

**THE ROLE OF MOBILE MONEY SERVICES IN IMPROVING
MICROFINANCE SERVICES IN RURAL AREAS: A CASE OF M-
PESA IN KILOSA, MOROGORO**

**THE ROLE OF MOBILE MONEY SERVICES IN IMPROVING
MICROFINANCE SERVICES IN RURAL AREAS: A CASE OF M-PESA IN
KILOSA, MOROGORO**

By

Saskia Hoope

**A Dissertation Submitted in Partial/Fulfilment of the Requirement for the Award of the
Degree of Master of Business Administration (MBA) of Mzumbe University**

2013

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled **the role of mobile money services in improving microfinance services in rural areas: A case of Kilosa, Morogoro, Tanzania**, in partial/fulfilment of requirements for award of the degree of Master of Business Administration (MBA) of Mzumbe University.

Signature

Major Supervisor

Signature

Internal Examiner

Acceptance for the School Board

Signature

CHAIRMAN, SCHOOL OF BUSINESS BOARD

DECLARATION

AND

COPYRIGHT

I, Hoope, Saskia, do hereby declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature_____

Date_____

©

This dissertation is copyright material protected under the Berne convention, the Copyright Act of 1999 and other international and national enactments, in that behalf, on intellectual property. It may not be reproduced by any means in full or in part, except for short extracts in fair dealings, for research or private study, critical scholarly review or discourse with an acknowledgement, without the written permission of Mzumbe University, on behalf of the author.

ACKNOWLEDGEMENT

I am grateful to the Almighty God who gave me the opportunity, ability and strength to do this work. The success of this study would not have been possible without the contributions from various individuals and organizations which include Vodacom M – Pesa account manager at Morogoro. Many people have contributed to the success of this work than I could possibly acknowledge here and I am unable to mention every help and assistance I received individually. To all of them I am greatly indebted. However, I am obliged to cite a few names for their particular contribution.

First, I would like to extend my special appreciation to my supervisor Mr Jones Mnzava, for his intensive supervision, guidance, and advice throughout the course of conducting the fieldwork and writing of this dissertation. I would like also to extend my sincere gratitude to the management of Mzumbe University. Special thanks is extended to my husband Mr Claude Maeda, for his encouragement and bearing with my long time vacation and sensitive sharing for the limited resources at home and finally to my fellow Master of Business Administration students, academic year 2011/12, for their constructive criticism, co-operation and friendly environment, as I was carrying out my research.

ABSTRACT

After the implementation of National Microfinance Policy in 2001, microfinance was officially recognized as a tool for poverty eradication and it is in the very vein of the country's economy and national politics. But the service accessibility to rural areas remains untouched to the unbankable and unserved community. The study objective was to examine the role of mobile money services (MMS) to the unbankable people at Kilosa District in Morogoro. Specifically the study aimed:- (i) to compare accessibility of M-PESA financial service to other non-mobile financial services.(ii)to establish M-PESA transactions costs and compare with other non-mobile microfinance services.(iii) to study M-PESA user-friendliness and compare to other microfinance services available locally.

Primary data was obtained using questionnaire whereby 30 respondents in Kilosa Village in Morogoro were selected at random, interviewed using both open and closed ended questions to obtain the required data for the study. The questionnaire was focusing on respondents' role of mobile money services in the study area. Data were analyzed using frequencies and descriptive statistics. The results showed that Mobile money services play a greater role to improve the microfinance services in the study area. Costs for using MMS were cheap as compared to bank accounts which require one to visit the nearest bank and ATM which was far from the village and increases transaction costs was the major constraint. Also the MMS from M-pesa menu was user friendly as compared to other service providers.

The study recommend MMS to be included in the microfinance policy to establish the legal framework and security measures for the agents at the remote areas where they handle large volume of transaction in a day.

TABLE OF CONTENTS

CERTIFICATION	ii
DECLARATION AND COPYRIGHT	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
TABLE OF FIGURE	ix
LIST OF TABLES	x
LIST OF ABBREVIATIONS	xi
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background Information	1
1.2 Statement of the Problem	5
1.3 Research Objectives	6
1.3.1 General research objective	6
1.3.2 Specific research objectives	6
1.4 Research Questions	6
1.5 Significance of the Study	7
1.6 Scope and Limitations of the Study	7
1.7 Organization of the Study	7
CHAPTER TWO	9
LITERATURE REVIEW	9
2.1 Theoretical Literature Review	9

2.1.1	General perspectives about mobile money.....	9
2.1.2	The Meaning of Mobile Money.....	12
2.1.3	History of Mobile Money Market.....	13
2.1.4	Benefits of the M-pesa monetary transfer system	14
2.1.5	Constraints for Adoption of MMS	17
2.1.6	M-Pesa Affordability	19
2.2	Empirical Literature Review.....	21
2.2.1	Related Research Studies	21
2.2.2	Success Stories from Kenya Mobile Money Services	21
2.2.3	Current State of Kenyan Mobile Money Market.....	23
2.2.4	Mobile Money Applications in a Multitude of Market Segments.....	25
2.2.5	Existing Models of Mobile Money Services.....	27
2.2.6	Emerging Industry Groups	32
2.3	Conceptual Framework	33
CHAPTER THREE		36
RESEARCH METHODOLOGY		36
3.1	Description of the Study Area	36
3.2	Research Design.....	36
3.3	Sampling Procedures.....	36
3.4	Sample Size	37
3.5	Data Collection Methods.....	38
3.5.1	Primary Data.....	38
3.5.1.1	Quantitative data	38
3.5.1.2	Qualitative Data.....	38
3.5.2	Secondary Data.....	39

3.6	Data Management Procedures	40
3.6.1	Data Processing and Analysis	40
CHAPTER FOUR		41
RESULTS PRESENTATION AND DISCUSSION		41
4.1	Introduction.....	41
4.2	Profile of the Respondents.....	41
4.2.1	Education Level of Respondents	41
4.2.2	Occupation Status of Respondents	42
4.2.3	Member ship of Microfinance	43
4.2.4	Duration of using Mobile Money Services	43
4.2.5	Holding of Bank Account	44
4.2.6	Time of using Bank Account.....	45
4.3.7	Availability of Service	45
4.3.8	Perceived Distance from where the Service is offered	46
4.4	M-PESA Transaction Costs in Comparison with other Non-Mobile Microfinance Services	47
4.5	M-PESA user-friendliness in Comparison with other Microfinance Services Available Locally	48
CHAPTER FIVE		50
CONCLUSION AND RECOMMENDATIONS		50
5.1	Conclusion	50
5.2	Recommendations	52
5.3	The Areas for Further Studies.....	53
REFERENCES		54
APPENDICES		57

TABLE OF FIGURE

Figure 1: Conceptual framework on the role of mobile money services in the improvement of microfinance services in rural areas.....	35
--	----

LIST OF TABLES

Table 4.1:	Education level of respondents.....	41
Table 4.2:	Main occupation of respondents.....	42
Table 4.3:	Membership of microfinance	43
Table 4.4:	Year started using MMS	44
Table 4.5:	Holding of Bank Account	44
Table 4.6:	Time of using bank institution (Since when)	45
Table 4.7:	Vodacom network problem in the area.....	46
Table 4.8:	Perceived distance from where the service is offered	47
Table 4.9:	Transaction Costs to reach where the service is offered.....	48
Table 4.10:	Comparative Data on User-Friendliness.....	49
Table 4.11:	Awareness of how to use M-pesa service menu	49

LIST OF ABBREVIATIONS

EFT	Electronic Funds Transfer
ERP	Enterprise Resource System
FI	Financial Institution
GSM	Global System for Mobile Communications
ICT	Information and Communications Technology
m-banking	Mobile Banking
MFI	Microfinance Institution
MIS	Management Information System
MOF	Ministry of Finance
MNO	Mobile Network Operator
NGO	Non-governmental Organization
OFDA	Office of Foreign Disaster Assistance
OPH	Office of Public Health
P2B	Person-to-business
P2P	Person-to-Person
POS	Point of Sale Terminal
RTI	Research Triangle Institute
SACCO	Savings and Credit Cooperative Society
SIM	Subscriber Identity Module
SME	Small and Medium-scale Enterprise
SMS	Short Message Service
STK	SIM Toolkit
USSD	Unstructured Supplementary Service Data
USAID	United States Agency for International Development
WAP	Wireless Application Protocol

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Microfinance is getting its strength in Tanzania now, beginning in 1995 and chiefly championed by NGOs (Non-Governmental Organizations) and SACCOs (Savings and Credit Cooperative Organizations). These are the institutions which work close in serving the poor Tanzanian. Earlier, it was mainly linked to women and poverty alleviation (TBA, 2005).

The government tried to convince commercial banks to support small and medium businesses. The support included the establishment of credit guarantee schemes, setting up credit and business development service parastatals to deliver general training, entrepreneurship training, and credit (TBA., 2005). After the implementation of National Microfinance Policy in 2001, microfinance was officially recognized as a tool for poverty eradication and it is in the very vein of the country's economy and national politics. Example of the famous President Kikwete's billions distributed regionally to stimulate SMEs after 2005 general election. (Kato and Kratzer, 2013).

The National Microfinance Bank (NMB) and CRDB Bank are amongst the biggest supporters of microfinance in the country. Together with the above supporters, there are other medium scale microfinance organizations. These additional organizations involved in microfinance in Tanzania, include FINCA, PRIDE and SEDA. Others are community banks such as Dar es Salaam community bank, Mbinga Community bank, Kilimanjaro Community bank and Mwanga Community bank; small banks such as Akiba Commercial bank (ACB) have taken interest in microfinance, as well as many NGOs such as Equal Opportunity Trust Fund (EOTF). These are some of microfinance

institutions that are country wide operating. There are hundreds that are regional or community based working on the same objective (Duursma, 2007).

For example a survey done by the Bank of Tanzania in 2005, enlist microfinance institutions including commercial banks, financial institutions, financial Non-Governmental Organizations (NGO), Savings and Credit Cooperatives Societies (SACCOs) and Savings and Credit Associations (SACAs). The directory includes a total of 8 banks, 45 CBOs, 2 companies, 95 Government programs, 1,620 SACCOs, 48 SACAs and 62 NGOs. However, banking facilities and most of these services are often scarce in emerging markets, particularly in rural areas. Many people who do not have bank accounts find it difficult or expensive to transfer money through traditional banking services. Alternative methods such as transporting cash by bus are often unsafe, tiresome and time unpredicted. However in Tanzania as well, the mobile phone market is growing in a steadfast manner (Nyamba, 2012).

The rapid growth in access to mobile telecommunications in emerging markets has created new opportunities to provide secure, low-cost financial services using mobile networks. Mobile phones have penetrated even the rural areas Nyamba (2012) where the majority of the poor are living. These services can improve customers' lives by saving them time and money and improving their security. The service is currently operated on all age groups and levels such as young, middle age group and old age groups. The levels serviced include the high income earner, medium income and lower income holders.

Money transfers, the first “killer application” for m-money service providers, remain a core feature of such services in many countries; they are marketed as a safer and/or economical alternative to transfers handled by the post office, friends or relatives, bus companies and others.

Even prior to the launch of formal m-money services, many mobile phone users had developed their own informal version of sending money via mobiles by using phone airtime transfers as a proxy. Users would transfer phone airtime to friends and family, with some having the intention of converting the airtime back to cash. This method of transfer is convenient for users as it does not require registration and there is a large network of airtime sellers and resellers who conduct transactions. However, the resale value of an airtime voucher is between 10 to 40 percent below face value due to a value-added tax imposed at the point of sale and charges placed by retail channels, creating a very high effective transfer fee (Montez, 2010).

M-PESA is a mobile money transfer (MMT) service relatively very new microfinance service provider, which provides an affordable, fast, convenient and safe way to transfer money using mobile phone. M-PESA was launched in Tanzania by Vodacom Tanzania Limited (VTL) in April 2008. Since then, M-PESA has grown to more than a million customers transferring \$12.8 million per month at 2,000 agent locations from May 2009 when M-PESA had 280,000 customers, transferring \$5.5 million per month at 930 agent locations¹.

M-PESA enables Vodacom customers to deposit, withdraw and send money to any mobile customer and recently, offering credit facilities to rural women in Tanzania. You can also buy Vodacom prepaid airtime. All mobile phone customers from all mobile phone networks in Tanzania can receive money via M-PESA, and cash the value at any M-PESA agent. You can send and receive money even if you do not have a bank account.

M-PESA also enables its members to pay utility bills and other services such as electricity (LUKU), water (DAWASCO), cable television (DSTV) and many others.

¹ <http://technology.cgap.org/2009/11/09/m-pesa-in-tanzania-a-second-round-success>

M-PESA registration is easy and can be done at any M-PESA outlet FREE of charge with two basic requirements, a Vodacom SIM card and a mobile telephone². Mobile money allows for any mobile subscriber whether banked or unbanked to deposit value into their mobile account, send value via a simple handset to another mobile subscriber, and allow the recipient to turn that value back into cash easily.

The ability to send and receive money is of major importance for very large groups in many developing countries, which is one of the main explanations to the immense uptake of MMT services by the public in general. The main money flows are known to be from urban to rural areas; and from relatively well-off people to less fortunate friends and family. Customers do not need a bank account to access the service, but must register their SIM card with an M-PESA agent in order to meet regulatory requirements and electronically identity. Once registered, customers can deposit and withdraw cash from local M-PESA agents these include retail outlets such as airtime dealers, petrol stations and supermarkets.

These are encouraging developments in a market that has been characterized by slow uptake and usage of mobile money, compared to the glaring success of Safaricom's M-PESA in neighboring Kenya. Although the mobile banking sector is still at a relatively early stage of development in Tanzania, the potential to expand financial access to underserved populations is significant. The vast majority of Tanzania's population lives under \$2 per day and only 12% has a formal bank account, yet most has access to a mobile phone. Mobile network operators, facing intense competition in a highly fragmented market, have seized on this potential new market by rolling-out payment services and mobile wallets.

² <http://www.zoomtanzania.com/VodacomMPESA>

1.2 Statement of the Problem

Financial services in rural areas of Tanzania are very limited in terms of accessibility, transactional costs and user affordability due to problems in infrastructure, power, truncated education levels and extremely low income for locals. These factors make it less profitable for traditional financial services providers such as banks to extend services in those areas. However, many rural dwellers can access these financial services through mobile phone services, which also happens to be technologically sensitive and competitive in terms of costs, accessibility and user friendliness.

Despite the success of microfinance, the majority of people in the developing world still do not have access to formal financial services. Microfinance faces a number of challenges. MFIs often suffer from weak management, control and operating systems. Costs are too high and a large proportion of MFIs have struggled to reach out into the rural areas, instead focusing on the major towns (KENYA, 2010).

Vodacom (VTL) has attached M-PESA financial services to its vast mobile services network taking advantage of its customer base. VTL is profit driven firm competing with rival mobile money services (MMS) providers (such as TIGO-PESA), Airtel money, as well as other traditional microfinance services (MFIs) providers. Putting these facts in mind, the sector has to be competitive and dynamic to the advantage of customers, traditional MFIs adjusting to the competition and VTL (representing other MMS providers) strengthening its position. It is still not clear of what has been the role of the mobile money services and challenges it has brought to the sector in improving the microfinance status in the rural areas in real terms (i.e. not coming at higher cost in terms of gadgets, technical knowhow etc).

There is still a knowledge gap of the strengths and weaknesses of MMS, information on issues like the extent it has contributed in improving the rural micro financial status on its own or by offering challenges to the existing traditional MFIs which have to be

competitive to stay in business is lacking. Therefore this study has been designed to besides recognizing the role (if any) of MMS, also, to outline the bottlenecks facing MMS in contributing to a role of improving microfinance status in rural area of Tanzania.

1.3 Research Objectives

1.3.1 General research objective

The objective of this study is to understand the role and contribution of M-PESA in improvement of microfinance services in rural areas of Tanzania.

1.3.2 Specific research objectives

In order to achieve the stated general objective the following are the specific research objectives;

- i. To compare accessibility of M-PESA financial service to other non-mobile financial services.
- ii. To establish M-PESA transactions costs and compare with other non mobile microfinance services.
- iii. To study M-PESA user-friendliness and compare to other microfinance services available locally.

1.4 Research Questions

- i. Are M-PESA financial services more accessible compared to other non mobile finance services?

- ii. Are M-PESA transaction costs cheaper compared to other non mobile microfinance services?
- iii. Are M-PESA operations user friendlier compared to other microfinance services?

1.5 Significance of the Study

This study was expected to shed light into the cost and benefits of MMS; it gave analytical information on the role of MMS in improving the microfinance services in rural Tanzania. Also bottlenecks involved were discussed and suggestions on how to improve the situation were presented.

1.6 Scope and Limitations of the Study

The study was a representative one; it singles out M-PESA as representative of all MMS provided in Tanzania (i.e. TIGOPESA, AIRTEL MONEY, EAZYPESAetc) conducted in Morogoro Region (One region out of about 29 existing). This is due to time (less than one year research time), financial and other resources constraints such as human resource etc. Therefore, this study has limitation on MMS provider as the services are not exactly the same and sample from Morogoro Region only have limited the acquisition of information that is not portrayed by the regional political, administrative and cultural setup.

1.7 Organization of the Study

The report consists of five chapters. Chapter one gives the background information, the problem statement, specific objectives and justification and the limitations of the study.

Chapter two is about reviewed literature. It includes theoretical literature review, empirical studies and conceptual framework.

Chapter three discusses the methodology of data collection and analysis.

Chapter four presents and analyzes the research findings. The research results are also discussed in this chapter.

Lastly chapter five provides the conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Literature Review

2.1.1 General perspectives about mobile money

In East Africa, mobile money when started was marketed as a way for workers in urban settings to send money home and support their family. Meanwhile this product, which provides a faster, safer, traceable, long distance way to pay people, is much too fundamental to be used just for one purpose (Davidson and Leishman, 2011). Potential uses include supporting children away at school, receiving salaries, paying domestic staff, contributing to group savings schemes, storing money for safe keeping while traveling. Kendall *et al.* (2011), found market traders, fish sellers, store owners, market middle men, etc. who use mobile money as a key part of their business.

The study by Inter Media (2013) show that an m-money account is the second most popular savings instrument followed by a bank account. Many of them reported time and cost savings in making mobile payments, and considerable efficiency improvements in their logistics and customer service stemming from this medium.

Rural MSMEs (micro, small, and medium enterprises) are the main beneficiary in the use of mobile money, since they have a lot to gain (CGAP, 2011). They need to pay and be paid frequently, sometimes in (relatively) large amounts or over long distances, implying they could lower cost and save time with a cheaper and more convenient way to pay electronically. They also need to manage their working capital to get the most from it, which means turning it over as often as possible - increasing the speed of the cycle from cash to inventory to receivables and back to cash.

Mobile banking is quickly moving towards growth and innovation. With customers becoming technology savvy, they are demanding that their banks be like they are – mobile (Camneret *al.*, 2010). They are driven by the fact that mobile technology is cheap, pervasive, easy to understand, low in maintenance and does not require time-consuming visits to the bank (Katiyar, 2011). Most financial experts look forward for MMS to work from anywhere and attend to financial transactions and settlements at exactly the time they are required, and not invest precious time in visiting a bank branch, filling in forms and making deposits. Therefore development of low cost, scalable, virtual mobile banking services aimed at rural areas has an interesting future (Almazan and Cook, 2012).

Many (CGAP, 2011, Camneret *al.*, 2010, Mas and Morawczynski, 2009) cite the high cost of electronic transfers as a key market barrier to leveraging mobile money platforms and enabling retail payments or other financial services to the poor. Others (Almazan and Cook, 2012, Beck *et al.*, 2009, FSD Kenya, 2007) consider public-private-partnering in investing in appropriate policies, technology, transforming cash-based economies into simple electronic money (e-money) economies and understanding of specific rural areas setup will deliver best opportune to rural microfinance sector and general welfare. It's worth recognizing that there are very few studies done on mobile money industry in Tanzania. So Basing on Lennart *et al.* (2011) and IFC (2010) studies and recommendations, this study employs basic SWOT analysis methodology.

Summarizing these literatures, SWOT (Strength, weaknesses, opportunities and threats) analysis process generates information that is helpful in matching firms or company's goals, programs, and capacities to the social environment in which it operates.

Therefore SWOT serves as information collecting tool and thereafter analysis follows on strength, weaknesses, opportunities and threats.

Strength

Positive tangible and intangible attributes, internal to an organization are investigated to see how they can optimally be used to foster rural microfinance status. And, they are within the organization's control.

Weakness

Factors that are within an organization's control that detracts from its ability to attain the desired improvement of rural microfinance situation in Tanzania. Which areas might the organization improve?

Opportunities

Microfinance business is an opportunity for profit to VTL. So, external factors representing the reasons for VTL to do be in this business will be investigated. They can be used as leverage for the organization as it is a profit maximizing company (i.e. no free lunch) while exploring the better way for rural microfinance improvement. What opportunities exist in the environment, which will propel VTL in rural areas microfinance to be identified by their "time frames."

Threats

External factors, beyond an organization's control, which could place the VTL mission(s) profit maximization and customers' benefits or the whole operation at risk. VTL may benefit by having contingency plans to address them if they should occur. They will be classified by their "seriousness" and "probability of occurrence". Sub-Saharan Africa is one of the world's most promising markets for mobile telecoms.

The number of mobile phone subscriptions in sub-Saharan Africa has risen from 88.7 million in 2005 to 342.6 million in 2010. Measured as a proportion of the population, subscriptions have risen from a penetration rate of 12.3% in 2005 to 42.1% in 2010. However, this rate lags far behind the global average of 74.8% in 2010, leaving plenty of room for growth.

2.1.2 The Meaning of Mobile Money

The definition of “mobile money” varies across the industry as it covers a wide scope of overlapping applications. In general, mobile money is a term describing the services that allow electronic money transactions over a mobile phone. It is also referred to as mobile financial services, mobile wallet and mobile payment. In that report, mobile money defined as a broader term that includes all types of monetary transactions executed via mobile phones. A wide range of mobile money applications have developed throughout the years.

Some major categories include:

- 1. Mobile banking** use of a mobile phone to remotely access a bank account, primarily for account balance check-up and bill payment services
- 2. Mobile money transfer (remittance)** a peer-to-peer application making use of a mobile phone to send money to family or friends, primarily across international borders
- 3. Mobile commerce (payment)** use of a mobile phone to perform financial transactions for purchases or sales, either remotely or on-site, retrieve promotion information or coupons, and deliver gift items (Ernest and Young, 2009).

Mobile financial services are now shaping how people access basic financial services, pay for goods and services, conduct banking and transfer money within National and international boundaries. In Kenya, M-PESA now has over 15m users and almost 40 000 agent outlets around the country.

2.1.3 History of Mobile Money Market

The development of the mobile money market to date is still relatively small-scale outside of Japan, but the mass market potential is considerable. New forms of mobile banking and commerce are also emerging in this realm. Two major applications have developed:

Mobile commerce as a cash replacement in developed markets:

Despite a disappointing start in the early 2000s, mobile payment has regained popularity in the mature economies.

Typically SMS-based in the early days, the over-the-air mobile payment methods now moving towards the Wireless Application Protocol (WAP) platform and wireless internet, thanks to the proliferation of 3G technology.

However, to make mobile commerce readily available, changes to retail infrastructure are required. Mobile money is evolving towards lifestyle and convenience proposition, with applications commonly developed around transportation, retail, banks and mobile commerce. NFC technology has recently emerged in the mobile contact less market as a mechanism for micro-payments (payments of small value). There is a great deal of interesting the industry about this physical mobile payment solution. Operators' trialing the NFC technology are hoping to turn mobile phones into payment devices for

transportation systems, convenience stores and for other goods and services requiring micro payments.

Additionally, companies are now leveraging the technology to look at other applications such as location-based advertising, commonly called “smart posters.” By tapping the advertisements or posters, users can access product information, obtain promotional items, subscribe to services, vote in contests, find directions and make reservations. The information will match the user’s location and personal profile. As such, there will be great potential for NFC to address both the payment and the new non-payment markets. It will therefore be a key driver of mobile payments in the future.

2.1.4 Benefits of the M-pesa monetary transfer system

Financial inclusion

Developing countries are severely constrained by road infrastructure, which makes financial institutions difficult to access from remote areas. This implies that a large part of the population ends up being excluded from the formal banking system. M-Pesa, with its over fifteen thousand agents, is much more accessible for an ordinary Tanzania. M-Pesa helped Micro Finance Institutions (MFIs) to effectively access distant areas without substantial increases in costs.

Financial inclusion has a multiplier impact on the lives of people drawn into the formal financial system, as it leads to social inclusion. Poor people with access to financial services see an improvement in their cash flow management and enhance their financial planning, which in turn increases their saving capacity. M-Pesa has brought many unbanked customers into the formal financial system. Finally, it is important to say that

M-Pesa user households are two times more likely to have a bank account than non-user households.

Enhanced economic activity

People's access to cash is more limited on the supply-side than on the demand-side. More than the shortage of funds, the blockage happens when there is no ability to move money from the sender to the receiver. Since the creation of mobile money, the ability to send the cash from A to B— the so-called “velocity of money”— has been a fundamental cornerstone of economic activity. The issue at stake is knowing exactly how a money transfer can happen in an emerging market where the infrastructure is poorly developed and where very few people have or even want to have a bank account. The Mobile Money Transfer platform is key in substituting the banking infrastructure as in most of the emerging markets the mobile phone penetration is deeper than the bank account penetration. M-Pesa has been instrumental in generating growth and development in Tanzania. This system has brought higher remittances and increased economic activity, leading to faster growth.

Reduced cash in the economy and increased transparency

In the absence of a formal banking system, most transactions are cash based and therefore no audit trail is available for regulators. M-Pesa brought transparency in the money transactions by reducing the cash economy and digitising financial operations. M-Pesa is equivalent to a credit or debit card, which allows regulators to monitor the trail. There is more visibility on the money flows as the remittances move from informal channels to formal channels.

Security

M-Pesa provides mobile phone customers with a secure platform that uses simple, tailored menus in their devices and sends fully encrypted PIN locked messages to a thoroughly audited financial accounting system.

M-Pesa not only increased the micro finance activity but is also used as a way of keeping money. Informal saving channels are much less secure than formal saving facilities. Being user friendly and accessible, both the banked and unbanked M-PESA customers are using it to store their cash. M-Pesa agents are higher in number than bank agents and this allow customers not to travel long distances to withdraw money. With M-Pesa, there is no need to carry cash and hence there is no risk of the cash getting lost or stolen.

Convenience

Many people in emerging economies have to travel far from home to find work and need to be able to send money back to their families. In most parts of the world the cost of money remittance is very high -ranging from 3% to 10%. According to the IMF, “M-Pesa now processes more transactions domestically within Tanzania than Western Union does globally. Based on that, more people depend on informal channels (through friends and family) to send money or physically deliver it. Traditionally this means high fees, risky unregulated services, or long expensive trips carrying cash in an unsafe and unpredictable environment. It has been observed that M-Pesa users need to make fewer trips back home to deliver money and the transaction size also comes down as transfers become more frequent. Moreover, unlike banks, the M-Pesa service is accessible 24 hours a day seven days a week and there are no limits for sending money.

Challenges

Both agents and customers complain of cash flow problems, especially in the rural areas. Because the majority of transactions in the village are withdrawals, agents must maintain their cash flow. They do this by making frequent trips to the bank. This can be problematic if the agent is not close to an urban centre, where most banks in Tanzania are located. Such situation is frequent despite great efforts made by MMS providers regarding the store liquidity management.

Finally, other important challenge arises when noticing that the service availability is not uniform across the country; in fact, accessing the service depends on the network coverage, which is stronger in the urban than in rural areas.

2.1.5 Constraints for Adoption of MMS

Fraud is a key concern

Fraud and money laundering are of great concern with the emergence of global mobile money remittances, which are outside traditional financial institution regulations. As mobile commerce emerges, spam, malware and outright theft of personal financial information will become an increasing threat that must be prevented. Managing fraud will add costs and complexity to this process, which will make it more difficult for new market entrants to succeed.

Security remains important

Security remains an important issue that needs to be addressed for mobile money services. While mobile networks already have encryption on the messages transmitted across the network, mobile transfers require additional tracking and logging for regulatory demand.

As services move to NFC-based, the extra security issues may come with stored value applications on the NFC chip. Meanwhile, chipset vendors are working on minimizing the hardwire information into NFC tags.

Business model issues

Although cash displacement and payment cost reduction is high on the agenda, the business case is far from straightforward for banks and operators. With a lack of clear and viable business models (e.g. revenue-sharing issues), a large-scale mass market launch of mobile payment has yet to take place.

Financial regulations and legislation

In many countries, telecom operators are not allowed to adopt the role of a financial institution, as is the case in the Philippines. The need for regulatory compliance has caused many non-financial service providers to stay away from the service.

Banks and mobile operators have been competitive in the mobile money space, primarily due to the stricter security requirements and tough local financial regulations. Both of them hope to control the market. This gives rise to a need for converged regulation, which is slowly coming to the attention of regulators around the world.

Lack of technical interoperability

Mobile money services are currently being deployed around proprietary point solutions and this leads to a one-bank one-solution problem. The upcoming NFC technology could be a way to address interoperability between all parties offering services and technology standards, so that payments can move between operators and from one country to another.

User experience

One of the most crucial and basic elements to making mobile money services a success is ease of use and reliability. However, mobile operators, banks and payment providers have struggled to convince consumers that the new services are better than those in use today. In other cases, customers simply do not see the need for the payment functionality to be developed. A lot of work still needs to be done to promote customer acceptance.

2.1.6 M-Pesa Affordability

Business payments

The “Business Payments” feature allows a business to pay a number of customers or employees through their M-PESA accounts. The low-income workers previously had to travel to the nearest office or town to pick up their paychecks and deposit them into bank accounts; it was a time-consuming activity at best. Now the rural majority receives their wages and deposit their money directly through their M-PESA accounts. Many other companies are now using M-PESA to pay field operatives working remotely from regional offices.

In rural areas, the only suitable transaction is M-PESA which further accommodates the growing system, M-PESA had to address the issue that when an agent runs out of “float”—either e-money or cash—they cannot service their customers. With the huge expansion, getting more e-money into the system was a requirement and, oftentimes, a challenge since conventional banking takes some time to clear deposits before new e-money can be issued, during which time an agent who has run out cannot offer M-PESA. The capability of these super agents has helped speed up the turnaround of e-money and cash, allowing small agents to have less money tied up in M-PESA and yet still have more float available.

Bank branches that were reluctant to become regular M-PESA agents for customers conducting small transactions have been happy to act as super agents for businesses operating with larger sums. This also gives these banks the opportunity to promote and sell their banking services to more businesses.

M-PESA is now giving cell-phone users access to formal banking services. In collaboration with banking system Mpesa have given the rural majority and M-PESA user the opportunity to open a savings account. Customers use M-PESA to both deposit money into and withdraw money from their savings account, this service has effectively given millions of rural Tanzanians access to banking services for the first time.

- Budget flexibility: The rapid growth required a significantly reworked budget. For example, customer acquisition costs money because agents have to be paid to register customers, and the cost of new SIM cards—which are free to new customers—needs to be covered. It takes time for new customers to become mature users and start generating revenue.
- Customer support: M-PESA needed a significantly larger call center and a lot more customer service representatives than were originally anticipated.
- System capacity: At the time of M-PESA's launch, the system had a technical design that could cope comfortably with the original business case plus a sensible safety margin; this capacity was rapidly exceeded and had to be regularly expanded to include new features at significant expense.

2.2 Empirical Literature Review

2.2.1 Related Research Studies

Despite the expectation that there might be substantial benefits and the anecdotal evidence that small scale commercial use of mobile money is wide spread, it's still a phenomenon that is not well documented or understood. Ndiwalana *et al.* (2009) found their survey respondents in Uganda, what (aside from airtime purchases) they were using mobile money for, nearly 33% of transactions were to purchase or sell goods or services, while the remaining two-thirds corresponded to money transfers. Larger formal businesses in Uganda don't accept MTN Mobile Money as a means of payment, so it's likely most of these purchases and sales transactions were conducted by entrepreneurial individuals or small businesses on one side or the other.

2.2.2 Success Stories from Kenya Mobile Money Services

There are significant benefits to be gained by the use of mobile technology by financial services providers, especially in rural areas, in the form of cost savings, efficiency, fraud and error reduction, client security and convenience.

However, many attempts around the world to do so are progressing very slowly, in some cases for reasons related to implementation or regulatory constraints or because providers initially focused on unsophisticated MFIs as partners. Despite these challenges, there is a great deal of excitement about the possibilities of mobile money technology to extend financial services into underserved areas, and the successful performance of some of the current offerings provides a great deal of encouragement to efforts to prove the concept worldwide. Equally exciting is the fact that the ability to conduct financial transactions remotely is also proving beneficial to the operations of a number of non-finance related organizations, especially in the world of aid and development.

The market leader in the use of mobile money is Kenya. When mobile network money implementation efforts operator (MNO) Safaricom launched M-Pesa in 2007, it reached its first year subscriber targets in just two months, and growth has continued apace ever since. The reasons for M-Pesa's success have been studied extensively, and observers generally agree on several contributing factors: a large underserved population with few alternatives for financial services; a demographic profile that saw significant numbers of adults migrate to cities like Nairobi in search of work, while retaining strong familial and financial links to their home villages; a trusted mobile network operator with significant market share and a broad agent network, relatively high mobile phone penetration at the time; and a regulator willing to take a "watch and learn" approach to the new service.

Four and a half years after M-Pesa's launch, there are approximately 16 million users of mobile money in Kenya, conducting over 2 million transactions everyday. M-Pesa processes transactions worth US\$4.98 billion annually, translating to 17% of Kenya's Gross Domestic Product (GDP). Compared to 1,072 bank branches, there are over 46,000 mobile money agents in the country.

Mobile money is not only being used for standard money transfers and airtime purchase, but is being used to pay salaries, utilities and other bills, and buy goods and services at both online and physical merchants. Three other mobile operators have begun to offer mobile money services in Kenya – Airtel, Orange, and EssarYu – and other players have also recently emerged to offer complementary services. In addition, many aid donors and their implementing partners have already begun to integrate mobile money into their programs and are at the forefront of this learning opportunity.

2.2.3 Current State of Kenyan Mobile Money Market

Currently the mobile money market in Kenya is dominated by one major player, Safaricom's M-Pesa. Not only did Safaricom launch the first service, in 2007, but it still dominates the field, with an estimated 99% market share of all mobile money transactions in Kenya.

Each of the mobile money players offer similar types of services, although the three newer service providers have tried to distinguish themselves in various ways, largely through their platform capabilities and service structures for corporate mobile money services.

Many organizations want to offer their clients and customers the mobile money service provider of their choice when linking such services to their product offerings, but these services are not yet available. Therefore, for the time being, anyone looking to utilize a mobile money service in Kenya has little choice but to work with Safaricom, which has the largest network of subscriptions and agents. Organizations are also increasingly using M-Pesa, formally and informally.

Kenyan microfinance institutions (MFI) and insurance companies are increasingly using M-Pesa for cash disbursement and repayment; businesses, government and NGOs are using it for cash transfers, procurement and salary payments.

Merchants are also using it for purchases, both for its convenience as well as its cheaper fee structure (M-Pesa charges 1.5% to the merchant, versus 3-4% on the part of most credit cards).

The value proposition for use of M-Pesa by organizations focuses on a number of benefits, including reduction of cash “leakage” and corruption; increased operating efficiencies, including less paperwork; better transparency and accountability via the electronic records, and more independence and self-sufficiency for users. In terms of quantitative measures, organizational users of mobile money are reporting reduced cost of cash disbursement compared to other current options, such as cost of cash handling and associated security, reduced staff costs and better utilization of staff.

In terms of innovations in mobile money, Kenya has proven to be a very fertile and supportive location. Not only are there a high literacy rate and a strong culture of entrepreneurship, but the government’s stand on allowing the mobile money sector to flourish, combined with the still considerably large underserved market, has meant a large opportunity and welcoming environment within which to operate for service providers and information and communication technology (ICT) developers (Michaels, 2011).

In fact, according to the World Bank, ICT (including mobile money) has been the main driver of Kenya’s economic growth over the last decade¹². “Since 2000, the sector has outperformed all other segments of the economy, growing on average by 20 percent annually,” according to their recent Economic Update. “Since 2000, Kenya’s economy grew at an average of 3.7 percent. Without ICT, growth would have been a lackluster 2.8 percent – similar to the population growth rate – and income per capita would have stagnated. ICT has had a transformative impact on the financial sector and has contributed to important indirect economic effects in other sectors, such as health care and public information” (Michaels, 2011).

The burgeoning growth in the last decade has made the mobile phone as indispensable as the wallet many will not leave home without it. The ubiquitous nature of mobile

communications has the potential to vastly improve and transform access to financial and transaction services for people, including the developing economies.

2.2.4 Mobile Money Applications in a Multitude of Market Segments

Mobile money applications offer channel to expand traditional services and extend access to multiple segments including underserved or unserved groups. These applications address the very different banking needs for both the banked population in developed markets and the unbanked population in developing economies such as Asia, Africa and Latin America.

In developed markets, the service is at the initial stage and is seen as a convenience that does not generate high revenues, but one on which to build value-added applications. In emerging markets, the large rural populations provide a perfect base to tap the unbaked group with no bank account but a mobile phone.

The younger generations in developed markets are also a high potential segment, given their willingness to adopt new technologies. They often cannot access financial services as they are not told enough but are actively involved in virtual gaming transactions. Convenience will provide a main motivation for them to try new services. Lower income workers are also likely to take up mobile money services, as they are not well served by the large banks.

Prepaid recharge or top-ups are a key revenue source for many carriers as they provide an affordable and convenient service for low-usage customers. Existing service infrastructure currently makes the process of reloading prepaid Sims unfriendly for the low-usage segment.

Many countries have not yet developed regulations to govern the transaction of electronic money. However, the cross-industry nature of mobile money prompts regulators, in both the telecom and financial sectors, to confront important questions and develop a new generation of financial regulation. This leads to the emergence of new regulatory concepts of e-money and payment. Key enablers driving the delivery of mobile money Source: Ernst & Young analysis (2009).

Enabling mobile money

Near Field Communications (NFC) chip

Embedded mobile SIM

Mobile network technologies

Recent advances in handsets

Enhanced security

Technology

Rise of non-cash payment

Demand for money transfer

Unbanked population

Market

Rise of supportive role from public authorities

Emergence of new regulatory concepts

Regulation

Collaborative model to share risks

Cash replacement reduces risk of theft

Risks

Payment network

Infrastructure

Point-of-sale terminals

Near Field Communications (NFC) technology leverages on a short-range wireless connectivity standard that can be embedded in handsets, enabling simple and safe two-way interactions among electronic devices. With this, users can make transactions, receive promotional information and use their phone as an identity holder. The embedded pay application can connect with a merchant point-of-sale terminal. This approach does not need fundamental changes to the retail computer system infrastructure.

2.2.5 Existing Models of Mobile Money Services

The mobile money ecosystem spreads across a wide range of industry participants, from financial institutions, merchants, chip and equipment makers, to mobile operators. It therefore requires close cooperation among all stakeholders to make this service successful.

Described for Mobile Money Applications

Among the most common ones are operator-centric and bank-driven models, given the fact that these industries have control over a mass customer base. However, there are a growing number of new parties such as handset manufacturers, payment companies and card issuers entering this market.

As technology advances, different mobile money applications create different business models. The mobile money ecosystem will develop in different ways in each country, and between different service providers and mobile network operators. There is no single model that fits all markets. The types of model adopted depends on a wide range of external factors, including the market composition, openness of regulatory regimes, maturity of related industry sectors, market dominance of the participants and potential cooperation within the value chain.

Common Models

Mobile money service providers charge a small fee for service provision, with the aim of recording a bulk volume of transactions. While the business case is not yet proven, several different business models exist with varied revenue flows.

For mobile operators, mobile money offers new revenue sources through additional network usage and new applications for consumers. Banks and payment networks could earn commission or transaction fees from merchants and consumers. But in all cases, they need scale to make the service a lucrative

Operator-centric

Operators are in the best position to monetize transactions from mobile money services as one of the value-added service offerings. This is especially true as operators increasingly embrace 3G, which requires new data services to generate revenues.

As its own service offering, telecom companies, and in some cases media companies, have been independently deploying mobile money applications, providing prepaid top-up services, and digital content purchases through its billing platform. There is a growing trend for carriers to adopt contact less payment to extend their reach to much broader retail transactions and micro payments.

Carrier-centric models are commonly adopted in developing markets such as Africa for mobile banking serving the unbanked segments. A representative case is the M-PESA money transfer service, developed by Vodafone in Kenya.

The operator, Safaricom, positions itself as a financial service provider under its own brand, although it does not manage the financial side of the service. It partners with a local bank, which manages the M-PESA account and is legally responsible for the financial liabilities.

G-Cash in the Philippines offers another operator-led approach for mobile money. G-Cash is a stand-alone account managed by Globe, not associated with bank accounts. Globe plays the role of a bank, as a provider of a payment solution, assumes the responsibility for financial aspects and has to comply with the financial regulations. The success of Globe depends on the provision of e-money regulation that allows mobile operators to adopt the role of financial companies. The model works well in the Philippines due to a number of factors including the large unbanked population, popular and cheap SMS and the massive demand for remittance.

Bank-centric

Banks are traditionally risk-averse and are reluctant to rush new mobile money products to market. While banks see an opportunity to increase customer numbers through mobile banking systems, they are cautiously gauging the amount of credit that can be issued against increased risk. Also, the volume of individual transactions is, in

the beginning, small compared with traditional banking. Banks with existing client bases face the risk of cannibalizing this base through introducing low-cost offerings. Only banks with the strategy, brand and capacity to reach out to unbanked customers are likely to be major participants in transformational mobile banking models. Meanwhile, banks are less actively expanding their core banking products over the mobile channel.

The majority of developments have thus far been around simple mobile banking facilities that permit account enquiries or Banks deploy these solutions as an extension of their traditional banking services. However, the issue for the banks has been one of customer ownership, along with the question of who bears the distribution of risk.

Bank-led models prevail in Africa as major banks look at mobile banking as a competitive necessity to expand their service reach. For example, First National Bank in South Africa has rolled out mobile banking since 2002. The bank developed the applications in-house while it also worked with a third-party provider to deploy a SMS messaging gateway. The service, accessible from all mobile networks, has moved from a "first to market" product to a significant transaction channel, with millions of transactions worth hundreds of millions of rand per month reported by the bank.

First National Bank explicitly regarded the innovation of product and product delivery as a key differentiator in its retail banking strategy. Apart from the bank-driven models, there are joint-venture types such as Smart/ Banco de Oro and MTN/Standard Bank where the services are built upon the existing ATM network of the banks and capitalized on their banking distribution networks.

Payment network

Increasingly popular are the entries of new industry groups in the mobile money area. This is unleashed by the growing numbers of unlocked handsets. These independent service companies have been active in the online payment space, providing secure payments between customers or between customers and merchants. Yet, the long-term viability of this model is challenged by the lack of sustainable revenues and the inconvenience of point-of-sale transactions.

Payment networks such as Pay Pal are extending their large presence in the internet payments market to the mobile market. For example, Pay Pal has recently introduced a mobile checkout for use on phones with a browser, allowing users to check balance, transfer money and find places to shop. The company is leveraging its considerable online auction user base to expand its payment services to a much broader range of customers.

In China, mobile payment service providers like Union Pay, Yee Pay and Taobao are the strongest backers of mobile payment services, each of which maintains a network of partnerships with banks, merchants and mobile operators. However, partnerships were mostly negotiated on a province or city basis, causing the service providers to maintain a limited network of partnerships in a small geographical region.

Meanwhile, a number of payment solution companies are active in Africa deploying mobile transfer and cross-border remittance services. For example, WIZZIT and Crandy are developed independently of operators and target the lack of access to banking infrastructure in this region.

Multi-consortium

In this model, banks, mobile operators and trusted third parties collaborate to manage the deployment of mobile applications. The collaboration model appears the most feasible for mobile money as it can capitalize on the strength of different industry groups. However, the large number of parties trying to work together has hindered rapid adoption so far. With the emergence of NFC, the collaboration model may prompt more creative sharing agreements that resemble today's co-branding contracts. Japan is by far the most successful mobile payment market, with participation from a wide portfolio of industry groups.

Mobile payment has a large growth potential in Japan because it is still heavily cash-based. While the service is led and owned by the mobile operator NTT DoCoMo, its model is unique compared with other countries, in that the carrier drives the cooperation among the entire value chain by making investments within it. The dominance of NTT DoCoMo helps it to form an alliance with different parts of the supply side such as banks, merchants, payment card companies and chip makers, and even acquire them. In this way, it can obtain more favorable commercial terms from them, allowing it to adopt a more aggressive handset subsidy policy.

NTT DoCoMo earns transaction-based commission by acquiring target merchants with large networks. Apart from a winning strategy, the success of NTT DoCoMo's mobile wallet services also boosted to the maturing credit card business and non-cash micro-payments.

2.2.6 Emerging Industry Groups

Compared with other industry groups, handset manufacturers generally have the greatest reach of consumers, thus making them a perfect party to engage in the mobile

money services. Nokia, one of the founding members of the NFC Forum, is the first handset manufacturer to introduce mobile wallet terminals by embedding the contactless technology in mobile devices. It has also conducted NFC field trials across Europe, the US and Asia, incorporating the functions of contactless transportation card and retail commerce in the mobile phone.

Yet this model is still developing, as the number of NFC-enabled devices is limited. In addition, handset manufacturers need to partner with organizations that have a strong retail infrastructure to penetrate the merchants.

Likely partners candidates include organizations such as credit card issuers. The latest trials involved the teaming up of Visa and Nokia to deliver debit and credit payment and payment-related services — including contactless payments, remote payments, money transfer, alerts and notifications — for Nokia's new NFChandset. Visa also announced plans to develop financial service applications for Google's new Android platform. In addition to facilitating payments, Visa and MasterCard are taking an active role in driving the development of the mobile payment market through co-branding and cross-promotion .Example: Osaifu-Keitai (Japan) — mobile payment Payez (France) — mobile payment (Ernest and Young, 2009).

2.3 Conceptual Framework

Conceptual framework present an intermediate theory that attempt to connect the aspects of this study. The circles are pie charts presenting the portion currently having the three conceptualized indicators of improved rural microfinance presented in a triangle. Therefore, less than quarter of population access improved microfinance services based in this framework. Introduction of mobile money services is conceptualized of improving the accessibility to reach almost half of rural population

and at least quarter of it will find services user friendly and affordable. Hence introduction MMSs will change the shape of services from triangle to square or even to rectangle where half of rural population will be having improved microfinance services.

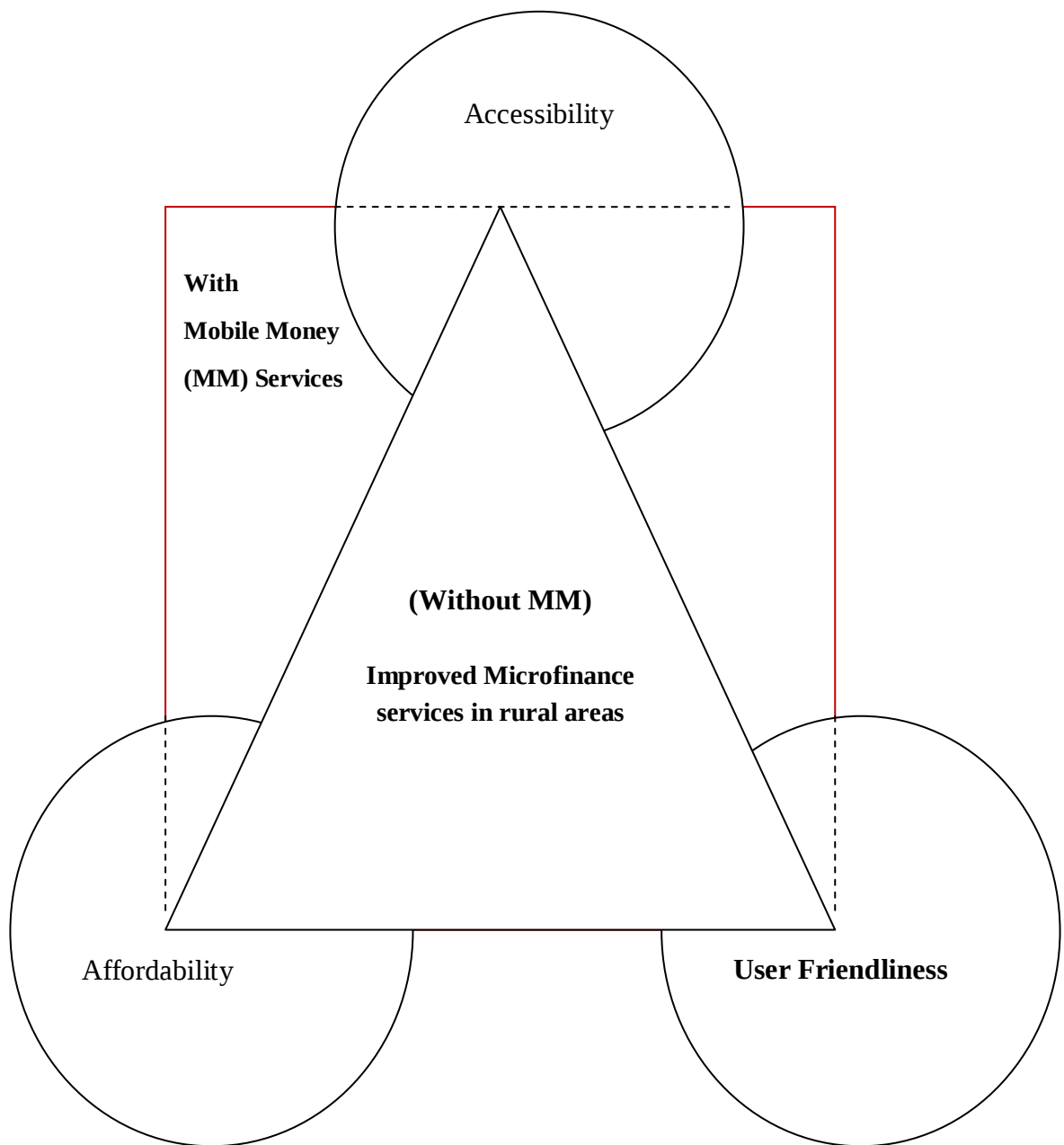


Figure 1: Conceptual framework on the role of mobile money services in the improvement of microfinance services in rural areas.

Source: Own innovation

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Description of the Study Area

The study was conducted in Kilosa District in Morogoro Region. Kilosa is one of the 6 districts in Morogoro Region of Tanzania. The district was chosen due to distance banking transactions and affordability of mobile money services. It is bordered to the north by the Tanga Region, to the East by Mvomero district, to the South by Kilombero district and the South West by Iringa Region. According to Tanzania National Census (2002), the Population of Kilosa District was 489 513.

3.2 Research Design

A research design can be thought of as the structure of research (Kombo and Tromp. 2006). It is the “glue “that holds all of the elements in a research project together. A design is used to structure the research, to show how all of the major parts of the research projects work together to try to address the central research questions.

A cross sectional research design was adopted. The design enabled data collection on a sample at one point in time. This design recommended because it is designed to obtain a snapshot of a representatives group of beneficiaries at a given minimum in time, this design also has a greater degree of accuracy and precision in social science research (Deaton, 1997).

3.3 Sampling Procedures

Multi-stage sampling technique was easier to administer than most single stage designs mainly because of the fact that sampling frame under multi-stage sampling developed

in partial units. Large number of units was also sampled for a given cost under multistage sampling because of sequential clustering, whereas this is not possible in most of the simple designs (Kothari, 2005).

Multi -stage sampling techniques was used in this study as follows:

Kilosa District was selected purposively due to its distance banking transactions and affordability of mobile money services. To obtain the desired sample size, a simple random sampling technique was used to select four divisions. The same procedure was used on selecting four wards and one village from each ward. Simple random sampling was used to select respondents from each household from the selected villages. Also purposive sampling was used to select key informants and Focus Group Discussions (FDGs).

3.4 Sample Size

The sample size was large enough for this study; therefore sample size from the selected study area was taken according to the size of the population, nature of the study and population structure.

A total of 120 respondents were selected by simple random sampling from the selected wards and villages whereby the village economic status roaster used to obtain information. The selection obtained was from the rural dwellers who are using M-PESA, and 30 households who are MMS user of M-PESA was randomly considered from each village as recommended by (Bailey, 1994) that; thirty respondents is a reasonable sample as an optimum sample to fulfill the requirements and efficiency representatives, reliability and flexibility.

3.5 Data Collection Methods

The study was carried out in two phases. On the first phase the reconnaissance survey carried out in order to provide a general picture and to familiarize with the research area, selecting sample villages and pre-testing research instruments. The questionnaires were pre-tested to check its reliability and validity. This enabled the researcher to make necessary corrections to the instruments in the light of the experience gained during pre-testing.

The second phase was the actual field survey where by different approaches for social data collection together with ground truth process for assessing the role of mobile money services in improving microfinance services involved.

3.5.1 Primary Data

3.5.1.1 Quantitative data

Primary data were obtained using questionnaire whereby the respondents selected at random interviewed using both open and closed ended questions to obtain the required data for the study. The questionnaire was focusing on respondents' role of mobile money services in the study area. The type of information to be collected included background variables of respondents and the experiences of doing various money transaction activities including mobile money services and the role of mobile money services to the rural household.

3.5.1.2 Qualitative Data

Also checklists were used as a guide tool during Focus Group Discussion, structured and semi structured questionnaires and interviews schedules used. The exercises assessed the perspectives of the mobile money services transactions including the importance of M-PESA in the socio-economic development and the community as a whole. Information was collected from individual farmers, key informants and village

groups using both methods. All these techniques used in order to allow cross checking of the information which collected (triangulations) (Olsen, 2004).

(a) Informants

These are individuals who were approached for their views on the mobile money services using a check list of questions. Some of them included were small business M-PESA service providers, Community Development officers, and business acumen.

(b) Focus Group Discussion

Focus Group Discussion was administered whereby check list provided to the M-PESA service providers to get critical insight from the group about Mobile money services. A gender equality of male and female as well as age category considered. The type of information captured during this study showed the experiences on the M-PESA management services and the contribution of mobile money services to rural livelihoods. The information which was obtained through this technique used to fill gaps of information left in structured questionnaire survey and other instruments which used in collecting the information.

3.5.2 Secondary Data

Secondary data collected through documentary reviews from government reports, Journals, Vodacom Morogoro main office, M-PESA Agencies, different Non-mobile micro-finance service providers such as CRDB, NMB, and NBC banks. Other information collected from ward and village offices around the study area. This information was important to broaden perspectives and also provide in-depth understanding of the research topic.

3.6 Data Management Procedures

3.6.1 Data Processing and Analysis

A combination of analytical tools used to achieve the study objectives and to give meaningful results and interpretation. Quantitative data collected from structured household questionnaire coded and analyzed using Statistical Package for Social Science computer program (SPSS). In order to make realistic inferences in this package both descriptive and inferential statistical methods adopted in the analysis of data. While some of the descriptive statistics include the use mean, standard deviation and maximum and minimum.

Qualitative Data Analysis

Content analysis technique was employed to analyze qualitative data and information from the discussion with key informants and Focus Group Discussions where interpretation and tabulations was administered. According to Stemler (2001), content analysis technique is a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding.

CHAPTER FOUR

RESULTS PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter presents and analyzes the research findings. It consists of the following sections: Profile of the respondents, comparison of accessibility of M-PESA financial service with other non-mobile financial services, comparison of M-PESA transactions costs with other non-mobile microfinance services and comparison of M-PESA user-friendliness with other microfinance services available locally.

4.2 Profile of the Respondents

4.2.1 Education Level of Respondents

The results on Table 4.1 shows that (15) 50 percent of respondents have secondary education, 12 (40 %) have primary education and 3 (10%) are graduates. The results indicated that the users of mobile money services are secondary education leavers followed by primary school leavers of the interviewed respondents.

Table 4.1: Education level of respondents

Education levels	Frequency	Percentage
Primary education	12	40.0
Secondary education	15	50.0
Graduate	3	10.0
Total	30	100.0

Source: Research findings, 2013

The results revealed that 40% and 50% had attained primary and secondary school respectively. This can be associated with the adoption rate of the respondents in the

study area. Probably, the application of the M-Pesa needs some with basic knowledge of reading and counting to successful operation of the services.

4.2.2 Occupation Status of Respondents

The results on Table 4.2 shows that mobile money service users are from different occupation groups such as farmers, petty traders, secretary, bar made, shopkeepers, casual labors, temporary employed persons, bodaboda, students ,poultry keepers, teachers and landlords. However farmers and bodaboda showed the large number of using mobile money services followed by secretary, teachers and students. The small group participating on mobile money service were found to be pet traders, bar made, and shopkeepers, this is due to the fact that, all these activities have unsatisfactory lamp some of money on hand so that either used direct on purchasing goods or consumed every little amount they are getting. More over the least group on using mobile money service includes casual labour, temporary employed and land lords.

Table 4.2: Main occupation of respondents

Main occupation	Frequency	Percentage
Farmer	5	16.7
Petty trade	2	6.7
Secretary	3	10.0
Bar maid	2	6.7
Shop keeper	2	6.7
Casual labourer	1	3.3
Temporary employed	1	3.3
Bodaboda	5	16.7
Student	3	10.0
Poultry keeping	2	6.7
Teacher	3	10.0
Land lord	1	3.3
Total	30	100.0

Source: Research findings, (2013)

4.2.3 Member ship of Microfinance

Results on Table 3 shows membership of respondents on microfinance, a large number (21) 70% of all respondents participated on research said that they are not the member of microfinance services. Only (nine) 30% access microfinance services.

Table 4.3: Membership of microfinance

Membership of microfinance	Frequency	Percentage
Yes	9	30.0
No	21	70.0
Total	30	100.0

Source: Research findings, 2013

Results in Table 4.3 above revealed that about 30% of respondent were members of microfinance institutions and 70% were not involved in any MFI. Thus most of their financial services were through mobile money services.

4.2.4 Duration of using Mobile Money Services

Only 23.4% have being using Mobile phone for more than three years. The majority started to use the services in 2012 (over 70 percent of respondents). This might be explained by improved network coverage and falling prices and improved availability of mobile handsets. The results in Table 4.4 showed that Mobile Money services industry is still in infant stage in Tanzania because it has less than five years. However, most people at Kilosa were not participating fully in the MMS initially but as time goes on the rate of adopting is increasing gradually.

Table 4.4: Year started using MMS

Year started using MMS	Frequency	Percentage
2008	1	3.3
2009	2	6.7
2010	2	6.7
2011	2	6.7
2012	11	36.7
2013	12	39.9
Total	30	100.0

Source: Research findings, 2013

4.2.5 Holding of Bank Account

The results on Table 4.5 show that only (7) 23.3% have bank accounts from different bank institution while (23)76.7% have no account on any bank institution. This indicating that few people are using bank money services institution in the study area.

Table 4.5: Holding of Bank Account

Holding bank account	Frequency	Percentage
Yes	7	23.3
No	23	76.7
Total	30	100.0

Source: Research findings, 2013

The results in Table 4.5 show that 23.3 per cent of respondents in Kilosa hold bank account this is because most of the agents also are civil servant such as nurses, personal secretary and some are teachers in public schools, whereas about 76.7 per cent do not hold any bankaccount. In Kilosa two banks operate branches at the town centre

4.2.6 Time of using Bank Account

The results on table 4.6 show that respondents in the study area started using bank account service before 1990. Results in Table 4.6 below shows only 13.4 % of respondents used banks services at least three times per month. But the rest uses only once which indicate that the services are not affordable, accessible or friendly.

Table 4.6: Time of using bank institution (Since when)

Since when	(No. of respondents) Frequency	Percentage
Before 1990	(1)1	3.3
1990 - 1995	(1)2	6.7
1996 - 2000	(0)0	0
2001 - 2005	(1)1	3.3
2006 - 2010	(2)3	6.7
2011 - 2013	(2)3	6.7
Total	7	26.7
Missing System	23	73.3
Total	30	100.0

Source: Research findings, 2013

4.3.7 Availability of Service

Availability factor was determined by considering how the service is distributed in the region and whether there are no network problems. On service distribution it was found that the service is well distributed at various wards and village centres where you find the agents at every corner. In addition to that most of the time you will find that the number of M-peas agents and super dealer are evenly distributed through the district as compared to other operators, this increases visibility of MMS and competitive edge of M-pesa. On the issue of network problem Table 4.7 below provides the summary of the findings.

Table 4.7: Vodacom network problem in the area

Is there a network problem?	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	13	43.3	43.3	43.3
No	17	56.7	56.7	100.0
Total	30	100.0	100.0	

Sources: Research findings, 2013

Results in Table 4.7 above revealed that 43.3 percent accepted experiencing network problem in the area or sometimes network failure. But 56.7 percent of respondents did not experience any problem with Vodacom network while using M-Pesa services. Thus network problem is relatively significant in affecting the accessibility.

4.3.8 Perceived Distance from where the Service is offered

Table 4.8 below provides the summary of findings on perceived distance from where the service is offered. From the Table 4.8 above 50 percent and 30 percent of the respondents mentioned that the distance from where the service is offered is reasonable and short respectively for mobile financial services. This is comparatively higher than the relative percentage figures for non-mobile financial services. The same also apply for the second question in the Table 4.8 on the time it takes to reach where the service is offered. Thus mobile finance service is more accessible than non-mobile financial service.

Table 4.8: Perceived distance from where the service is offered

How is the distance to the nearest Point?	Mobile Financial Services		Non Mobile Financial Services	
	Freq	%	Freq	%
Long	6	20	12	40
Reasonable	15	50	10	33
Short	9	30	8	27
Total	30	100	30	100
How long does it take to reach there?				
Long time	7	23	10	33
Reasonable time	18	60	14	47
Short time	5	17	6	20
Total	30	100	30	100

Source: research findings, 2013

4.4 M-PESA Transaction Costs in Comparison with other Non-Mobile Microfinance Services

The transaction costs considered include the cost to reach where the service is offered, opening an account, time taken to reach where the service is offered and the cost of handset. The Table 4.9 below provides the summary of the findings for the above aspects. The percentage figures in the Table 4.9 above suggests that the cost for mobile financial service is low compared to non- mobile financial service for the cost to reach where the service is offered, the cost of opening the account and the cost in terms of time taken to reach where the service is offered. However the cost for acquiring handset is lower for non-mobile financial service. Despite this observation, mobile financial service is comparatively more cost effective in general perspective.

Table 4.9: Transaction Costs to reach where the service is offered

1. How do you consider the cost to reach where the service is offered?	Mobile Financial Services		Non Mobile Financial Services	
	Freq	%	Freq	%
High	7	23	11	37
Moderate	16	54	13	43
Low	7	23	6	20
Total	30	100	30	100
2. How is the cost of opening an account?				
High	5	17	10	33
Moderate	7	23	14	47
Low	18	60	6	20
Total	30	100	30	100
3. How is cost in terms of time taken to reach where the service is offered?				
High	8	27	13	44
Moderate	15	50	10	33
Low	7	23	7	23
Total	30	100	30	100
4. How is the cost of acquiring the handset?				
High	8	27	2	7
Moderate	12	40	13	43
Low	10	33	15	50
Total	30	100	30	100

Source: Research findings, 2013

4.5 M-PESA user-friendliness in Comparison with other Microfinance Services Available Locally

On user-friendliness factor the data collected were on network performance and comparative data from the respondents. The data on network performance is also presented in Table 4.7 above under section 4.3 whereby 43.3 per cent of the respondents accepted experiencing network problem in the area or sometimes network failure and 56.7 per cent of respondents did not experience any problem with Vodacom network while using M-pesa services.

Table 4.10: Comparative Data on User-Friendliness

How do you compare mobile money service with other microfinance services in terms of user friendliness?	Responses	
	Freq	%
Less User Friendliness	5	17
No Difference	9	30
More User Friendliness	16	53
Total	30	100

Source: Research findings

From the Table 4.10 above 53% of the respondents mentioned that mobile financial service is more user friendliness than non-mobile financial service while 30% are indifference. Despite the existence of network problem it is apparently suggestive to say that mobile financial service is more user friendliness than non-mobile financial service based on the comparative data provided in Table 4.10.

The results in Table 4.11 show that about 100% of respondents were aware of the services provided by M-Pesa at Kilosa. Also the accessibility and availability of service is well distributed at various ward and village centre where you find the agents at every corner.

Table 4.11: Awareness of how to use M-pesa service menu

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	120	100.0	100.0	100.0

Source: Research findings

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study aimed at the following specific objectives to compare accessibility of M-PESA financial service to other non-mobile financial services, to establish M-PESA transactions costs and compare with other non-mobile microfinance services and to study M-PESA user-friendliness and compare to other microfinance services available locally.

The major findings are the Vodacom is the leader in the money market services since 100% accessible at the village centres and small subcentres. The transaction costs as compared to other non-mobile services is lower since the sender is charged some money and the receiver is charged a certain percent around 0.4% of the money received. The Mpesa service menu is user friendly as compared to other microfinance services as revealed in the number of people joined the service automatically upon registration for the first time. The Government and Non-Governmental organization can create supportive environment to improve microfinance service in the study area.

The mobile phone providers are helping the central bank to channel monies from informal to the formal system, as these transactions are captured through BoT channels. According to the regulations, mobile phones have to have a trustee account for such services deposited by agents at various banks of their choice.

And banks are adding value to mobile phone transactions by discharging their services. Therefore the more under pillow banks are finding their ways through mobile transactions, the better for the BoT to control all the money in circulation and to strategise their macroeconomic fundamentals.

M-Pesa was launched in 2008 and has turned up to be the saviour of those who could not easily access banking services and affordable and reliable means of money transfer both locally and internationally.

A growing body of evidence suggests that increasing poor people's access to better financial tools can help accelerate the rate at which they move out of poverty and help them hold on to economic gains. However, it is costly to serve poor people with financial services, in part because most of their transactions are conducted in cash. Storing, transporting, and processing cash is expensive for banks, insurance companies, utility companies, and other institutions, and they pass on those costs to customers.

In fact, research has shown that the most effective way to significantly expand poor people's access to formal financial services is through digital means. In addition to cost savings, digital financial services offer a wide array of benefits:

- They connect poor people to the formal financial sector and enable them to become customers and suppliers within the wider economy.
- Financial flows can be accurately tracked, resulting in safer and speedier transactions and less corruption and theft.
- Providers can use financial histories to develop products that are better suited to customers' needs, cash flow, and risk profiles, including fee-for-service offerings and smaller-unit transactions.
- Direct deposits (including wages and government assistance) allow money to "bypass" the home, helping users save rather than spend and often giving women more financial authority within the family.
- Automatic reminders, positive default options, and other choices offered via mobile phone menus offer convenience and save time.

5.2 Recommendations

From the research findings, it was observed that there are challenges that face MMS in rural areas including low capital to serve large volume of transaction, agents to run short of float in case many people wanted to take cash instead of sending. In addition to that, the government should put in the MFI act provisions which protect MMS at the rural areas especially the security at their POS and when in transit to the nearest bank for increased float in their handset.

The current m-money services being offered in Tanzania may not sufficiently replace an active savings account or involvement in a microfinance program, but they do have the potential to empower Tanzanians with a financial tool that can reduce the cost of conducting services such money transfers and bill paying. With a strong percentage of transfer receivers and senders already having familiarity with financial services, a case may be made that there is potential for more-sophisticated m-money services than simple money transfers – such as those provided by Kenya’s M-KESHO, which offers savings accounts, micro credit and insurance products (Montez, 2010).

Moreover, banks and government are advised to bridge the gap between MMS enterprises and commercial banks so that they could use the huge untapped potential to reach the unbankable population in the rural areas.

Also the following recommendations should be considered;

- (i) Continued efforts for establishment of supportive macroeconomic and sectoral policies financial, fiscal, monetary & SMEs development and legal and regulatory framework that facilitates the growth of the mobile financial services markets.
- (ii) A facilitative intervention by the government in the development objective through economic growth is required. The desired actions are those focuses on improvement in demand for credit services, reduced bureaucratic banking conditions, reduced transactions costs,

- (iii) Development of appropriate micro financial Institutions and products relevant for the MMS sector requires government guidance through policy development of appropriate financial infrastructure (legal, regulation and information), and incentive mechanisms.

Furthermore financial institutions need to become more innovative in developing new products and services.

5.3 The Areas for Further Studies

The following areas require further studies;

- i. Similar study in other MMS operators from TiGo, Airtel and Ezypesa and the alternative channel of microfinance access in peri urban centres and emerging towns.
- ii. The profitability analysis for the agents and the mobile host company given the volume of transactions in a year.

REFERENCES

Almazán, M. and Cook, T. (2012). Will Lower Mobile Money Fees in Kenya, Tanzania be enough to stimulate micropayments? [<http://blogpost.aspx?blogid=2743>] site visited on 2/4/2012.

Beck, T. and Demirguc-Kunta, A. (2007). Reaching out: Access to and use of banking services across countries. *Journal of Financial Economics* 85(1): 234 – 266.

Camner, G., Sjöblom, E. and Pulver, C. (2010). *What Makes a Successful Mobile Money Implementation? Learnings from M-PESA in Kenya and Tanzania*. Mobile money for the Unbanked, GSMA, UK. 22pp.

CGAP (2011). Advancing financial access for the world's poor. [www.cgap.org and www.microfinancegateway.org] site visited on 31/3/2012.

Davidson, N. and Leishman, P. (2011). *Building a Network of Mobile Money Agents*. Mobile money for the Unbanked, GSMA, UK. 12pp.

FSD Kenya (2008). *Research on Mobile Payments Experience*. Results of the 2007 Survey. Nairobi, Kenya. 13pp.

[<http://www.telecomsmarketresearch.com>] site visited on 2/12/2011.

Kilosa District (2002).Population. [<http://en.wikipedia.org/wiki/Kilosa>] site visited on 22/4/2011.

[<http://technology.cgiar.org/2009/11/09/m-pesa-in-tanzania-a-second-round-success>] site visited on 3/4/2011.

[http://mmublog.org/wp-content/files_mf/sme_and_mmt_final_draft.pdf] site visited on 12/11/2011.

International Finance Corporations (2010).*M-Money Channel Distribution*.Case – M-PESA Tanzania Vodacom Tanzania. 18pp.

Kendall, J., Machoka, P., Veniard, C. and Maurer, B. (2011).*An Emerging Platform: From Money Transfer System to Mobile Money Ecosystem*. UC Irvine School of Law Research Paper No. 14. Sub - Sahara Africa. 6pp.

Lennart, B. and Söderberg, B. (2011).*Mobile Money Transfers and Usage Among Micro- and Small Businesses in Tanzania*. SIDA/SPIDER Study Commission. Dar es Salaam, Tanzania. 107pp.

Mas, I. and Morawczynski, O. (2009). Designing mobile money services lessons from M-PESA innovations: *Technology Governance Globalization* 4(2): 77 – 91.

Michaels, L. (2011). *Better than Cash: Mobile Money Market Assessment*. USDA, Nairobi, Kenya. 19pp.

Montoez, D. (2010) Mobile money for the Unbanked: lessons from Tanzania. 15pp.

Ndiwalana, A., Morawczynski, O. and Popov, O. (2011). *Mobile Money Use in Uganda: A Preliminary Study*. Makerere University, Kampala, Uganda. 35pp.

Kabbucho, S. and Mukwana, J. (2002). *Passing the Buck – Money Transfer Systems: The Practice and Potential for Products in Kenya*. May 2002 10 “m” for mobile, while “Pesa” means money in Swahili. Microsave Africa. 67pp.

Jack, W. and Tavneet, S. (2010). *The Economics of M-Pesa* MIT. Georgetown University, Washington, DC. 30pp.

APPENDICES

Appendix 1: Questionnaire M-pesa agent Mzumbe University-Morogoro 2013

The role of mobile money services in improving microfinance services in rural areas of Tanzania

- 1.) Name of Respondent
- 2.) Age (Years)
- 3.) Education level
- 4.) Occupation
- 5.) Member of Microfinance/SACCOS group_____Since when
(Month/Year)
- 6.) What are the main services do you receive from this Micro/SACCOS group
7. How is the distance to the nearest point where you receive the Micro/SACCOS group?
 - a.) Long Distance ()
 - b.) Reasonable ()
 - c.) Short distance ()
8. How much does it take for you to reach there?
 - a.) It takes a lot of time ()
 - b.) It takes a reasonable time ()
 - c.) It takes a short time ()

9. Besides time does it cost you to reach the Micro/SACCOS group?

a.) Yes, it cost a lot ()

b.) Yes it cost but not much ()

c.) It does not cost ()

10. Hold account in formal banking institution_____Since when (Month/Year)

11. What are the main services do you receive from this formal banking

12. How is the distance to the nearest point where you receive the formal banking?

a.) Long Distance ()

b.) Reasonable ()

c.) Short distance ()

13. How long does it take for you to reach there?

a.) It takes a lot of time ()

b.) It takes a reasonable time ()

c.) It takes a short time ()

14. Besides time does it cost you to reach the formal banking?

a.) Yes, it cost a lot ()

b.) Yes it cost but not much ()

c.) It does not cost ()

15. How many handsets do you have?

16. For how long have been holding a handset?

17. What is the cost of the handset you are using for Vodacom/M-pesa?

- a.) Very high
- b.) High
- c.) Moderate
- d.) Low

18. How much time do you take to reach a nearest reliable³ M-Pesa services agent?

- a.) A lot of time
- b.) Reasonable time
- c.) Short time
- d.) Negligible

19. What is the distance to the nearest reliable M-Pesa agent?

- a.) Short distance
- b.) Reasonable distance
- c.) Long distance

³ Reliable means available most of working time and with enough cash and float to meet respondents needs

20. Besides time does it cost you to reach the Agent? (a.) Yes () No ()

21. How do you compare mobile money service with microfinance services in terms of user friendliness?

- a.) Less user friendliness
- b.) No difference
- c.) More user friendliness