of services and other costs are currently prohibitive to consumers of mobile money services. It is hereby recommended that mobile phone network operators bring forward reasonable and affordable prices of services for transactions to both the existing and potential customers.

Agents of any service provider should be motivated to work and invest in providing the services by receiving alternative benefits. Low interest loans could be provided to overcome limited capital problems. Numbers of agents in any locality need to be balanced so that they are not too many or very few in a locality to avoid customer scramble and low commission. More agents should be permitted to operate especially in rural areas where there is extremely limited banking access, and the customers should be trained to be more careful in handling their passwords and other loss risks. Sustainable electricity supply should be taken into consideration as this service needs

uninterrupted electricity availability. Reducing solar plant equipment prices by lowering or providing exemption on taxes could help. The government is also advised to reduce or remove taxes on mobile money services because this is serving rural unbanked population. Some of respondents were advising TCRA to ensure mobile phone handsets prices are also reduced to make them accessible to every individual in the adult population.

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