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BREAKING DOWN BARRIERS IN RURAL KENYA: A CASE STUDY OF M-PESA SERVICES IN MIGWANI AREA OF MWINGI DISTRICT, KENYA

A MASTERS OF ARTS DEGREE PROJECT

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A research project submitted to the Department of Sociology, the University of Nairobi, in partial fulfilment for the award of Master of Arts Degree in Rural Sociology and Community Development.

DECLARATION

I certify that this project is my original work and has not been presented in any other University.

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Signed _____ Date 26TH MAY 2011

This project has been submitted for examination with my approval as the University Supervisor.

SUPERVISOR

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Signed _____ Date 27/5/2011

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DEDICATION

I dedicate my work to my daughter Yara Munini and my parents Mr. Antonio and Mrs. Elizabeth De Souza with love and appreciation.

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LIST OF ACRONYMS

AISI	African Information Society Initiative
AVL-K	African Virtual Library – Kenya
CBK	Central Bank of Kenya
CCK	Communications Commission of Kenya
CGAP	Consultative Group for Assisting the Poor
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
ECOWAS	Economic Community of West African States
EAPTC	East African Posts and Telecommunications Corporation
ERS	Economic Recovery Strategy
GoK	Government of Kenya
GSM	Global Systems for Mobile Communications
ICT	Information Communications Technology
ITU	International Telecommunications Unit
KENET	Kenya Education Network
KES	Kenya Shillings
KIE	Kenya Institute of Education
KNEC	Kenya National Examination Council
KPLC	Kenya Power and Lighting Company
KPTC	Kenya Posts and Telecommunications Corporation
KTCIP	Kenya Transparency Communication Infrastructure Programme
MDGs	Millennium Development Goals
MFIs	Micro-Finance Institutions
MTC	Mobile Telecommunications Company
OECs	Organisation of Eastern Caribbean States (OECS)
RECs	Regional Economic Communities
RICI	Regional Information and Communication Infrastructure
RIEs	Rural ICT Enterprises
SACCOs	Savings and Credit Cooperative Societies
UAF	Universal Access Fund
VICI	Village Information and Communication Infrastructure

ABSTRACT

The cellular mobile industry in Kenya has become one of the most popular and fastest growing industries in Kenya. Safaricom, Airtel (known as Zain during this study), Orange Kenya and Yu are the four mobile operators in Kenya. Safaricom is the most popular of the four with its mobile money transfer service, M-PESA, recording the highest number of users.

The objectives of this study were to determine rural peoples' perceptions of M-PESA services; to establish the benefits of M-PESA services in rural Kenya; to find out the constraints to the growth of M-PESA services in rural Kenya; to establish the social implications of M-PESA services to rural dwellers. This was done through a case study of M-PESA services in Migwani, Mwingi District, Kenya.

The findings of this study show that the M-PESA service is becoming increasingly popular in rural areas where majority of Kenya's unbanked population resides. Time efficiency is rated as the most important attribute of the service that determines consumer's choice over other financial modes of money transfer. The cost, reliability, accessibility, userfriendliness of the system, safety and competence of staff rankings follow in that order. The aforementioned attributes also double up as benefits. However, its growth is threatened by lack of civic education, illiteracy and poverty. Network coverage, geographical distribution of M-PESA outlets, operation hours, technology phobia and lack of electricity are also additional challenges. The greatest threat that the service has posed to society, like most new technologies, is that it compromises the 'intimacy' of society which is a major characteristic of the African society.

The recommendations put forward are; Safaricom to carry out civic education incorporating social aspects so as to minimise negative social implications of the service; The Government of Kenya to intensify rural electrification programs; M-PESA dealers to consider opening outlets in more interior parts of rural areas; use of solar should be encouraged; the social contribution of the mobile telephony sector be studied as opposed to its economic contribution that is the norm.
In conclusion M-PESA services have broken down barriers that have hindered development in the rural areas. For a population that is predominantly unbanked, the M-PESA service has potential to thrive in many areas of rural Kenya. The negative impacts are not ignored though overshadowed by the positives. M-PESA is almost becoming a necessity especially in rural areas where financial institutions are few and far between. . Its uniformity in services to all irrespective of status is particularly striking.

CHAPTER ONE
INTRODUCTION AND PROBLEM STATEMENT

1.1 Introduction

The Information Communication Technology (ICT) has been one of the most dynamic sectors in Kenya. It is also viewed as a major contributor to national development. In Kenya's Vision 2030 the ICT sector has been described as an enabler. In Kenya, there have been efforts to improve access to ICT services for example; there is a draft national ICT policy, a recently completed study on the implementation and management of a Universal Access Fund (UAF) by the Communications Commission of Kenya (CCK)-which is under-study by the Commission, awaiting implementation. There are also efforts to build capacity on ICTs, the Ministry of Education for example, is in the process of reviewing its educational policies to ensure that ICTs are fully integrated in education and training at all levels. Kenya's Vision 2030 also acknowledges low cost provision of ICT goods and services to enhance the country's economic competitiveness and development of a knowledge-based society. Among the programmes and projects in this vision is the Kenya Transparency Communication Infrastructure Programme (KTCIP) that will ensure equity in the provision of ICT services through establishment of digital villages and bandwidth subsidy and the Rural ICT Enterprises (RIEs) which will be based at constituency level in an effort to offer business solutions suitable to rural settings, taking into consideration the specific business and commercial needs of Kenya's rural economy. They will also have the capacity to provide affordable access to basic and a diversity of ICT services to the surrounding population.' (GOK, 2007)

The telecommunication sector has been a major contributor to this grand ICT evolution. The history traces back to the East African Posts and Telecommunications Corporation (EAPTC) which was the sole telecommunications network way back in 1948 when Kenya, Uganda and Tanzania were one unit known as the East African Community (EAC). Following the collapse of the EAC, the Kenya Posts and Telecommunications Corporation (KPTC) came into being through an Act of Parliament. In 1998 the Communications Act split KPTC into four separate entities:

1. Telkom Kenya (Telephony and Telecommunications)
2. Kenya Posta (Postal Services)
3. Communications Commission of Kenya (Licensing and Regulation)
4. National Communications Secretariat (Policy Formulation and Advice)

There were further transitions in the telecommunications industry especially with the enactment of the Communications Act of 1998. The KPTC monopoly ceased when the Communications Act introduced competition in the cellular mobile industry. Currently there are four mobile operators in Kenya; Safaricom, Zain, Econet wireless and Orange mobile. Orange mobile is a product of Telkom Kenya. According to the International Telecommunications Unit (ITU), Africa has the highest mobile growth rate and mobile penetration. The continent outpaces the rest of the world in average annual growth of mobile phone subscriptions. It is said that the introduction of mobile telephone services has also added new areas in business and industry growth. Young entrepreneurs are coming up with innovative business ventures following the introduction of mobile phones. In the local dailies an article unearthed two electrical and engineering students at the University of Nairobi who designed a device that can charge the mobile phone without the use of regular power supply. This means that the rural areas where no power is installed as yet can make use of the mobile phones!

Mobile money has therefore impacted on livelihoods by improving access to financial services especially for the unbanked population; spurred invention and innovation which has in turn created a means of livelihoods; it has also affected social structures such as the family as will be discussed in later chapters.

1.2 Problem Statement

Kenya is lagging in meeting many of its Economic Recovery Strategy (ERS) targets due to developmental challenges occasioned by many crises the latest being the post-election violence in early 2008. Equity and equitable access to services by the urban and rural people is part of the nation's development agenda. Among these provisions are ICT services. According to the Kenya National Development Plan 2002-2008, the Government of Kenya recognises the role of ICT in national development and has therefore initiated steps to promote its use. However, at present this still seems to be a feat for the government particularly due to set backs of infrastructure and technology, expertise, finances etc. and the fact that the urban areas of Kenya take precedence over the whole developmental process in relation to rural areas.

M-PESA Services is one of the ICT initiatives introduced under the telecommunications sector through one of the largest Mobile Network Operators in Kenya, Safaricom. Safaricom is the most popular service provider with over 7 million subscribers. In March 2007, Safaricom in

conjunction with the Vodafone Group launched M-PESA in Kenya. The initial concept of M-PESA was to create a service which allowed microfinance borrowers to conveniently receive and repay loans using the Safaricom network. In turn, microfinance institutions would be able to offer more competitive loan rates to their users, as there is a reduced cost of dealing in cash. The users of the service would gain through being able to track their finances more easily. But this concept has since been re-focused to sending remittances across the country and making payments as customers were using the service for other uses other than the initial intended purpose. This service though not a mobile banking system seeks to serve those who do not have access to conventional banking. The service is gradually seeping through Micro-Finance Institutions (MFIs) and banks to facilitate money movement between them and their customers.

At present the M-PESA service fits into the two pillars out of the three pillars in the Vision 2030 (*Economic, Social and Political pillars*) as well as in the vision's foundations for national transformation notably the foundations for ICT and human resource development, labour and employment.

The M-PESA money transfer system, launched in March 2007, has become a popular service for both the banked and unbanked population more so with the rural populace (estimated at 80% of the Kenya population) as they comprise a large percentage of the unbanked population. M-PESA's geographical reach is wide with more than 9,000 agents across the country and over 6 million subscribers and another 10,000 new registrations daily. It has ventured into parts of the country where banks and other financial institutions are not yet established.

A variety of services in the rural areas still remain either limited or unavailable i.e. academic institutions and financial institutions are visibly inadequate or inaccessible to the rural population. According to findings of a survey on the access to financial services in Kenya by *FinAccess Study (2007),* only 19% of Kenyans have access to formal financial services through commercial banks and Postbank. An additional 8% of Kenyans are served by SACCOs and Micro-Finance Institutions (MFIs), while 35% depend primarily on informal financial services. This brings to about 62% the population that is "financially included" and 38% "financially excluded". However, the most recent findings from the second national survey on access to finance by *FinAccess Study (2009)* showed a fall from 38% to 33% in the financially excluded population mostly as a result of 'a large expansion into previously un-served areas by the banks and the development of entirely new services, notably M-PESA.

Attempts made to address the problem of accessing ICT services particularly in rural Kenya is evidence of the existing deficiency in adequate ICT services - CCK's Universal Access study carried out from December 2003 to November 2004 for example, aimed to find the appropriate means to benefit Kenya's rural areas (GoK 2005). In addition, the National draft ICT policy acknowledges this need as it stipulates "the ICT needs of the rural areas and those of under-served urban areas to ensure universal access."

The pace of improving the ICT sector by the government, although appreciated, is sluggish. Part of the blame lies on the government but also as past studies have shown the rural population exhibits a lot of reluctance towards adopting new technology be it in agricultural methods or new business ventures. However, the M-PESA services seem to be embraced by both the rural and urban people. The service's popularity is growing at an impressive rate as well. It is evident that M-PESA is possibly an answer to one of the many ICT drawbacks as it is proving to be a more viable alternative especially for the rural poor! Between March 2007 and September 2008, M-PESA person to person transfers hit the Sh54 billion mark with December alone last year accounting for an additional Sh14 billion. Currently the transactions are estimated at 152billion Kenya shillings. It is necessary to study the impact of M-PESA services in rural development in light of these accomplishments. How can M-PESA services be linked to community development and what role does it play towards achieving Kenya's national development agenda?

This study is designed to investigate how rural dwellers perceive and use M-PESA services. This will also include the frequency of use, registration status, the kind of transactions made, what services are paid for, accessibility vis-à-vis the rural formal financial markets, affordability, convenience and overall acceptability o4f the service in rural areas.

1.3 Overall Objective

The overall objective is to establish the impact of M-PESA services to community development in rural Kenya.

1.3.1 Objectives of the Study

i.) To determine rural peoples' perceptions of M-PESA services.

ii.) To establish the benefits of M-PESA services in rural Kenya.

iii.) To find out the constraints of growth of M-PESA services in rural Kenya.

iv.) To establish the social implications of M-PESA services to rural dwellers.

1.4 Justification

The research is a new area of study. Mobile telephone services in Kenya started in 1992 while M-PESA was only launched two years ago, in March 2007. Safaricom has the largest number of subscribers (currently estimated at over 6 million with over 10,000 new registrations daily) in Kenya thus enhancing the popularity of M-PESA services further.

M-PESA has made gigantic contributions to the foundations of Kenya's popular Vision 2030 namely; the Macro-economic stability for Long-term development, enhanced equity and wealth creation opportunities for the poor, human Resources development and even security. Kenya's vision 2030 foresees total job generation for 2008-2012 to reach 3.7million that translates to 740,000 new jobs each year. This means that M-PESA is contributing immensely in creation of employment opportunities both in urban and rural settings, more importantly in the rural areas where the highest percentage of the poor are based. There are over 17,000 M-PESA outlets country wide and these numbers are constantly growing. M-PESA services have prodded competition and improvement in quality of service rendered amongst competitors such as Zain (who introduced similar services known as ZAP) as well as in financial institutions. The beneficiary of this is the common *mwananchi!* In terms of convenience and security, with the M-PESA services one can top up credit which can be useful in emergency situations. Payment of utilities using the M-PESA services has also boosted convenience for its clients.

According to the Safaricom annual report and accounts (2009) the company maintained its position as the largest tax payer in Kenya remitting 25.90 billion Kenya Shillings in duties, taxes, and license fees in the year 2009. In 2009, Safaricom's revenue grew to 70.48 billion from 61.37 billion in the previous year. Voice revenue continues to be the major contributor representing 83.4% of Safaricom's total revenue (Safaricom annual report and accounts 2009).

However the M-PESA service has also made giant steps since its inception in 2007 and also increased total revenue to 2.93 billion which is 4.1% of Safaricom's total revenue. Therefore it is an important sector to the economy.

The M-PESA service has received many honours as an innovative product. Most recently is the global UN Award on July 26th, 2009. This is an addition to the Kenya Banking Awards for product innovation won last year and the Global Mobile Awards. It was also feted during the World Business and Development Awards for contribution to the attainment of Millennium Development Goals (MDGs) through core business.

The high number of subscriptions to the Safaricom network is not only a catalyst for the growth of M-PESA services. At present the current daily M-PESA registrations is more than 10,000. These numbers are growing as Safaricom continues to expand its network coverage further within the country. These growing numbers draw emphasis of the importance of M-PESA services.

Kenya's Vision 2030 plans to create an additional 3.5 million jobs by 2012 in order to address equity and poverty reduction and raise average annual incomes and also reduce rural-urban inequalities. The M-PESA service is playing a vital role in contributing to this vision. Its geographical reach is impressive! M-PESA *kiosks* with M-PESA agents are a common sight in Kenya today both in the rural and urban areas. The service is also dynamic as it is constantly trying to look into ways of serving beneficiaries. In Matuu, a marginal area in Kenya where water is scarce and people have to walk miles in order to fetch water, M-PESA went into a partnership that will enable the community in this area to draw water from their community water pump using M-PESA. It is no wonder the service was recognized in the 2008 Africom awards with the '*Changing Lives Award*'.

It is necessary to unearth more information in regards to M-PESA services so as to establish the reason for its popularity across the country. The service is a host to a growing 152 billion transactions! These numbers are also an indication that its clients have faith in the system. This high volume of financial transactions across and within its network is colossal which shows that it is also an important sector for Kenyans hence the necessity for this study.

1.5 Scope of the study

The scope of this study was limited to:

The legal and regulatory framework within which M-PESA services operate; competition not only within the ICT industry but also other sectors of the economy that are affected by M-PESA services; constraints to growth of M-PESA services; perception of the rural people. Perception includes their behaviour and attitudes towards the service; convenience of the service in terms of accessibility and ease of use (in terms of comprehension).

CHAPTER TWO

LITERATURE REVIEW

2.1 History of Safaricom

According to the Safaricom Information Memorandum (5 October, 2009), Safaricom is currently the country's leading mobile operator, with an estimated market share of 79% at the end of 31st March, 2009.

In its lifetime in Kenya, the company has evolved. It started off as a department of the Kenya Posts and Telecommunications Corporation, the former monopoly operator. It launched its operations in 1993 based on an analogue Extended Total Access Communications System (ETACS) network and was upgraded to Global Systems for Mobile Communications (GSM) in 1996 (Safaricom Ltd. Prospectus 2008). It was incorporated as a private limited liability company in April 1997 under the Companies Act (Safaricom website). In May 2000, Vodafone group Plc of the United Kingdom, the world's largest telecommunication company, acquired a 40% stake and management responsibility for the company. It was converted into a public company with limited liability in May 2002. Safaricom was recognised as a state corporation by virtue of 60% of its shares being held by Telkom Kenya Limited. Under the State Corporations Act (Chapter 446) Laws of Kenya, a state corporation is defined as a company that is owned or controlled by the Government or a state corporation. In March 2008, the Government of Kenya ceased to have a controlling interest in Safaricom under the same State Corporations Act when 25% of the GoK shares were sold to the public.

In August 2003, the Safaricom Foundation was established. The foundation's purpose is to supports projects that provide sustainable solutions to the most pressing social challenges. Its specific focus areas are Education, Health, Economic Empowerment, Environmental Conservation, Arts and Culture, Music and Sports. The Foundation also responds to disasters and humanitarian emergencies.

In March 2007, Safaricom, in conjunction with Vodafone Group Services Limited launched M-PESA in Kenya. This has been one of the phenomenal services offered by the company and been instrumental in growing the clients' subscriber base.

In February 2009 M- PESA won the Global Best Mobile Money Service award for the second time. M-PESA is a Safaricom service allowing you to transfer money using a mobile phone. Kenya is the first country in the world to use this service, which is offered in partnership between Safaricom and Vodafone. Vodafone is a stakeholder of Safaricom Limited and introduced the technology to Safaricom.

Safaricom has since enjoyed continued strong growth with a 19.1% growth in revenue, 15.79million active subscribers and impressive growth in data revenue with M-PESA revenue growing by 158.1% (Safaricom Press release for audited results for the period ended 31st March 2010).

2.2 M-PESA Service in Kenya

In March 2007, Safaricom, in conjunction with Vodafone Group Services Limited launched M-PESA in Kenya. M-PESA is a mobile payment solution that enables users to complete basic financial transactions by mobile phones. Vodafone Group Services Limited, which owns the M-PESA solution, entered into a Managed Service Agreement with Safaricom under which Vodafone agrees to provide the M-PESA solution to Safaricom as a managed service and Safaricom agrees to market and offer the M-PESA services throughout the country. This is an exclusive agreement of 5 years as from February 2007 meaning that it could cease to apply as material terms spelled out

The name M-PESA stems from the first letter from mobile and *Pesa. Pesa is* a Swahili word meaning money. It's an innovative mobile transfer solution that enables its subscribers to transfer money using a mobile phone.

According to the Safaricom News release of its audited results for the period ended 31st March 2010, M-PESA has 9.48 million registered users, over 17,000 agent outlets and over 290 Pay bill partners. According to the Safaricom information memorandum of 2009, M-PESA as at 31 March 2009 had an average of 11,232 new customer registrations per day. An M-PESA account is created after a subscriber registers with an authorised M-PESA agent by providing their Safaricom mobile number and identification card. The M-PESA account is a virtual money account (E-Money) attached to the subscriber's mobile number into which they can deposit money at participating agents. Once one is registered, one can load money into their M-PESA

accounts through depositing cash at an M-PESA agent. One can then transfer money to other mobile phone users even if the recipient is not a Safaricom subscriber; withdraw cash from their M-PESA accounts or participating ATM network for instance POSTA PAY ATMs; buy Safaricom airtime for themselves or other Safaricom subscribers, pay bills to partner organisations including utility bills and receive payments to the phones for instance low value salaries or subsistence allowances. M-PESA also offers international Money Transfer Services. M-PESA charges are deducted directly from each customer's M-PESA account and no fee is paid by the customer to the agent. All the cash in the M-PESA system is held in Kenyan bank accounts by a trustee for and on behalf of all M-PESA account holders.

This service is available to all Safaricom subscribers (Prepay and Postpay). M-PESA services do not require users to have bank accounts, an important aspect in a country like Kenya where a large percentage of the population does not have bank accounts. With M-PESA, the user can buy digital funds at any M-PESA agent countrywide and send that electric cash to any other Safaricom user in Kenya, who can then redeem it for conventional cash at any agent.

An M-PESA enabled mobile phone can also function as an electronic wallet and can hold up to 50,000 Kenyan shilling. Safaricom stakeholder Vodafone (the world largest telecommunications company that has an over 60% stake and management responsibility for the company), announced that it intends to roll out M-PESA internationally as well as introducing it in Tanzania, Afghanistan, and the United Kingdom among others.

The M-PESA service has been under scrutiny since its launch into the Kenyan market. It has become increasingly popular in the rural areas where banking services are not easily accessible. Being a new technology little research has been done on it. However the press has been a major resource in unearthing the challenges and benefits of the service.

The option magazine prepared and published by Safaricom (September – November 2009 issue) refers to the M-PESA service as '...a household name and a verb or noun in its own right much like Google and Hoover....' Its popularity and ease of use by the local *mwananchi* has often been put to test.

Safaricom's financial report shows revenues attributable to M-PESA increased to Sh2.93 billion (4.1 per cent of the company's total) in the financial year that ended in June.

The introduction of M-PESA has caused shakes in the financial sector. Banks have been compelled to up their game by giving competitive rates. Other mobile service providers have also come up with similar services such as Zap from Zain. There are prospects that Telkom is planning to introduce a similar service through Orange. An article by Gikunju in the Business Daily (14th September, 2009) reports that financial services sector analysts say operators of local money transfer businesses face an uphill task competing with the mobile phone-based operators and will have to be innovative to survive the cut-throat competition. A big selling point for the mobile operators has been their relatively low transaction costs. While it costs at least Sh550, Sh300 and Sh200 to send Sh10, 000 using MoneyGram, PostaPay and Western Union respectively, M-PESA charges about Sh105 for similar transactions. The article adds that M-PESA has moved an estimated KES 130 billion in small tranches of about KES 1,500 per transaction – which mirrors its predominant use by low income earners.

Safaricom has also entered into partnerships with several organisations in an attempt to expand its M-PESA services. Examples of such organisations are PESA Point, Paynet, and Western Union among other institutions such as hospitals.

The World Bank funded Consultative Group for Assisting the Poor (CGAP) conducted a research on how poor people use M-PESA and its impact on their lives. They did a case study on Bukura, a rural town in Western Kenya and the Kibera slum. The CGAP Brief report (2008) indicates the observations on usage and impact where among the observations on usage were the accessibility of the service, affordability and safety. Observations on impact were on the size of transaction which were mainly small and frequent, the income of users – which was seen to have increased by up to 30% since they started using M-PESA and the social impact where home visits by users had become less frequent.

The adoption and growth of M-PESA services has not only continued to draw public attention but has also generated a lot of debate as to the safety and reliability of these kinds of payments and transfer systems and what the governments is doing about it. Among the questions in the minds of many Kenyans are: how does the M-PESA money service really operates, and its safety and reliability, does M-PESA compete with banks? Should it be regulated? It was for this reason that it became necessary for the treasury to provide an audit of the M-PESA system in order to clear any doubts in the minds of Kenyans regarding its safety and reliability, and provide

information about its effectiveness as well as the soundness of the operating platform for M-PESA and other similar services wishing to enter the market. Prior to the launch of M-PESA services in Kenya, Safaricom sought authorisation from the Central Bank of Kenya to undertake transfer service. In evaluating the proposal, the CBK considered the request on the basis of safety, reliability, and efficiency of the service. In addition, precautionary measures were put in place to ensure that the service did not infringe upon the banking services regulatory framework as provided for under section 2(1) of the banking Act. The M-PESA service therefore does not: Accept from members of the public money or deposits that are repayable on demand or at the expiry of a fixed period or after notice; Accept from members of the public money for current purposes that is used for payment and acceptance of cheques; and employ money held or any part of the money for purposes of lending and investment or in any other manner for the account and at the risk of the person so employing the money.

In M-PESA, money collected by agents is deposited in a trust account the commercial bank. This trust account provides the legal protection for the beneficiaries the money. The money in this trust account is not under the control of Safaricom and cannot be employed or purposes such as lending, investing, or in any other manner for the account and at the risk of Safaricom as per section 2(1) of the banking Act check act. Legal protection of the money in the trust account is provided for in the trustee deed. Various legal instruments pertaining to this service including the trustee deed were presented to the CBK and reviewed and further to this, funds in the trust account deposited in the designated commercial bank are regulated by the Central Bank of Kenya under the banking act.

On 18th May, 2010 President Mwai Kibaki launched the M-Kesho service. This is a bank account introduced by both Equity and Safaricom where customers can earn interest from as little as one shilling. Customers can withdraw cash from their Equity Bank Account to their M-PESA accounts and customers can also deposit through their M-PESA accounts to their M-KESHO Bank account. Other features of the account include Micro credit facilities (emergency credit availed through M-PESA), Micro insurance facilities as well as a personal accident cover that translates into a full cover after 1 year. For one to open this account, the person must be an M-PESA subscriber.

2.3 Major Competitors of M-PESA

Michael Porter defined competitive strategy as the art of relating a company to the economic environment within which it exists. Porter (1998) explains that every firm competing in an industry has a competitive strategy that may be explicit, that is, developed through a formal planning process, or implicit, that is evolved through the various functional planning activities of the firm. To be successful, strategy must be designed to cope effectively with competitive pressure and the objective must be to build a strong, market position based on competitive advantage.

The main competitor of M-PESA services is ZAP which is a service from former Zain that has currently rebranded to Airtel. Zain was formerly the Mobile Telecommunications Company (MTC). MTC re-branded to Zain in 2007 in order to create a global brand. As at June 30, 2009 Zain was serving a customer base of over 69.5 million. However, in comparison to Safaricom the mobile operator customer in base in Kenya is still comparatively low.

2.4 National Legal and Deregulatory Framework

According to the Communications Commission of Kenya (2009) the Statistics Report for the Second Quarter 2008/09, there has been significant growth in the telecommunication sector particularly in the use of mobile telephony and a decline in the fixed line subscribers. Competition among the operators, unification of the licences and the application of new technologies in mobile market segment has witnessed diversification of services by the operators, reduced tariff rates and increased affordability of communication services by a large population. This is further seen as a movement towards closing the digital divide. Whereas the number of internet users seems to be increasing, this is not in tandem with other telecommunications services. The growth in the internet sub sector has been hampered by poor infrastructure. The Postal and Courier sector have both witnessed decline in investment with the former posing a risk to Universal Postal Service. The volume of international letters has also declined which may indicate the impact of electronic substitution in these services. Local mail traffic has also continued to decline.'

According to the Communications Commission of Kenya (2009) the mobile subscription registered 11.9% growth between the second quarter of 2008 compared to 5.3% recorded in the same period 2007. The growth of subscribers was further enhanced by the roll out of mobile

services by the two operators who entered the market during this period. Mobile penetration increased by 4.6 % in the second quarter of 2008 compared to an increase of 5.3 % in the same period 2007. Average mobile tariffs has dropped over the period with a 45.4% reduction in charges for on net calls between the first and second quarters compared to a reduction of 9.3% during the same period in 2007. At the same time the international calling charges dropped by close to 17% compared to 1.97% during the same period in 2007. The entrant of the two mobile operators in the second quarter seems to be the main reason for the overall call charge reduction in the mobile market. By end of the second quarter, the population coverage increased by 1.2% points from 82% in December 2007 to 83% in December 2008. Land coverage also expanded from 30.7% to 32% during the same period below, the annual revenue generated by mobile communication services increased by 25.2% between 2007 and 2008. Increase of service availability as well as high subscriptions within the period have contributed towards boosting the sector's revenue. It is however worth noting that Average Revenue per User (ARPU) declined by 12.46%. This fall could be driven principally by subscriber increase in the low income group and reduction of tariffs by the mobile operators. On the other hand mobile investments per subscriber declined by 3.26% while mobile investments per inhabitant increased by 38.38%. This reflects reduced investment in existing customers for example in customer retention programs while there is a general overall increase in investments. Mobile investment as a percentage of mobile revenues rose by 10.38 %. This is indicative of increased investments in telecommunication networks motivated by dynamic competition and growth.

GoK (2009) Budget speech for 2009/2010 read by the Deputy Prime Minister and Minister of Finance, Ksh1.3 billion was said to be allocated to purchase Mobile Computer Laboratories for each constituency for use by high schools as a pilot project initiative before rolling it out to primary schools. Funds were also allocated to support the roll out of Digital Villages in partnership with the World Bank. These centres are geared towards creating business hubs and expand economic opportunities in rural areas. A one million laptop/computer campaign countrywide was launched in conjunction with Broadband providers by undertaking to underwrite part of the interest payments on funds borrowed to purchase these laptops and computers. The campaign would benefit University Students, public servants as well as ordinary *wananchi*, thereby enabling them to take advantage of the cheaper broadband available in Kenya.

2.5 National Development Plan 2002-2008

The ninth National Development Plan that runs from 2002 through 2008 intends to have macro-economic policies that provide a stable economic environment so as to foster business confidence and encourage a vigorous private sector through trade and industrial development. The Plan 2002-2008 intends to improve ICT infrastructure and expand reach to rural Kenya. The Government's commitment to this initiative, among others, is elaborated by their plans to plough back part of the proceeds from the sale of Telkom Kenya to finance modernisation, rehabilitation, diversification and expansion of services, accelerate implementation of the Rural Electrification Projects (REP) to further encourage the diffusion of ICT services among the population, install stand-alone generators in the areas away from the grid network to serve communities not connected to the grid system.

According to the National Development Plan 2002-2008, the ICT sector has witnessed several reforms. Key amongst them is liberalisation, privatisation and tariff reform. The development of an ICT policy is among the objectives of the Plan. One of the main challenges under the Plan 2002-2008;

> 'High rates of taxation on telecommunications equipment have impacted negatively on the cost of delivery of ICT services to consumers thus compromising the objectives of universal access. Consequently the Government will during the Plan period consider an optimal tariff policy that will make costs of imported ICT equipment affordable.'

Under the skill development strategies of the National Development Plan 2002-2008, it stipulates that a Government incentive to stakeholders in ICT and education that encourages dispersion of technology to the rural areas required for implementation of curricula.

Already there have been efforts to make ICT intrinsic and integral part of learning through the establishment of a computer specialisation unit at the Ministry of Education and preparation of syllabuses by the Kenya Institute of Education (KIE) and the Kenya National Examination Council (KNEC). Other initiatives are linking tertiary and other educational and institutional libraries through Kenya Education Network (KENET) and African Virtual Library – Kenya (AVL-K). The African virtual University delivers distance learning through ICT and the delivery of a Ministry of Education Management Information System tough ICT and STEPS (Strengthening Education at Primary and Secondary levels Scheme)

2.6 National ICT Policy

In 1997, the Government of Kenya released the telecommunication and Postal sector policy guidelines that created an environment for competition in several market segments and paved way for the enactment of the Kenya Communications Act 1998 which repealed the Kenya Posts and Telecommunications Act and established;

- Communications Commission of Kenya (CCK) as the telecommunication, radio communications and Postal sector regulator
- The National Communications Secretariat to serve as a policy advisory body
- The Communications Appeals Tribunal
- Telkom Kenya Limited.
- Postal Corporation of Kenya

The Communications Act 1998 was amended in 2008 to make minor amendments to other statute law, and for connected purposes. The Act has not only given the Commission mandate over regulating the broadcasting industry, it has also enhanced its regulatory authority related to competition and universal service obligations. In addition, the Act provides a legal framework for ecommerce and electronic transactions both of which are expected to boost the usage of internet services.

Information Communication and Technology (ICT) issues are considered under various legislations of Kenya; The Science and Technology Act, Cap 250 of 1977, for instance, the Kenya Broadcasting Corporation Act of 1998 and the Communications Act 1998. The report highlights the inadequacy of these laws in dealing with issues of convergence, electronic commerce and e-Government. It highlights for the need of a more comprehensive policy, legal and regulatory framework to support ICT development, investment and application; promote competition in the industry where appropriate; ensure affordability and access to ICT nationally; address issues of privacy, e-security, ICT legislation, cyber crimes, ethical and moral conduct, copyrights, intellectual property rights and piracy; support research and development in ICT; and develop and institutional framework for policy development and review.

The Information National Information and Communications Technology (ICT) Policy came into being in 2006. It defines ICT as;

> 'Information and Communications Technologies means the technologies including computers, telecommunication and audio-visual systems that enable the collection, processing, transportation and delivery of information and communication services to users.'

The policy acknowledges that;

> 'The Government recognises information as a resource which must be generated, collected, leveraged, secured and preserved for national prosperity.'

The ICT policy seeks to;

> '...facilitate sustained economic growth and poverty reduction; promote social justice and equity; mainstream gender in national development; empower the youth and disadvantaged groups; stimulate investment and innovation in ICT; and achieve universal access. It is based on internationally accepted standards and best practices, particularly the COMESA Model adopted by the COMESA Council of Ministers in March 2003.'

The policy is based on four guiding principles: infrastructure development, human resource development, stakeholder participation and appropriate policy and regulatory framework.

The GoK (2006) ICT policy gives attention to Information and Technology; Broadcasting; Telecommunications; Postal Services; Radio Frequency Spectrum and Universal access. The policy objectives of each of these section as well as the strategies are outlined. One or more objectives under these sections address issues of poverty reduction, general welfare, quality services, accessibility, and affordability, enhancement of social and economic progress. One of the objectives under the telecommunications section, for instance, aims at promoting systematic and comprehensive expansion of telecommunications infrastructure and services with special attention to rural and urban marginalised areas.

2.7 Regional Legal and Deregulatory Framework

A report on the fourth meeting of the Economic Commission for Africa (2005) (ECA) on development information looks at the impacts of national development of national and regional ICT policies, plans and strategies. The African Information Society Initiative (AISI) was established to respond to emerging needs of African member States in building an inclusive Information Society on the continent. It was launched at the ECA Conference of Ministers in 1996, and has been guiding the development of Africa's Information Society as the regional framework for action. The report indicates that the pace of ICT policy development on the continent has accelerated. In 2002, the number of countries with national ICT policies and plans recorded 16, which jumped to 28 in 2005. Member States have completed the formulation of their national ICT policies and plans, known as National Information and Communication Infrastructure (NICI), and a dozen already moved to the policy implementation. Harmonization of ICT policies and plans at the sub-regional level has reached a new level, with the Regional Economic Communities (RECs) embarking on various initiatives, including the formulation of the Regional Information and Communication Infrastructure (RICI) policies and plans. Ghana piloted the formulation of the Village Information and Communication Infrastructure (VICI) policies and plans to translate its national vision (NICI Plan) at the community level. The number of member States that have successfully formulated their national ICT policies and plans has increased from 13 in 2000 to 28 in 2005. Accordingly, the number of countries without any policy developments has decreased from 30 in 2000 to 10 in 2005. The countries are categorized into three groups: countries with an ICT policy; countries in the process of developing an ICT policy; and countries without any ICT policy as per table 1 below:

Table 1: African Countries at Various Stages of ICT Policies

Year	Countries with an ICT policy	Countries in the process of developing an ICT policy	Countries where the ICT policy development process is not launched
2005 February	**28** Algeria, Benin, Burkina Faso, Burundi, Cape Verde, Comoros, Côte d'Ivoire, Djibouti, Egypt, Ethiopia, Ghana, Guinea, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, South Africa, Sudan, Tanzania, Tunisia	**15** Angola, Botswana, Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Gabon, The Gambia, Kenya, Lesotho, Sierra Leone, Swaziland, Uganda, Zambia, Zimbabwe	**10** Congo, Equatorial Guinea, Eritrea, Guinea-Bissau, Liberia, Libyan Arab Jamahiriya, Madagascar, Sao Tome and Principe, Somalia, Togo

Source: Report to the Fourth Meeting of the Committee on Development Information (CODI IV) (April 2005)

Neto, Niang and Ampah (2005) conducted a study on fostering pro-competitive regional connectivity in sub-Saharan Africa. Their paper establishes that although building additional international infrastructure will be an important part in improving access to quality and affordable international connectivity, the ownership structure and policy and regulatory environment under which capacity is built will determine the development impact. They therefore discuss emerging best practice in the area of public support and oversight of public-private ventures to develop international connectivity in the region.

A paper showing how interconnection regimes can be adapted to African specificities in a context of convergence and increased competition was done by Bezzina (2005). The researcher looks at interconnection challenges in a converging environment particularly at policy implications for African telecommunications regulators. He explains that managing the interconnection interface between the competitive and regulated sectors is crucial for the liberalisation of infrastructure services. For policy makers, regulators and development agencies in the developing world, particularly in Africa, this situation presents a difficult challenge.

The Economic Community of West African States (2007) (ECOWAS) also acknowledges the importance of the ICT sector as elaborated in the 31st session of the authority of Heads of State and Government. The community has sought to create a regional telecommunication policy. It has formulated a supplementary Act on the harmonisation of policies and of the regulatory framework for the information and communication technology sector considering that the community had resolutely embarked on liberalising telecommunication services and infrastructures as of 2007. The treaty provides that member states shall '...in the area of telecommunications develop, modernise, coordinate and standardise their national telecommunication networks in order to provide reliable interconnection among member states...'

Another regional body that has made efforts in harmonizing regional ICT policies is the Common Market for Eastern and Southern Africa (COMESA). An ICT Policy and Model Bill for COMESA were adopted by the COMESA Policy Organs meetings in Khartoum, Sudan in March 2003. Member States are in the process of integrating them into their regulatory framework. Kenya is among the member states of this body.

A study commissioned by the World Bank in support of reform measures to the telecommunications sector was conducted by Mustafa, Laidlaw and Brand (1997). This research was on telecommunication policies in Sub-Saharan Africa (SSA). A detailed examination of reforms was done in Benin, Ghana, Mozambique, Tanzania and Uganda. Their findings recommend sector reforms, appropriate regulatory regimes and discuss the prospects for attracting private sector financing.

2.8 Global Legal and Deregulatory Framework

The greatest facilitator and/or hindrance to the development of the ICT sector are seen to be states and the policies that govern the ICT sector. Throughout the world governments have taken measures to reform the telecommunications sector as a result of the growing importance of information in the world economy. Mustafa, Laidlaw and Brand (1997)state that a growing number of countries are at some stage of designing or implementing reforms that seek private investment and open some markets to some degree of competition. It is essential that ICT is an open field in order to encourage competition which is not only healthy for an economy but also beneficial to the end users of the technology.

To elaborate the authority of the law Waburi (2009) illustrates that;

> 'Key barrier to this growth has been the slow pace at which most African policy makers (governments) fail to enact legal frameworks and tax regimes that promote the development and growth of this sector.'

To illuminate the necessity of an open ICT sector, Singh and Siddhartha (2008) wrote a report in emerging regulatory responses to multiple-play in ICT services. They refer to multiple-play to provision of multiple services by one operator over a single communication network. This report supports multiple-play in provision of numerous potential benefits to customers in terms of lower prices, better services and more choices among service providers. The paper also purports that multiple-play enables new business models and opportunities for increased competition and reduced costs. However it is emphasised that regulation is subject to complex challenges in the face of multiple-play. They describe experiences from around the world in regards to regulatory responses typically by telecommunication regulators to market driven multiple-play. Best practises can be derived from these experiences. Without being prescriptive or offering a universal solution the two authors also focus on how regulators can remove obstacles to multiple-play.

The two researchers also discussed at length on thinking strategically about ICT convergence. This report makes reference to countries that adopt policy frameworks to enable convergence will enhance the impact of ICTs on economic development. Options for government policy responses along with likely outcomes and potential benefits and risks are also outlined. Convergence is seen as an avenue of lowering entry barriers, allowing service providers to try out new business models, promote competition, lower costs to service providers and users and broaden the range of services and technologies available to users.

The World Bank Global ICT department produced a report on financing information and communication infrastructure needs in the developing world and public and private roles. This report emphasises the role of public-private partnerships in ensuring that more people in the developing world can access modern tools of communication. The report suggests that considerable progress has been made in narrowing the digital divide over the last 10 years, but much remains to be done. The report calls on government to utilise their roles as consumers of information and communications services as well as providers of the utility services to leverage rollout. It also discusses innovative subsidy and investment models that have extended access to the previously unserved. The report notes the relatively small role of the donor community in terms of overall financing, but describes a number of cases where donors have leveraged and catalysed private flows to meet rollout objectives.

A paper on universal access and output-based aid in telecommunications was written by Navas-Sabater (2005). The author establishes that access to ICTs in rural areas and poor urban neighbourhoods of many developing countries is still several orders of magnitude lower than that in metropolitan urban areas. The author acknowledges that policymakers are devising universal access policies to ensure that ICTs reach all segments of society.
In response to these efforts, the paper discusses a best practise approach to universal access involving policies aimed at addressing both supply and demand-side constraints, in particular output-based aid schemes that promote extension of telecommunication networks to rural areas.

According to Dymond's (2004) report on telecommunications challenges in developing Countries, the important issue of interconnection, the application and enforcement of which is widely recognized to be key to effective liberalisation strategy, or often a key reason for failure especially in rural telecommunications. This report also investigates an approach to rural

telecommunications investment that would seek to bridge most of the so-called rural "access gap" by revising the network interconnection regime, such that operators serving high cost areas would receive higher call termination fees. The new regime would be built on geographically de-averaged termination charges, to be more indicative of network cost differences between urban and rural networks.

A study on closing the gap in access to rural telecommunications was conducted in Chile. The study documents, and reviews the Chilean experience in rural telecommunications, by focusing on the principles, practical organization, basic design, and outstanding issues for extension of a more advanced form of approach to communication, and access to information. It examines in depth the results, and success factors of the Telecommunications Development Fund, established in 1994, a success largely due to the extensive reliance on market forces to determine, and allocate subsidies, to minimal regulatory intervention, and relatively simple processing. This study was done by Wellenius (2002).

In 1998, five members of the Organisation of Eastern Caribbean States (OECS) — Dominica, St. Kitts & Nevis, Grenada, St. Lucia, and St. Vincent — established a common regulatory framework for the telecommunications sector. The OECS created the Eastern Caribbean Telecommunications Authority (EACTEL). EACTEL was the first regional telecommunication authority in the world, to facilitate the harmonization of the regulatory regime. The authority was established under a treaty with the support of the OECS Telecommunications Reform Project, financed by the World Bank. It aimed to liberalise the sector and bring about open entry, improved services and lower prices of telecommunication services. In 2001, CARANA Corporation, a leading provider of global economic development solutions to government, private business and international donor agencies, executed an impact assessment of the telecommunications liberalization process. The impact assessment report (2004) showed that since the liberalisation, the participating countries had passed new telecommunications Acts.

2.9 State of ICT in the World

Access to ICT is not only vital but also acceptance by the end user is seen as a major determinant of the general success of the ICT service. Meso, Musa and Mbarika (2005) developed a research model around the perceptions of the end user. They identify factors affecting the use of mobile ICT. Their findings showed that access to mobile ICT, and cultural influences on mobile ICT

diffusion, strongly influence individuals' perceptions of the usefulness and ease of use of mobile ICT.

According to Gichoya's (2005) paper on the factors affecting successful implementation of ICT projects in Government research. The paper considers characteristic challenges that developing nations face that makes successful implementation of ICT implementation in government fail to succeed among them inadequate budgeting, lack of ICT policies and master plans to guide investment.

A joint study by Regulatel (a forum of Latin American Telecommunications Regulators), the United Nations, European Union, and the World Bank among other organisations on new models for universal access to telecommunications services was conducted by Stern and Townsend (2007). The study covered 19 Latin American countries where regulators are members of the Forum of Latin American Telecommunications Regulators (Regulatel). They reviewed and assessed the current and planned universal access programs in the 19 countries; they also estimated the market efficiency, universal access gaps and the public sector investment/subsidy required in order to reduce the universal access gaps. Since the Latin America region pioneered many of the first generation universal programmes that are currently being implemented in developing regions, the findings of this study is also meant to share the Latin American experience with other countries.

The World Bank's Global ICT department has done a variety of studies in relation to ICTs. Among them is a study in rural Ukraine commissioned by the department in 2007 focussing on the assessment of best practise options for demand stimulation of electronic communications service. The best practise options presented in this study were geared towards closing the gap among the rich and poor and improving the prospects for rural Ukraine in terms of ICT infrastructure. The findings of this study indicate that rural Ukraine was seriously lagging behind in terms of quality of life and economic development. It is suggested that ICT and broadband could improve household and businesses alike however, the main hindrance is that there is no demand for ICT services in the rural areas and consequently there is no supply.

The Global ICT department in 2006 also did a study in Lithuania where they examined best practise options for the implementation of European structural funds for the stimulation of

demand for electronic communications services. The report indicates that 99.8% of the population has potential access to broadband communications. In rural villages and towns with less than 500 inhabitants only 2% has potential access to broadband. This report assesses whether 'demand stimulation' in combination with the application of European structural funds could be an additional, effective broadband development strategy for Lithuania. Demand stimulation is a bottom-up methodology that stimulates demand by increasing awareness of how broadband can be of help to rural communities in their daily lives.

Schware (2006), addresses issues of cyber security in light of ICT dependency. The paper suggests that as economies become more dependent on ICT, they become more vulnerable to network attacks. It is highlighted that the most serious cyber security risks are those that threaten the functioning of critical information infrastructures, such as those dedicated to financial service, control systems for power, gas, drinking water and other utilities; airport and air traffic control systems; logistics systems; and government services. This paper explores a new model for protecting the network.

2.10 Economic and Social Impact of Information Communication Technology (ICT)

The impact of the telecommunication revolution in Africa with special emphasis on the Kenyan market was discussed in a paper by Waburi (2009). The research observes that the growth in mobile telecommunication industry has had a positive impact in the Kenyan economy and has substantially benefited people more than any other industry before. Waburi's assessment aims at providing an understanding of the economic contribution of mobile telephony to the Kenyan economy. The paper defines mobile telephony as the process of distribution (selling), servicing of handsets including repair and maintenance and the provision of the mobile telephone service which includes the provision of voice and data services. The findings acknowledge the usefulness of the mobile phone and its ability to keep up with the dynamic nature of technology;

> 'There seems to be no limit to the usefulness and capabilities of mobile phones in providing solutions that meet people's needs. Its potential to grow is evident. However, the only challenge is the rapid technological changes. Its usefulness will solely depend on its ability to keep pace with technological changes.'

The mobile phone outshines other telecommunication systems as elaborated in an empirical research by Waverman, Meschi and Fuss (2005), on the impact of telecommunications on economic growth in developing countries. The research analyses the impact of the rollout of

mobile phone networks added to growth. Findings from this research show that the economic impact is positive and the significance is twice as large in developing countries than it is in the developed ones.

Professor Souter, Scott, Garforth, Jain, Mascararenhas, McKemey (2007) did a study on the economic impact of telecommunications in rural communities in India, Mozambique and Tanzania. They examined use of telephony and to a lesser extent other ICTs in the rural areas of the three low income developing countries. Their findings showed that use of ICTs exceeded ownership mainly due to cost issues and infrastructure i.e. lack of electricity in some of the areas. In addition, face-to-face communication seemed to be more valued than communication via phones. The economic value of the phone in regards to financial capital was still not clear. The researchers recommended that it would be useful to consider where the economic value lies for those who are gaining economic value from it.

A case study on mobile phone opportunities to micro and small enterprises in Ghana was carried out by Frempong (2009). An analysis of the contributions of mobile phones to the development of micro and small enterprises was done. The findings from this study show that the majority of the respondents were positive about the impact of mobile phones on their businesses in terms of ease of contact with customers and suppliers, reduced cost of transportation and profitability. However one of the recommendations was that there is an urgent need for development of innovative services to meet the changing needs of these enterprises.

The role of mobile phones in sustainable poverty reduction is highlighted in a study by Bhavnani, Won-Wai Chiu, Janakiram and Silarszky (2008). Their findings show that mobile phones have a multi-dimensional positive impact on sustainable poverty reduction and its benefits are felt more in the rural areas. Since most rural dwellers are poor they recommend that mobile phone should be made cheaper and widely accessible.

Donner (2004) also did a study on the use of mobile phones by micro-entrepreneurs in Kigali, Rwanda. This study suggests that mobile phones are allowing micro-entrepreneurs to develop new business contacts. The study differentiates between mobile ownership stimulated by family and new business ties. This differentiation brings out the power of the user in the technology

adoption process. The findings also indicate the penetration of mobile phones have indeed resulted in significant new investments in infrastructure, marketing, research and development.

Inventions and innovations, both big and small, since the introduction of the mobile phone have been immense. In the local Daily Nation newspaper (p8) of July 2009, Kibiwott wrote a feature of two electrical and information engineering students had been featured for designing a simple device that could charge mobile phones without the use of electricity. Such inventions not only illuminate the importance of the phone in rural Kenya but also thanks to the mobile phone technology entrepreneurship is being encouraged. This in turn ensures an employed society.

McKenzie (2007), wrote a paper on youth, ICTs and development. The rapid increase in internet, mobile phone and computer use in the past few years of the new millennium especially among the youth is highlighted. Although the youth mainly use ICT for entertainment purposes the study is positive that the new ICT technologies are having wide ranging effects on youth transitions. The paper advocates that new opportunities for work and study are opening up and the interactive and decentralised nature of these new technologies is providing youth with many more opportunities to obtain information outside the traditional channels enhancing their agency.

Morawczysnki (2009) doctoral thesis funded by the University of Edinburgh titled 'Poor People Using Mobile Financial Services: Observations on Customer Usage and Impact from M-PESA.' indicates that rural women whose husbands work in the urban areas say the services are a threat to the stability of their marriages. The traditional ways of taking money home personally gave the opportunity for bonding has been overtaken by the M-PESA technology. However, when the technology is used as a financial service tool, it has empowered rural women and the unbanked population.

2.11 The Information Society

The explosion in global communications has been facilitated by a number of important advances in technology and the world's telecommunication infrastructure. The impact of these communications infrastructures, homes and offices now have multiple links to the outside world, including telephones, digital, satellite and cable television, electronic mail and the internet.

Widespread use of the internet and mobile phones deepening and accelerating processes of globalisation; more and more people are becoming interconnected through the use of these technologies and are doing so in places that have been previously isolated or poorly served by traditional communications. Although the telecommunications infrastructure is not evenly developed around the world, a growing number of countries can now access international communication networks in a way that was previously impossible.

2.12 The Network Economy

Manuel Castells (1996) talks of a network economy. His main concerns are the impact of media and communication technologies. Castells argues that the information society is marked by the rise of networks and a network economy. Information communication can often be a means of local empowerment and community renewal. In the rise of the network society Castells argues that the network enterprise is the organisational form best suited to a global information economy. What enables the process of networking to occur is the growth of information technology.

The new economy, which depends on the connections made possible by global communications, is capitalist. The capitalist economy and society of today are quite different from those of the past. The expansion of capitalism is no longer based primarily, as Karl Marx thought it would be, either on the working class or the manufacture of material goods. Instead, telecommunications and computers are the basis of production.

Backing up Castells' theory are the current policies encouraging entrepreneurship during the 1980s and the information technology boom of the 1990s that have led to a new wave of entry into the upper class of people who have made a fortune from business and technological advances. New information and communication technologies that drive globalisation have increased economic, political, social and cultural interconnectedness of the world and have produced unthinkable wealth. Bill Gates, the world's wealthiest individuals exemplify entrepreneurial wealth through ICT.

2.13 The Knowledge Economy

Quah (2003) says that the global economy is no longer primarily agricultural. It is increasingly dominated by activity that is weightless and intangible. This weightless economy is one which products have their base in information.

The knowledge economy is considerably elaborated on by Anthony Giddens (2006) in his book on Sociology. Giddens does not give a precise definition of a knowledge economy but in general terms, he refers this kind of economy as;

> '...an economy in which ideas, information and forms of knowledge underpin innovation and economic growth. The knowledge economy is dominated by the constant flow of information and opinions and by the powerful potentials of science and technology.'

He also talks of knowledge workers in the knowledge economy who are a work force involved not in the physical production or distribution of material goods, but in their design, development, technology, marketing, sale and servicing.

Giddens mentions knowledge-based industries which are broadly understood to include high technology, education and training, research and development and the financial and investment sector. He insists that there is an emergence of a knowledge society that is linked to development of a broad base of consumers who are technologically literate and eagerly integrate new ideas in computing, entertainment and telecommunications in their daily lives.

2.14 Electronic Economy

Banks, fund managers and individual investors are able to shift funds internationally with the click of a mouse. This new ability to move electronic money instantaneously carries with it risks, however. Vast amounts of capital could destabilise economies, triggering international financial crises.

2.15 Global Culture

Many believe that the rapid growth of the internet around the world will hasten the spread of a global culture. Giddens elaborates this when he says that the belief in such values as equality between men and women, the right to speak freely, democratic participation in government and the pursuit of pleasure through consumption are readily diffused throughout the world over the internet. Moreover, internet technology itself would seem to foster such values; global

communication seemingly unlimited and uncensored information and instant gratification are all characteristics of the new technology.

2.16 Education and New Communications Technology

Giddens' perspectives on a knowledge economy closely ties in with the importance of ICTs to any state. He links the role of new communications technology to education; where the knowledge economy demands a computer literate work force therefore, education can and must play a critical role in meeting this need. The role of the school is hence seen as vital as it provides a forum for young people to learn about and become comfortable with the capabilities of computers and online technology. He also concedes that as much as technology will add to the existing curriculum, new technologies will also undermine and transform it and could result to a *'classroom revolution'* and the arrival of a *'desktop virtual reality'* and a *'classroom without walls'*. Thus he advises that new technologies should be integrated in a way that is meaningful and educationally sound.

Giddens demonstrates how technology has been used in higher learning through the arrival of e-universities. E-universities have made geographical location irrelevant and which encouraged a global audience. This concept is being adopted by conventional universities. The e-universities are making learning possible for a wider audience globally.

2.17 Theoretical Framework

2.17.1 Theory of Technology

This theory was adopted and augmented by researchers interested in the relationship between technology and social structures. Main contributors to this theory are DeSanctis and Poole (1994), Orlikowski (1992), Bimber (1998) and Markus and Robey (1988).

Bimber (1998) addresses the determinacy of technology effects by distinguishing between the:

1. Normative: an autonomous approach where technology is an important influence on history only where societies attached cultural and political meaning to it (e.g., the industrialization of society)
2. Nomological: a naturalistic approach wherein an inevitable technological order arises based on laws of nature (e.g., steam mill had to follow the hand mill).

3. Unintended Consequences: a fuzzy approach that is demonstrative that technology is contingent (e.g., a car is faster than a horse, but unbeknown to its original creators becomes a significant source of pollution)

Markus and Robey (1988) specifically propose a general theory of technology consisting of the causal structures of agency (technological, organizational, imperative, emergent), its structure (variance, process), and the level (micro, macro) of analysis.

Orlikowski (1992), notes that previous conceptualizations of technology typically differ over scope and role. The author criticises Giddens' *'Duality of Structure'* to technology. Where the questions on whether technology is more than hardware or an external objective force, the interpreted human action, or an impact moderated by humans are addressed. This author identifies three models:

1. Technological Imperative: focuses on organizational characteristics which can be measured and permits some level of contingency.
2. Strategic Choice: focuses on how technology is influenced by the context and strategies of decision-makers and users
3. Technology as a Trigger of Structural Change: views technology as a social object.

M-PESA is not merely a great technological innovation but the impact it has on contemporary society cannot be ignored. With this theory of technology in mind, the usage of the M-PESA technology has spurred economic, social and even birth of other technological innovations as indicated under the heading of social and economic impacts. Thus it is not just a technology per se but its usage is what has contributed to its popularity and even the dynamism of the service – the M-PESA technology has not only entered into new partnerships with other sectors of the economy but has also developed other services for its users such as; one can purchase air time from one's phone without going to an M-PESA outlet as long as one's M-PESA account has funds.

2.17.2 Social Presence Theory

This theory was developed by Short, Williams and Christie (1976).

It looks at the social effects of communication technology. The main concern is with telephony and telephone conferencing. It argues that the social impact of a communication medium depend on the social presence it allows communicators to have. Social presence is defined as a property

of the medium itself that is, the acoustic visual and physical contact that it allows. The more contact would increase key components of presence: immediacy, intimacy, warmth, and interpersonal rapport.

In the case of communication technology the assumption is that the more text-based forms of interaction (e-mails, text messages) are less social and therefore, less conducive to social influence. The M-PESA technology does not allow much of 'Social Presence', but on the contrary, it infringes on the concepts of intimacy and warmth. Although it has been commended for immediacy and efficiency it has been criticised for creating barriers to social relationships. Rural women although empowered with the introduction of the M-PESA, their husbands who work in towns have reduced their visits home. This has created a lot of insecurity among the rural women. M-PESA does not allow visual or physical contact – there is no interpersonal rapport as the recipient and sender of funds get a text message informing that the money has been transferred / received. This is as far as rapport goes unless there is the personal initiative to confirm receipt by the sender or receiver. Hence, M-PESA has increased anonymity between those who are familiar. There is increased alienation as the frequency of meeting has decreased.

2.17.3 Media Naturalness Theory

The author to this theory is Kock, (2005). The theory builds on human evolution ideas. Media naturalness theory argues that since our Stone Age hominid ancestors have communicated primarily face-to-face, evolutionary pressures have led to the development of a brain that is consequently designed for that form of communication. Other forms of communication are too recent and unlikely to have posed evolutionary pressures that could have shaped our brain in their direction. Using communication media that suppress key elements found in face-to-face communication, as many electronic communication media do, thus ends up posing cognitive obstacles to communication. This is particularly the case in the context of complex tasks (e.g., business process redesign, new product development, online learning), because such tasks seem to require more intense communication over extended periods of time than simple tasks.

A large percentage of Kenya's population has embraced the M-PESA technology. However, there is another percentage of the population that is still apprehensive about this technology. In fact, even those who actually use the technology have their uncertainties. For instance, there

have been a lot of discussions around the security of using M-PESA. People are not certain about the safety of putting large sums in their M-PESA accounts, or whether the money will actually reach the intended recipient and other fears on fraud – particularly in the event of collapse of this sector of the Safaricom Empire. This can be attributed to the traditional way of doing things. It is noted that even saving money in banks is still not done by a considerable population because of the fear that money could get 'lost.' People still prefer to deliver money and other things personally just to be sure that it has indeed reached the intended recipient. There is therefore a need to understand how a technology works in order to encourage usage and more so to influence attitude change. However it cannot be guaranteed that the entire population will embrace the M-PESA technology and even if they do there will still be reservations.

2.18 Conceptual Framework

Ingwersen's (1996) model of an Information Retrieval process makes up the conceptual framework of this study. Other concepts such as Dervin's (1986) 'sense-making' triangle have contributed to the development of understanding this framework.

The role of M-PESA in rural Kenya can be explained using Ingwersen's model. This model puts into context relationships that exist in the use of M-PESA services in rural Kenya. The general relationship between the M-PESA service and rural dwellers is semi-cyclical. The main components of the cycle are:

- Information Objects
- User Cognitive Space
- Interface/Intermediary
- M-PESA System Setting
- Social/Organisational Environment

There are two main forms of interaction that is, cognitive and interactive. Interactive communication refers to instances where there is two-way communication. This means that there is feedback from the sender and receiver of information. Cognitive interaction on the other hand refers to how the receiver of information understands or perceives the person or object from which the information is sent.

To put this model into the M-PESA context, the user refers to any person who might have or not have access to M-PESA services. The user's cognitive space refers to an individual's current state of understanding of what the M-PESA service are, its functions, operations and its purpose

in relation to achieving one's goal. The user's cognitive space is looked at two angles; one, the user's cognitive space based on information drawn from information objects and the other is cognitive space based on information drawn on the actual functions the M-PESA service usually drawn from actual experience. Information objects refer to all available material on the M-PESA service. Information objects may be accurate or inaccurate and may be developed by M-PESA providers, companies or even other individuals. Information objects can be other M-PESA users who will be a source of information based on their own understanding of the M-PESA service. Information objects can also be developed using the social/organisational environment. For instance impact of M-PESA service on the social environment can be drawn from a research report on the social impact of M-PESA service. The M-PESA system setting refers to the service itself. It is composed of what the service can do and what makes it operational. The M-PESA system setting includes services such as air-time top ups, transferring money, withdrawing money, pay bills and salary payments. The M-PESA system setting is dynamic as the providers become more and more innovative and also as they become aware of the social environment and its needs. Most recently, M-KESHO can be added to part of the M-PESA system setting. To note is that the social organisation/environments is an essential component for the development of information objects and the M-PESA system setting. The social environment is what drives innovation, invention and interpretation. For instance the feasibility of setting up an M-PESA outlet in an area will be informed by the social environment. Perhaps the infrastructure, cultural beliefs could be a hindrance to effectiveness of the service in the area.

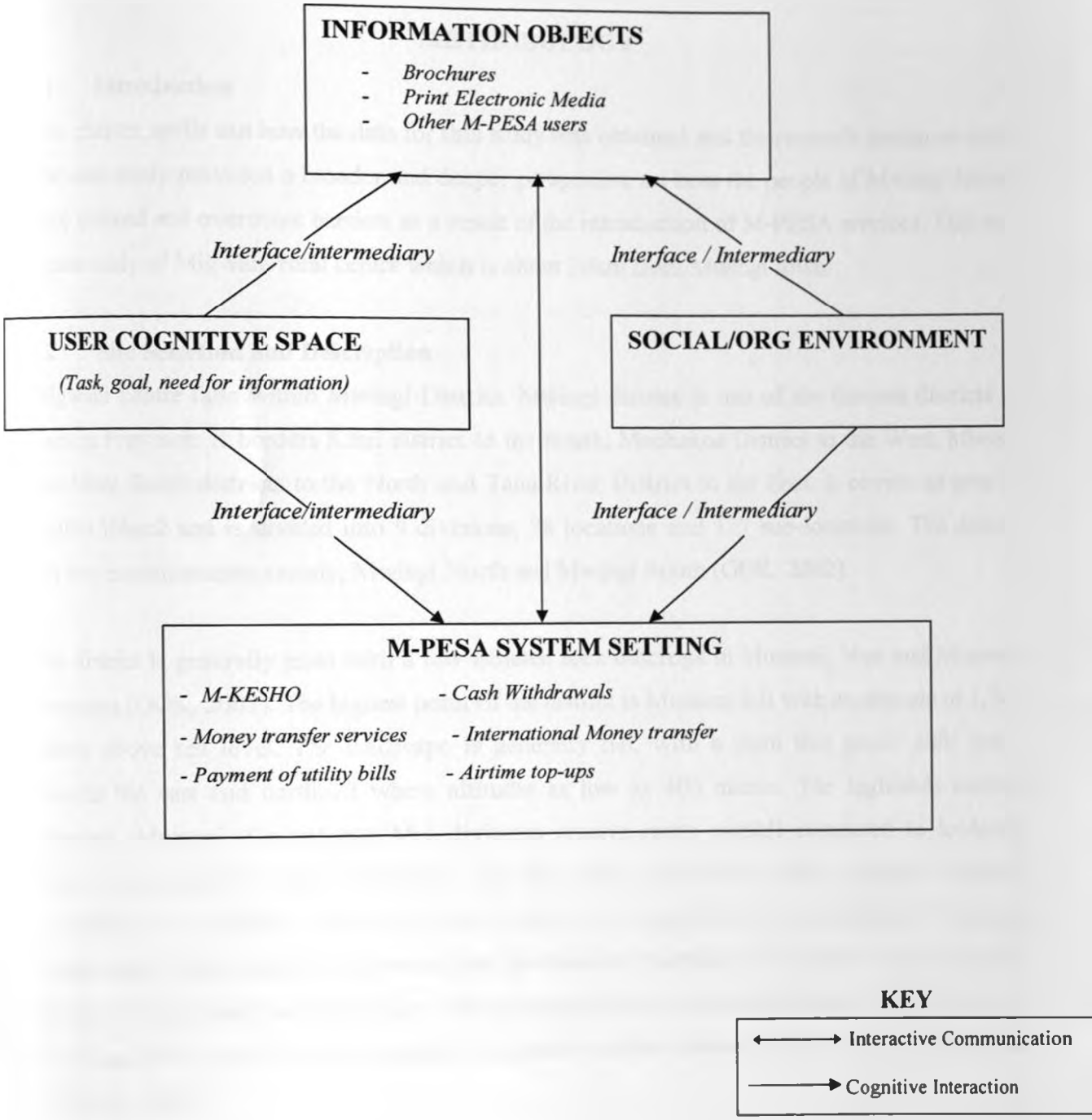
It is important to note that the interaction among the User's cognitive space, information objects, M-PESA system setting and the social/organisational environment is all cognitive. However, the interaction between the information objects and the M-PESA system setting is interactive. This is because the relationship between the two is two-way. Information objects could be developed based on the setting of the M-PESA system. For instance a new service in the system setting could lead to the production of brochures. In turn the M-PESA setting could be adapted to satisfy a growing need that is available from information objects. There is also the intermediary/interface role that is interactive. The intermediary is a mediator between the M-PESA system, the user and the social environment. The role of the intermediary is to ensure that there is effective communication. They ensure that the user understands the information objects, the M-PESA system setting and that M-PESA providers also understand and are knowledgeable on the needs, requests and queries of the user. The intermediary is meant to interpret any query

or request from the user, the social environment or the M-PESA providers. The intermediary ascertains that information is understood as intended so that the goal of the M-PESA system is optimised.

A hypothetical situation is; the rural dweller is in need of a faster and efficient form of receiving money from family in an urban area. However, there are no banking facilities within this rural setting. This information gets to the M-PESA service. Intermediaries also inform M-PESA providers that other than banking services the rural dwellers in this locality were the beneficiaries of the recent rural electrification program. However, the Kenya Power Offices are still quite far from many of them. The M-PESA service at the moment only offers money transfer services. The M-PESA providers determine that this locality not only needs an M-PESA outlet to facilitate money transfer services but also they could upgrade the M-PESA technology to tackle the challenge of having to travel a distance to pay electricity bills. M-PESA then strikes a deal with the Kenya Power and Lighting Company (KPLC) to facilitate payment of electricity via M-PESA. In addition, M-PESA outlets are set up in the locality.

These developments are relayed countrywide so that people are aware of the new services and outlets. This broadcasting of information is what is portrayed as 'Information Objects' in the cycle. The M-PESA outlets acts as intermediaries to ensure that users have the correct understanding of M-PESA and its functions. In addition they relay information to the M-PESA providers on complaints from users or hiccups that they may be facing in using the M-PESA system.

Figure 1: The M-PESA Information Retrieval Conceptual Model



CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter spells out how the data for this study was obtained and the research design adopted. The case study provided a broader and deeper perspective on how the people of Mwingi district have utilised and overcome barriers as a result of the introduction of M-PESA services. This was a case study of Migwani rural centre which is about 30km from Mwingi town.

3.2 Site Selection and Description

Migwani centre falls within Mwingi District. Mwingi district is one of the thirteen districts in Eastern Province. It borders Kitui district to the South, Machakos District to the West, Mbeere and Meru South districts to the North and Tana River District to the East. It covers an area of 10,030.30km2 and is divided into 9 divisions, 38 locations and 127 sub-locations. The district has two constituencies namely; Mwingi North and Mwingi South (GOK, 2002).

The district is generally plain with a few isolated rock outcrops in Mumoni, Nuu and Migwani Divisions (GOK, 2002). The highest point of the district is Mumoni hill with an altitude of 1,747 meters above sea level. The landscape is generally flat, with a plain that gently rolls down towards the east and northeast where altitudes as low as 400 meters. The highlands namely Migwani, Mumoni, Central and Mui divisions receive more rainfall compared to lowlands Nguni, Kyuso, and Tseikuru divisions. The drier areas experience severe drought. Soils are generally of low fertility, and being a rocky area it is unsuitable for crop farming. There are certain areas in the highlands however, that practice crop farming. The district's climate is hot and dry for the better part of the year. The maximum mean annual temperature ranges between 26 ° C and 34 ° C while the mean annual temperatures in the district vary between 14 ° C and 22 ° C (GOK, 2002).

Migwani is a homogenous area inhabited mainly by the Akamba people. According to the Mwingi District Statistics Offices, the Mwingi population as at 2002 was estimated at 326,506 with the number of males being 152, 359 and females 174,147. According to the Mwingi District Development Plan 2008-2012 the population is projected to rise to 256,412 and 269,028 in 2010 and 2012 respectively. The rural population at the start of the planning period in 2002 for the

'Mwingi District Strategic Plan 2005-2010' was estimated at 316,723 and the urban population was 5,653. This means that more than 97% of the population is based in the rural areas of the district (GOK, 2002). Migwani is located in Migwani division where the population density is highest. According to the Mwingi District Statistics Offices, the Migwani population as at 1999 was 56,907 and is projected to rise to 72,342 in 2009. The average household size in this division is 6.2 with a growth rate of 2.4% (GoK 2008).

Currently the poor constitute about 60 per cent of the total population. In other words, at least two in every three people are poor. The main causes of poverty in Migwani include low level of literacy and low economic base backed by low purchasing power. According to the Mwingi Strategic Plan 2005-2010 among the main issues/problems concerning population and development that are related to the social life of the population were around youth, children and family. This adds to the need to conduct a social study and relate it to the development challenges that Migwani faces.

Table 2 below shows the administrative units in Mwingi district and the size.

Table 2: Administrative units in Mwingi District and their size

Division	Area (sq.km)	Density	Location
Central	1204.50	75	8
Migwani	565.5	108	6
Mumoni	1,066.30	38	7
Kyuso	804.4	46	4
Tseikuru	1326.10	19	3
Nguni	1,751.10	7	3
Ngomeni	1,618.10	13	2
Nuu	1,324.4	17	3
Mui	369.8	45	2
TOTAL	10,030.30	30	38

Source: *District Commissioner's Office, Mwingi (2001)*

Table 3 below shows population projections of Migwani Division.

Table 3: Population projections for Migwani Division

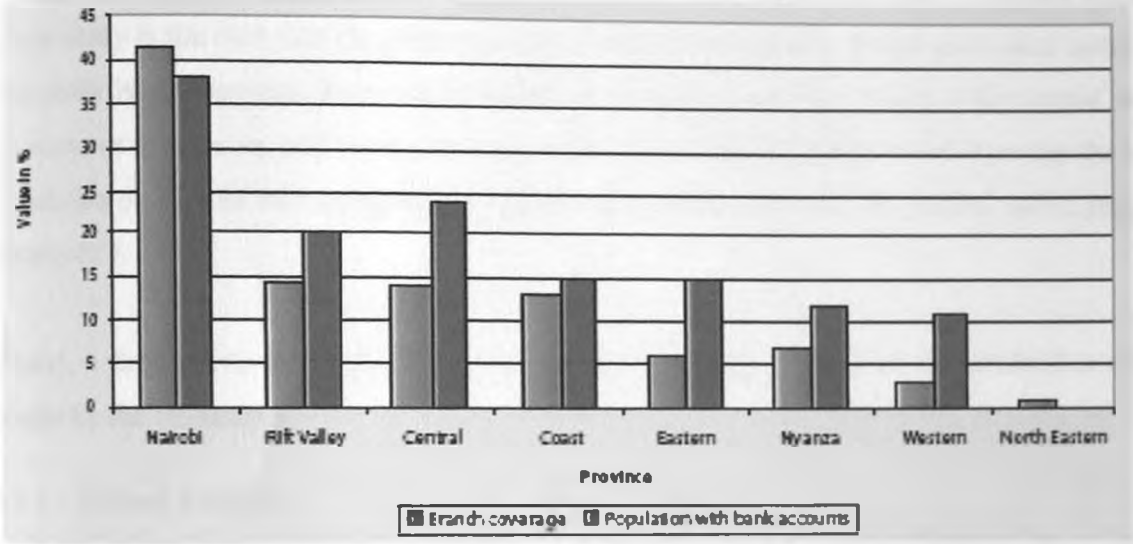
Division	Location	Sublocation	Actual 1999	Projected 2009	Area (sq.km)	Density (2007)
Migwani	Migwani		17,905	23,670	109.2	
		Kyambo	2,850	3,619	11.9	290
		Itoloni	3,670	5,659	18	246
		Kaliluni	2,853	3,624	22.3	154
		Nzauni	4,255	5,339	22.4	230
		Muivu	4,277	5,429	34.6	149
	Nguutani		16,303	20,719	153.4	
		Nzawa	5,366	6,820	43.5	149
		Ngongoni	5,322	6,763	34.3	187
		Nzalae	5,615	7,136	76.6	88
	Thitani		13,136	16,670	235.2	
		Kavaini	4,073	5,160	63.5	77
		Thaana	2,121	2,693	61.3	41
		Kanyaa	3,452	4,386	14.4	290
		Yenzuva	1,851	2,350	43	52
		Winzeyi	1,639	2,081	53	37
	Kyome		9,563	10,149	67.8	
		Thokoa	2,389	3,035	16.7	173
		Kyome	3,372	2,284	21.6	189
		Musuani	1,871	2,376	15.7	144
		Kasevi	1,931	2,454	13.8	169
Migwani TOTAL			56,907	72,342	565.6	121

Source: District Statistics Office, Mwingi (2010)

Mwingi district falls under Eastern province which is ranked the second most expansive province in the country. According to the CBK monthly economic review of February 2010, the province has the highest food inflation rate in the country equivalent to 12.2% (GoK 2010). It is also

ranked third from the bottom in terms of bank coverage the first being North Eastern and second Western. Figure 2 below shows the bank coverage across Kenya;

Figure 2: Branch network and proportion of population with bank accounts by region



Source: *Central Bank of Kenya Supervision Annual Report (2006)*

3.3 Site Selection

Migwani was selected for this study for the following reasons;

- It is a rural centre with the highest population density in the district with major financial institutions in Mwingi town which is approximately 30kms from Migwani. Therefore the M-PESA service is of great relief and use in this area.
- It is an isolated region of Mwingi district therefore the M-PESA service which largely depends on non-tangible facilities e.g. roads, is of great importance.
- It is the researcher's home area therefore she has the practical experience of the difficulties people in the area have and the conveniences they have with M-PESA.

3.4 Research Design

A good research design is one which has a clearly defined purpose, in which there is coherence between the research questions and the methods or approaches proposed and which generates data which is valid and reliable. Bechhofer and Paterson (2000) state that research design is always a matter of informed compromise.

Bryman (2001) argues that comparison is an important feature of research design. It is seen as something that should inform the selection of research locales and populations, that aids theory building, and that enhances the solidarity of research findings.

This study comprised a case study design. Cresswell (1998) points out that among the features of a case study is the fact that the phenomenon is studied in context. In this particular instance the case study is of Migwani. Migwani is within the Migwani division which is the second smallest division out of the nine and covers an area of 565.5 Km^2 (GOK 2002). It however has the highest population density of 108 compared to Nguni with a land area of 1,751.10Km^2 and a population density of 7.

Finally, a descriptive research design was used particularly because of the qualitative evidence sought by the researcher.

3.4.1 Unit of Analysis

The unit of analysis is the basic entity or object about which generalisations are to be made based on an analysis, and for which data have been collected. For this study the unit of analysis was the M-PESA users particularly their perceptions of M-PESA services, the advantages and constraints of M-PESA services and have spurred social impact to the users and community in Migwani in general.

3.4.2 Unit of Observation

The unit of observation on the other hand is the entity in primary research that is observed and about which information is systematically collected. These are the elements from which we collect data. Observation units in this study were M-PESA users.

3.5 Population

A population is the total collection of an element about which we wish to make some inferences (Cooper and Schindler, 2000). The basic idea of sampling is that by selecting some of the elements in a population, we may draw conclusions about the entire population. The population from which inferences were made is that of Migwani. According to (GoK 2001) Mwingi District Statistics offices, the urban population in Migwani is estimated at 61, 085.

It should be noted however, that there are other target populations which facilitated the development of these inferences. For instance the M-PESA service providers that is, the Safaricom department that deals with the M-PESA service played a crucial role in providing invaluable information for this study. The Safaricom employers were interviewed in Nairobi.

For this study the sample size was 79 of whom 75 were mobile phone owners who are registered with M-PESA and 4 were key informants.

3.6 Sampling Design

Sampling has several advantages including lower costs, greater accuracy of results, and faster speed of data collection and availability of population elements. The sample frame elaborates the particular members of the population from which the sample size will be taken. A sample frame is therefore defined as a list that includes every member of the population from which the sample size is to be drawn.

3.6.1 Sampling Techniques

3.6.1.1 Purposive Sampling

Patton (2001) states that purposive sampling is where selection of participants, settings or other sampling units is criterion - based or purposive. The sample units are chosen because they bear particular features or characteristics which will enable detailed exploration and understanding of the subject under question.

Purposive sampling in this research study was therefore used when identifying key informants who in this case included, Safaricom employees in the M-PESA service and employees of some of the major banks in Mwingi town since there are no major banks in Migwani centre.

Also this sampling technique was used when administering questionnaires where respondents were identified by virtue of ownership of a mobile phone and later being a registered M-PESA user.

3.6.1.2 Accidental sampling

Accidental Sampling involves the sample being drawn from a population that is readily available and convenient. In this study this sampling technique was applied while the researcher and research assistants were administering questionnaires in M-PESA outlets.

The researcher and research assistant spent 4 days in the field (Saturday to Wednesday) with a maximum of 10 hours of field work. Each researcher would collect data from an outlet assigned to him/her. However since there were five outlets, the two researchers administered questionnaires in the fifth outlet together. A total of 14hours was spent in each outlet during the four days.

On average, each outlet would get 6 respondents after every two hours and it took an average of 30minutes to administer one questionnaire per respondent. This meant that only a maximum of two respondents could be interviewed in one hour by one researcher. The researchers' schedules have been presented in the appendix 5.

3.7 Methods of Data Collection

3.7.1 Primary Methods of Data Collection

In order to obtain first hand information, the following primary data collection methods were used;

3.7.1.1 Interviewing

Personal accounts are seen as having central importance in social research. Hammersley and Atkinson (1995) state that, '...the expressive power of language provides the most important resource for accounts. A crucial feature of language is its capacity to present descriptions, explanations, and evaluations of almost infinite variety about any aspect of the world.'

A distinct feature of interviews is their depth of focus on the individual. The researcher will use it so as to provide an opportunity for a detailed investigation of each individual's personal perspective. It will also allow for an understanding of the personal context within which the research phenomenon is located, and for very detailed subject coverage.

The interviews were semi-structured and structured. Semi-structured interviews ensured that the interview followed a particular set of questions while allowing the respondents to express themselves at length. In some instances, unstructured interviews were used so as to give the respondent room to elaborate and give in-depth information. Unstructured interviews usually put respondents at ease and important information can be captured through this method of data collection. Structured interviews ensure that the interview strictly follows the set of questions. This ensured that neither party deviates from the subject in question.

3.7.1.2 Observation

Observation was also be used by the researcher as a method of collecting first hand information. This method offered the opportunity to record and analyse behaviour and interactions as they occurred through the eyes of the researcher. Non-verbal cues that may be important for this research may also be captured using this method.

Using this method the researcher observed the location of M-PESA outlets, their distribution, hours of opening and closing, other displays such as M-PESA posters and other services provided by M-PESA agents.

3.7.2 Secondary Data

In order to understand this phenomenon, the researcher did a wide literature review of existing documents. The researcher accessed public documents such as the Mwingi District Strategic Plan for 2009, statistical documents and other government papers that gave current and meaningful data necessary to boost the findings of this research. Media reports, Safaricom pamphlets, brochures and company magazines were also used. Also the Safaricom annual report 2008-2009 provided crucial information for this study.

3.8 Tools of Data Collection

3.8.1 Questionnaire

The researcher developed and administered questionnaires face-to-face to the sampled respondents in Migwani rural centre.

The questionnaire had both open-ended and close-ended questions. The open-ended questions gave respondents an opportunity for self-expression which may not be captured in close-ended questions. The questions focused on quality of service, timing, other services provided,

convenience of the service, location, accessibility, cost, familiarity of M-PESA agents and simplicity as compared to other financial institutions and/or services.

The questionnaire was divided into four parts. Section A captures personal data of respondents; Section B is aimed at determining respondents' reasons and purpose for using the M-PESA service, preferred modes of financial transactions, and the frequency of usage of M-PESA services; Section C of the questionnaire will involve rating M-PESA service quality attributes. The final section of the questionnaire focused on determining the average satisfaction levels of M-PESA users and their ratings of the overall service quality.

3.8.2 Key Informant Guide

This guide is a list of discussion issues to be discussed with key informants. Issues discussed focussed on quality of service, timing, other services provided, convenience of the service, location, accessibility, cost, familiarity of M-PESA agents and simplicity as compared to other financial institutions and/or services.

Key informants included Safaricom employees working in the M-PESA department as well as employees from banks located in Mwingi town.

3.8.3 Observation Checklist

Observation was unstructured nonetheless a checklist was still used to guide the researcher on what is necessary for the research study. This helped the researcher save on time and other resources. Some of the things observed were the time when M-PESA outlets open and close, the time when most transactions take place and the convenience of the outlets.

3.9 Data Analysis

Qualitative data collected from interviews and observation were recorded and edited to make inferences. They are described and analysed in themes relating to the objectives of this study namely:

i.) Peoples' perceptions of M-PESA services

ii.) The benefits of M-PESA

iii.)Constraints of growth of M-PESA services

iv.)Social implications of M-PESA services

Duly filled questionnaires will be analysed and coded for computer analysis. Statistical packages particularly SPSS will serve the purpose of computer data analysis.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

In this chapter the researcher presents and analyses the study findings. Data is presented through emerging themes, concepts, propositions and observations. The findings in this chapter show rural people's perceptions of M-PESA, the benefits of M-PESA, constraints of growth and its social implications. These findings emanate from the responses of 79 M-PESA users and operators. The differences in perception and use of the service are to a great extent influenced by literacy levels.

4.2 Background Information

4.2.1 Gender Distribution

There were more female respondents as compared to male respondents. Table 4 below illustrates the gender distribution - 46 (58%) respondents were female and 33 (42%) respondents were male. However, since sampling was accidental this finding cannot be generalised to mean that M-PESA consumers in Migwani are mostly female.

Table 4: Gender Distribution

Gender	Number	Percentage
Male	33	42%
Female	46	58%
TOTAL	**79**	

4.2.2 Marital Status

As presented in table 5, 13 male respondents were married, 15 were single, 4 were separated and 1 was divorced while 28 female respondents were married, 11 were single, 5 were separated and 2 were divorced. In total, 41 respondents were married, 26 were single, 9 were separated and 3 were divorced.

Table 5: Marital Status

	Female	Male	TOTAL	%
Married	28	13	41	52%
Single	11	15	26	33%
Separated	5	4	9	11%
Divorced	2	1	3	4%
TOTAL	**46**	**33**	**79**	

4.2.3 Age Distribution

Most M-PESA users in Migwani fell in the 20-29 age bracket (26) and 30-39 age bracket (32). These accounted for 33% and 40% respectively of the total number of respondents. It was noted that there was a relationship between respondents' age and usage of M-PESA whereby those in the 20-29 and 30-39 age brackets used M-PESA most. This shows that young adults and those in the middle age-group are most of the consumers but use of the service progressively declines as one ages. Table 6 illustrates the age distribution.

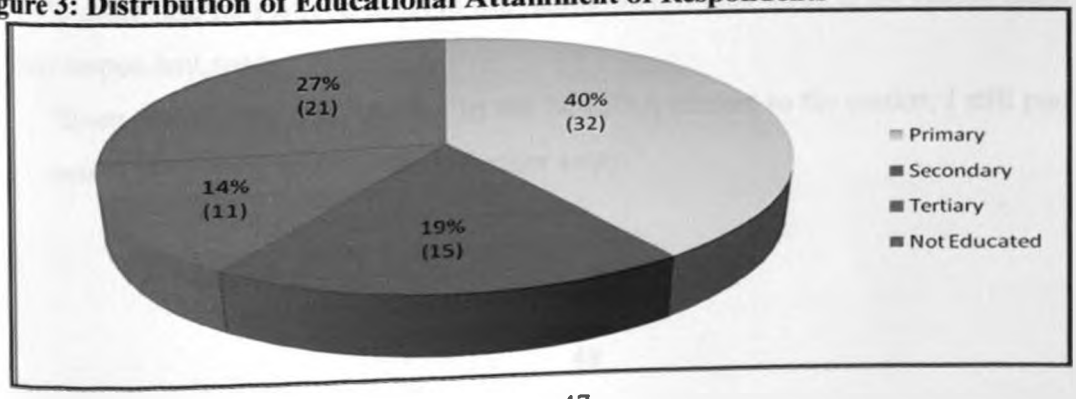
Table 6: Age Distribution

Age Bracket	Number	Percentage
Under 20	3	4%
20-29	26	33%
30-39	32	40%
40-49	11	14%
Above 50	7	9%
TOTAL	**79**	

4.2.4 Educational Attainment

As observed by the researcher, most M-PESA users would request the M-PESA agent to operate their M-PESA accounts when depositing and withdrawing money. Part of the reason was low education levels. The researcher together with research assistants also had to assist some respondents to fill out the questionnaires as they were illiterate. As shown in figure 3, 21 (27%) respondents were not educated, 32 (40%) had primary education, 15 (19%) had secondary education and 11 (14%) respondents had attained tertiary education. It was established that the education levels compromised safety measures of the M-PESA system as it compelled users to share their secret pin numbers with the M-PESA agents. Information posters displayed in the M-PESA outlets were also deemed useless for those customers who were illiterate.

Figure 3: Distribution of Educational Attainment of Respondents



4.2.5 Income Levels

Table 7 below shows monthly income levels of the respondents where 36 (46%) respondents earned below 10,000 shillings. Most of them indicated that they were housewives, students with others indicating that they were casuals. Those in the 10,000-20,000 shillings bracket were 21 (27%). Respondents in the 20,000-30,000 shillings and above 30,000 shillings income brackets were few and accounted for only 16% (13) and 11% (9) respectively. Persons in these three subsequent income brackets were mainly teachers, farmers and businessmen.

Table 7: Income Levels

	Number	Percentage
Below 10,000	36	46%
10,000 – 20,000	21	27%
20,000 – 30,000	13	16%
Above 30,000	9	11%
TOTAL	**79**	

4.3 OBJECTIVE 1 – Rural People's Perceptions of M-PESA services

4.3.1 Characteristics of M-PESA outlets

The Safaricom Website as at 31st July 2010 lists 10 M-PESA agents in Migwani. However, only 5 of the ones listed were identified by the researcher while two other operational ones were not on the official website.

4.3.1.1 Proximity

Generally all M-PESA agents were within walking distance from each other. Three of them were located next to the Migwani market. This is a very central location since market days which are on Fridays were indicated as the busiest days by the M-PESA agents. Despite this proximity, it was noted that M-PESA outlets that were located closest to the market had more customers than those which were further away. When interviewed one respondent said;

> "I prefer the M-PESA closest to the market as it is also close to the *matatu* stage."

Another respondent said;

> "Even if there are long queues in the M-PESA closest to the market, I still prefer to wait than to go to the M-PESA further away."

4.3.1.2 Opening and Closing Hours

M-PESA outlets in Migwani generally opened from 0800h to 1800h on Monday to Saturday. The highest number of transactions was indicated to take place during the first half of the day (8am to noon). On Sunday only one M-PESA agent opened at 1000h while the rest opened at 1400h and closed at 1730h. The one outlet that opened from morning recorded a higher number of transactions on Sunday than the rest of the M-PESA agents. Opening and closing hours were noted to be a determinant of M-PESA usage. A respondent, a teacher by profession said;

> "I think these M-PESA outlets open too late and close too early. I have to be in school by 7.30am and I usually have tuition classes until 6pm. I never find an M-PESA outlet open!"

One respondent also gave her experience;

> "I had an emergency one day –my child was sick at around 7pm. My husband had sent money via M-PESA to take my child to hospital. Unfortunately I could not withdraw any money. My son was discharged at around 7am and still there were no M-PESA outlets open. I had to wait in hospital until 8.30am when the M-PESA opens. I was late to go to work!"

All M-PESA agents agreed that other than Fridays, highest numbers of transactions were usually at the end of the month and during the first week of the month. Most of these transactions were withdrawals. On average the transactions are estimated between 80 – 120 per agent on Fridays as compared to the rest of the days of the week where transactions could range between 40 and 60. Fridays were market days in Migwani. When interviewed, one respondent said;

> "I receive money from my husband every end of the month. He works in Nakuru."

One businessman said;

> "When I sell my goods on Friday I have to deposit some money the same day in my M-PESA. Some of it is to pay my suppliers and to pay other bills."

One of the M-PESA agents also commented;

> "My busiest days are Fridays, end month and the first week of every month. I operate two agent numbers to ensure that there are no long queues in my shop especially on these busy days. That's why my shop is also very popular!"

4.3.1.3 Competence of M-PESA agents

It was observed that M-PESA agents were competent as most M-PESA users had low education levels and constantly needed assistance from them. For instance, 32 (40%) respondents had only attained primary level education and 21 (27%) were illiterate, while others did not know how to operate the M-PESA system. The researcher noted that although competence was important education levels compromised safety and security measures that the M-PESA system strongly advocates for through the slogan 'Pin Yako Siri Yako' (*Swahili for Your Pin Your Secret)* which warns M-PESA users against sharing their secret M-PESA pin numbers. One respondent said,

> "I find the M-PESA system hard to use. I usually ask the agent to help me manoeuvre through the system."

> "I never remember how to use M-PESA to pay my electricity. I usually ask for help from the agent."

4.3.1.4 Friendliness of M-PESA Agent

Customer service was seen to affect M-PESA usage. Customers and agents seemed to have developed relationships. One respondent when interviewed said;

> "I go to only one M-PESA agent in town because he is friendly and welcoming. I tend to shun dull people as I find it difficult to approach them. If his *Kiosk* is closed I prefer to wait until he opens."

> "There's this one agent who is very well versed with all M-PESA services! I like him because he also informs me of new services that M-PESA introduces without necessarily prompting him."

Therefore as per the responses, human factors such as ability to relate with others determine the volume of business per agent. Agents who were more unfriendly tended to be avoided unlike those that had friendly attendants who were ready and willing to offer advise and help those in need.

4.3.1.5 Provision of other services alongside M-PESA

There were two M-PESA agents engaged in other businesses such as phone charging, sim replacement and sim registration, selling of phone accessories such as chargers and handsets while others were small kiosks selling consumables such as soft drinks and snacks. The agents

explained that the side businesses were to generate an extra income so as to cater for expenses such as rent and electricity. One M-PESA user mentioned;

> "I come to this M-PESA kiosk because I can also charge my phone before I go home. I don't have electricity at home you see."

> "I like to take a drink as I wait for my transaction to be done. Sometimes there are long queues and some soda helps me relax and wait patiently for my turn so I go to Kiosks that sell some snacks and soft drinks," said another.

4.3.1.6 Availability of Float

'Float' is the virtual funds that are loaded into the M-PESA agent's phone (or simply the balance in the phone). At the start of the business for instance an agent invests 100,000 Kenya shillings, the whole or part of this amount will be loaded into the agent's phone and this will be his/her starting capital. So at the start the agent will have 50,000 Kenya shillings as virtual (what is called float) funds, and the other half (50,000 Kenya shillings) as liquid cash.

For instance if a customer gives 10,000 Kenya shillings to the M-PESA agent, the agent will transfer 10,000 of his virtual funds to the customer's M-PESA account. That means the M-PESA agent will have 40,000 Kenya shillings as float, and 60,000 Kenya shillings as liquid cash (to total the initial capital of 100,000 Kenya shillings). If four other customers come and deposit 10,000 Kenya shillings each, that will mean the M-PESA agent will transfer the 40,000 Kenya shillings in his phone to the four customers leaving him with 0 shillings in his phone. At this point, the M-PESA agent will not have virtual funds (balance in the phone) since he transferred all of it to the 5 customers. This is when you say you do not have "float". On the other hand, if the reverse happens and the 5 customers above came and withdrew, instead of depositing, it will mean that the M-PESA agent will have 100,000 shillings as float in the phone and zero in the cash box. At this point, the M-PESA agent will say he does not have cash but has "float" (of 100,000 shillings.) Lack of float normally happens at the end of the month when everyone is liquid so most of the people will be depositing, rather than withdrawing, thus exhausting the money in the M-PESA agent's phone.

Float was a major determinant in M-PESA usage in Migwani. One respondent said;

"I get so frustrated with this float issue. There is this *Kiosk* that never has enough float. Although it is the nearest *kiosk* to my shop I prefer to walk all the way to the M-PESA *kiosks* next to the market."

An agent also commented;

> "I always make sure I have enough float most of the time. That's how I maintain my customers. I noticed how angry they get when there is no float."

4.3.1.7 Availability of Information

M-PESA outlets in Migwani had posters displayed – there were posters on pin security, how to use M-PESA to pay for water and electricity bills and of withdrawal costs. Respondents had this to say;

> "I like reading the information on these posters because I get to know what's new. For example I know how much I will be charged to withdraw because this information has been displayed at the M-PESA *kiosk*."

4.3.2 Reasons for Using M-PESA

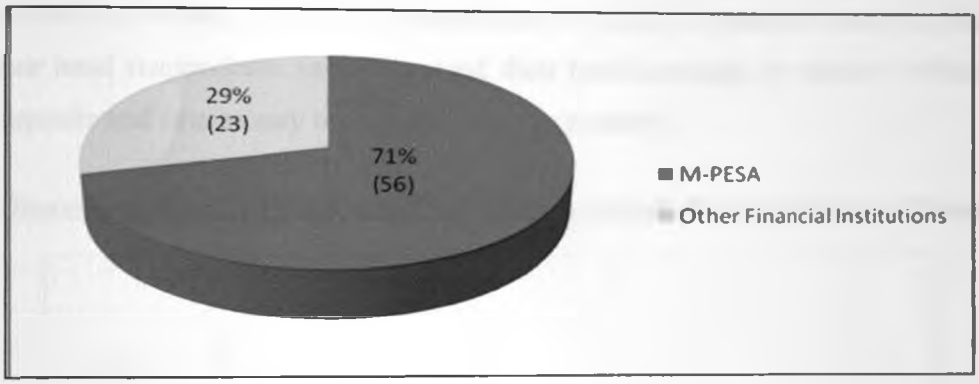
In determining perception of M-PESA services, reasons for its use were considered. Figure 4 shows that 56 (71%) respondents used the service because it was convenient as compared to banks, Posta Pay and other local financial groups. Convenience was in terms of accessibility, staff competence, cost, safety, time efficiency and reliability especially in emergency cases where money needed to be sent or received immediately. To illustrate convenience below are some comments from respondents;

> "Since I began using M-PESA I save an average of 2,000 shillings per month. I live 10kms from town - I save a lot on transport. Before, I would spend 200 shillings daily on transport. Now, I only come to town when it is very necessary otherwise I use M-PESA to pay my water and electricity bills as well as conduct other business transactions."
>
> "No more queues at the bank as long as I have some money on my M-PESA. It's also easy to use and I feel I have more control of my money. With banks, the bank is in control. M-PESA agents are also friendlier than the bank tellers! I prefer to relate with the agents!"

Another respondent said;

"For me M-PESA is a 24hour system. I usually make a lump sum deposit into my M-PESA account so that I can access my money any time, wherever I am. I don't have to look for ATMs anymore. They aren't very common you know, and many times they do not work. Another good thing with M-PESA there are no opening charges for an M-PESA account. I have never had a bank account because of the opening charges!"

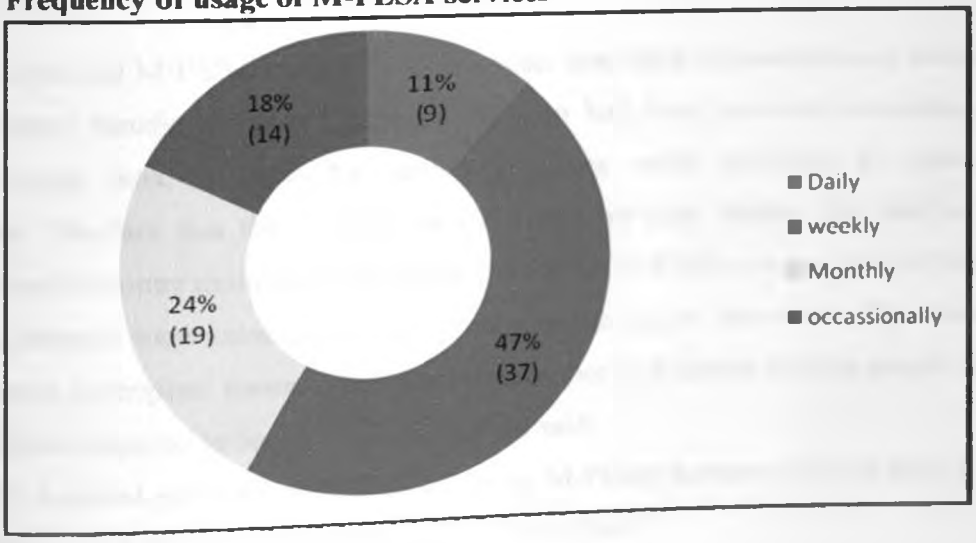
Figure 4: Distribution of Convenience of M-PESA Compared to Other Financial Institutions



4.3.3 Frequency of Usage

To further elaborate people's perception of M-PESA services, the researcher sought to find out frequency of use. This enabled the researcher to determine the overall satisfaction of the respondents relating to the M-PESA services. The researcher assumed that frequent users of the service were in a better position to evaluate its quality in relation to other services.

Figure 5: Frequency of usage of M-PESA services



From figure 5 above, 9 (11%) respondents said they used it on a daily basis, 37 (47%) said that they used M-PESA on a weekly basis, 19 (24%) said that they use it on a monthly basis while 14 (18%) respondents said they used it ocassionally.

Table 8: Distribution of M-PESA and Other Financial Institutions Monthly Transactions

Usage	M-PESA	Banks	Posta Pay
Withdraw	15	4	0
Deposit	5	3	0
Transfer money to other people	10	1	0

As presented in table 8, respondents said that they used M-PESA for withdrawal purposes 15 times per month on average, 5 times to deposit and 10 times to transfer money to other people. On the other hand respondents said they used their bank accounts to make 4 withdrawals per month, 3 deposits and one money transfer on average monthly.

Figure 6: Distribution of M-PESA and Other Financial Institutions Monthly Transactions

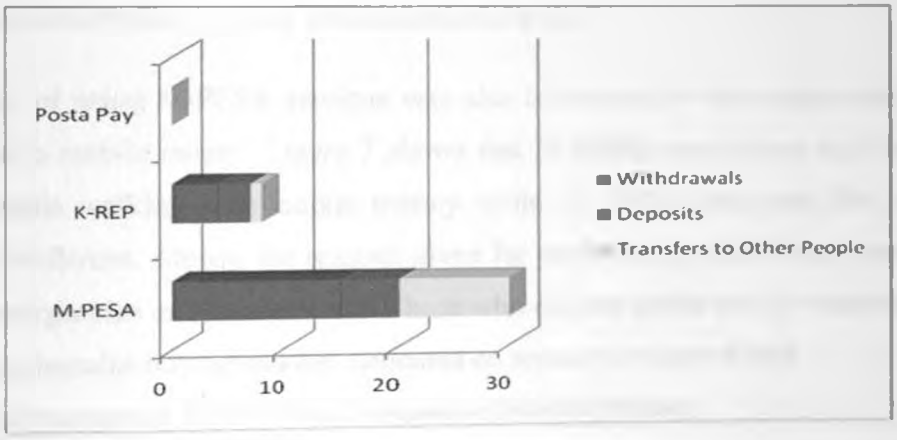


Figure 6 shows that M-PESA transactions are higher than bank transactions and thus is the most popular money transfer solution. Respondents who had bank accounts elaborated that they preferred using bank accounts for saving purposes while M-PESA for more frequent transactions. The fact that the M-PESA withdrawals are high implies that most of Migwani residents receive money more than they send. Before the M-PESA service, most of them used to make one financial transaction per month usually at the end of the month. This shows a rapid transformation in peoples' transactions. Also the number of transfers to other people was highest in M-PESA as compared to banks. One respondent said;

> "My husband prefers to send money using M-PESA because I do not have a bank account. M-PESA has become the bank I never had."

Another said;

"If I want to make money transfers to many people, M-PESA is better. If I use the bank that means that for every transfer I will have to go to the bank physically. I don't have time and money to make trips to the bank."

Another respondent commented;

"My husband sends money every week or whenever there is an emergency. With M-PESA the transfer is instant."

M-PESA deposits were more than deposits in other financial institutions. None of the respondents interviewed used the Posta Pay services. One respondent when asked why they did not use the Posta Pay service they said;

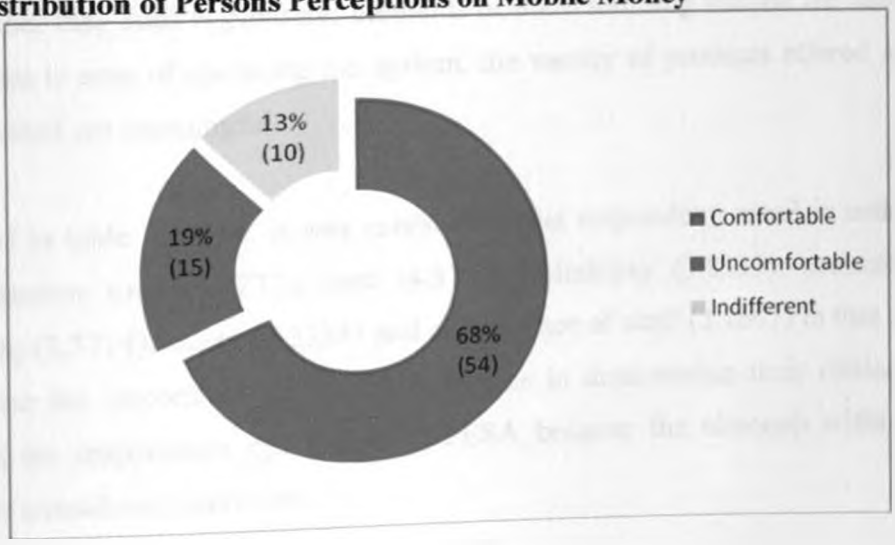
"I do not know what Posta Pay is."

Another respondent said;

"Posta Pay outlets are only available in post offices. They do not have as many outlets as M-PESA. It is just not convenient for me."

The frequency of using M-PESA services was also influenced by the respondents' comfort in having access to mobile money. Figure 7 shows that 54 (68%) respondents said that they were most comfortable walking with mobile money while 15 (19%) were not. The remaining 10 (13%) were indifferent. Among the reasons given for preferring mobile money were to respond to cases of emergencies and convenience. Those who did not prefer mobile money gave reasons of encouraging impulse buying and had concerns on security in case of theft.

Figure 7: Distribution of Persons Perceptions on Mobile Money



4.3.4 Importance Rating of Service Quality Attributes that Determine Consumer Choice of the M-PESA Service

M-PESA consumers were asked to rate seven statements that determined their choice of the service. These seven statements were linked to seven attributes. The rating scale ranged from strongly disagree (1) to strongly agree (5). The scores "Strongly Disagree" and "Disagree' were represented by mean score equivalent to 1.0 to 2.5. The scores "Strongly agree" and "Agree" were represented by mean score, equivalent to 3.6 to 5.0 on the Likert scale. The scores of 'indifferent' represented indecision by the respondents and was equivalent to 2.6 to 3.5 on the Likert scale. The results were presented in mean in table 9 below.

Table 9: Importance of M-PESA in determining customer's choice

Quality Attribute	Mean
Transaction time	4.4737
Cost	4.3750
Reliability	3.8333
Accessibility	3.7000
Understanding	3.5714
Safety	3.3333
Competence of staff	3.1667

The elements of accessibility included proximity and the number of M-PESA outlets in comparison to other financial institutions; elements of transaction time included time taken to conduct transactions such as withdrawals, deposits, account balance requests and sending money; elements of reliability included functionality of systems and operational hours; elements of cost included costs incurred in opening accounts, sending, depositing and withdrawing; paramount element of safety included the security of money; elements of competence of staff included their knowledge of the products and services that are provided and customer relations such as whether they staff is pleasant; elements of understanding include the userfriendliness of the system that is ease of operating the system, the variety of products offered and whether the services provided are meaningful.

As illustrated in table 9 above, it was established that respondents rated in order of highest to lowest transaction time (4.4737), cost (4.3750), reliability (3.8333), accessibility (3.7000), understanding (3.5714), safety (3.3333) and competence of staff (3.1667) in that order, as factors that determine the importance of M-PESA service in determining their choice. These results implied that the respondents opt to use M-PESA because the elements within each of these attributes are considered important.

A respondent said;

> "A good service for me should be easy to reach and accessible 24 hours. That's what made me open an M-PESA account because outlets are within reach and it's a 24hour service."

Another respondent said;

> "A service that I can operate on my own without someone else's intervention is ideal for me. The M-PESA service is easy to operate and I do not need someone to help me use it."

4.4 OBJECTIVE 2 -Benefits of M-PESA services.

In discussing the benefits of M-PESA services as a financial service provider, over 70% of the respondents indicated that M-PESA had changed their lives in one way or another. Among the benefits identified are as follows;

4.4.1 Convenience

Respondents said that M-PESA is more convenient and had fewer regulations compared to the banking systems. Convenience referred to safety, reliability, cost, time efficiency and user-friendliness of the system. One business man said;

> "The current account in my bank serves me best. However, I had to gather two thousand shillings to open the account, submit my shop's certificate of registration, a copy of my pin certificate, passport photographs...all these in addition to my national Identification card. The good thing with M-PESA all these requirements are not necessary. You only need your national ID since opening an M-PESA account is free!"

Another respondent said;

> "Since I started using M-PESA I have reduced transactions using the bank. I do not reside in Migwani town so before I would spend a lot on transport to the town so that I could access the bank. With M-PESA I can perform my transactions using my phone. I rarely go to the bank anymore."

Key informants from Safaricom supported this finding. One Safaricom employee said;

> "M-PESA outlets are numerous and accessible! You can never have two bank branches in one town of the same bank few metres away from each other. If one M-PESA outlet is too busy you can go to another within walking distance."

"Before M-PESA was introduced we had many customers. Since M-PESA was introduced our customer base has reduced and even bank transactions reduced."

Respondents also indicated that they felt that they were in control of their money. The fact that they could operate the system themselves made them secure. Some of the responses got were;

"In banks there are tellers behind desks. We do not know what goes on behind these desks. With M-PESA I am my own teller. I have full control and access of my money."

"At the bank I have to maintain a minimum balance. With M-PESA I can withdraw all the money in my account. There are no restrictions."

Convenience in terms of opening hours was also seen as a major benefit of M-PESA. Bank opening and closing hours were generally from Monday-Friday from 8am to 4pm. A few were open on weekends but mostly until 1pm. M-PESA services were accessible 24hours unless one had to go through an M-PESA outlet. On hours of operation one respondent said;

"I like M-PESA because I can make my financial transactions anytime as long as my account has some money."

Table 10: Time Efficiency Ratings of M-PESA Compared to Other Financial Institutions

Type of Transaction	M-PESA	BANK	POSTAPAY	WOMEN'S GROUP
Deposits	5 minutes	30 minutes	20 minutes	15 minutes
Withdrawals	5 minutes	30 minutes	20 minutes	20 minutes
Account Balance Requests	Less than a minute	15 minutes	Not Applicable	30 minutes
Sending Money	5 minutes	Minimum 4 hours	30 minutes	Not determined

Table 10 above showed that the M-PESA service was time efficient when conducting certain transactions. Respondents' comments were;

"With M-PESA I can check my account balance from my phone at the comfort of my home."

"As long as I have a mobile phone I do not need to travel. For me to access my bank account I have to be physically present."

Table 11: Ratings on Accessibility of M-PESA Compared to Other Financial Institutions

Accessibility Elements	M-PESA	BANK	POSTAPAY	WOMEN'S GROUP
Proximity of Outlet	5 Kms	30 Kms	10Kms	15 Kms
Number of outlets/branches	5	1	1	1

Table 11 above showed that M-PESA outlets were located strategically as compared to other financial institutions. What's more, M-PESA outlets outnumbered the financial institutions. This attribute proved beneficial to Migwani M-PESA users as some respondents explained;

"There are five M-PESA *kiosks* that I know. If one kiosk has a long queue I simply go to the next one. The banks I know have only one branch."

"I hardly go to the bank because it is far from my home. I prefer to send money using M-PESA."

A key informant from Safaricom had this to say;

"Rural areas are increasingly making use of M-PESA. M-PESA outlets are opening at a fast rate in these areas. It serves its purpose of banking the unbanked."

Table 12: Reliability of M-PESA as Compared to Banks

Reliability Elements	M-PESA	BANKS
Opening Hours of Outlet/Branch	8am (Mon-Sun)	8am (Mon-Fri)
Closing Hours of Outlet/Branch	6 pm (Mon-Sun)	4pm (Mon-Fri)

Table 12 shows that M-PESA was more reliable than banks. The opening hours of M-PESA were longer than that of banks. Banks had rigid opening and closing hours that could not be extended. Even though general operation hours of M-PESA outlets were from 8am – 6pm they could often be extended as long as there is business. This is what some respondents had to say about reliability;

"With banks I am limited to conducting financial transactions from Monday to Friday. I have to get some time off work when I need to access their services. I can always go to M-PESA shops after work or even weekends."

Table 13: M-PESA Costs against Banks

Type of Costs	M-PESA	BANKS
Opening Account	Free	Not Free
Sending Charges	KES 30	Dependent on account held
Withdrawal Charges	Charges dependent on amount withdrawn	Dependent on account held
Operating Charges	Cheap	Expensive

As per table 13, opening an M-PESA account is free unlike bank accounts where a minimum opening amount is charged depending on the type of account. For instance, it costs KES 2,000 to open a current account and KES 500 for a savings account. However with banks sometimes there are no ledger fee that is there are no charges for depositing or withdrawing money. However, operating an account with banks was felt to be more expensive as the respondents said they spent more in terms of travel particularly those who lived in the outskirts of the town. M-PESA is found to be a simplistic system. Respondents said;

> "The opening charges for an account are what discourage me from having a bank account. I do not have that lump sum amount to open the account. M-PESA is a free service and serves the same purpose that I need from the bank."
>
> "M-PESA costs are standard and clear. With banks one service costed and another would be free. M-PESA is a straight forward system."

Table 14: Competence of M-PESA Staff in Comparison to Banks

Competence of Staff	M-PESA	BANKS
Customer Service Relations	Informal	Formal
Knowledge on products and Services	Good	Satisfactory

According to table 14 above M-PESA relations with M-PESA staff was more informal than those of banks. There was some familiarity between the agents and the customers. It was also noted that the environment in the M-PESA outlets elicited a casual feeling that made people less tense.

A key informant from Safaricom said;

> "The M-PESA service is created to reach the local *mwananchi*. It is meant to make the customer feel that he belongs. That is why we are flexible with how the M-PESA outlets appear and who the M-PESA agents are. The only uniform characteristic of M-PESA outlets are the colours and Logos of M-PESA that are for easy identification. We noticed that banks create a tense feeling. People like to go to places where they feel comfortable and welcome."

"M-PESA agents are more approachable than bank tellers," one respondent commented.

"I cannot use my mobile phone in the bank but at the M-PESA outlet I am free to do anything."

Table 15: User-friendliness of M-PESA in Comparison to Banks.

Understanding Elements	M-PESA	BANKS
User-friendliness	Easy	Difficult
Use of Services	Frequently	Occasional
Information Flow	Very Good	Poor

Table 15 above shows that M-PESA was a friendlier system than that of banks. Respondents also said that they used the services from M-PESA more frequently than those of banks. In addition, customers felt that M-PESA's information flow was constant and good. Adverts on print and electronic media were more unlike that of banks. Some of the reasons given were;

"I find M-PESA easy to manoeuvre. Knowing how to operate it gives me a sense of ownership."

"M-PESA adverts are all over. You find it in the newspaper, on radio, in posters...whenever there's a new thing with M-PESA it is advertised. I don't find such information with my bank unless I ask or go to the bank."

4.5 OBJECTIVE 3 – Constraints in the Growth of M-PESA Service

The researcher sought to find the challenges facing the growth of M-PESA services in the Migwani. According to the feedback, various hindrances were discovered in relation to the effectiveness of use of M-PESA services;

4.5.1 Network Coverage

There were certain areas within Migwani district where the Safaricom network coverage was weak or non-existent. This was affirmed by key informants from Safaricom;

"We acknowledge that there are areas where the Safaricom network is weak. This definitely impacts on M-PESA usage which among other things is dependent on network coverage."

One respondent said;

"The Safaricom signal at my home is not strong. Sometimes there's completely no network. This has hindered me from using M-PESA whenever I want."

4.5.2 Operation hours of M-PESA outlets

The duration of service provision also scored highly as one impediment, respondents said that the time of service by the M-PESA distribution points was a challenge with most indicating that they closed too early. The researcher observed that most of the M-PESA outlets had a working schedule of 8am-6pm and with minimum service time in the weekends. Although these hours could be elongated, generally these hours were inconvenient for the users who needed to use the M-PESA outlet.

> "In many rural areas business operations end by 6pm." Of course there are customers who would want to access outlets beyond this time. The closing hours of M-PESA outlets have indeed impacted on the growth of M-PESA negatively," said a key informant from Safaricom.

4.5.3 Geographical Distribution of M-PESA Outlets

The geographical distribution of the M-PESA outlets and proximity to these services were a challenge. Most of the respondents when asked about this indicated that the outlets were only concentrated in Migwani town centre while the interior areas had no such services. Respondents said;

> "When I need to go to an M-PESA *kiosk,* I have to take a *matatu* from my home area."

Overall, the distribution of the M-PESA outlets in town outweigh the problem of having one bank in the town as it gives people a choice.

4.5.4 Lack of Civic Education

The services offered by M-PESA are not exhausted because of lack of knowledge by both M-PESA users and agents. According to feedback from a key informant from one of the major banks;

> "One thing with banks that M-PESA may not have is professionalism. Staff from banks are presentable and knowledgeable on their products and services. I have had experience where M-PESA agents do not know how to operate certain services for instance payment of utilities."

Key informants from Safaricom affirmed;

> "From our field research we have noted that not all M-PESA services are exhausted especially in rural areas. They mostly concentrate on sending and receiving money. We plan to put more effort in conducting civic education on all M-PESA products

and services. We cannot control employees of the people we give licences to operate M-PESA outlets. So it is not surprising to find an agent who does not know about all M-PESA products."

An M-PESA agent also gave his reasons for not using some M-PESA services;

"Most clients like myself, do not access water from the town council, in my home I also do not have electricity. Therefore there is no need to use these services offered by M-PESA."

4.5.5 Illiteracy

The researcher observed that most respondents were illiterate. As a result they relied on others who were literate to operate their phones for them.

"I rely on my son to operate my phone because I cannot read...in fact the phone has become his. He opened an M-PESA account for me and whenever I need to use M-PESA I alert him and he does the necessary."

4.5.6 Technology Phobia

Technology phobia was a challenge identified by the researcher. There was also fear of sending money to wrong recipients and following up such errors. Respondents also doubted the sustainability of M-PESA. M-PESA users in Migwani still preferred to use M-PESA for frequent transaction but preferred to use banks for saving purposes. This was affirmed by key informants from Safaricom.

"People doubt the M-PESA system. Its sustainability has been questioned over and over. Even though the Central Bank of Kenya has recognised its existence formal banks still feel threatened. They have consequently made our customers feel that one's money is not secure with M-PESA."

An M-PESA user said;

"I fear sending money to the wrong recipient. I've heard that it is very difficult to retrieve money that has been sent erroneously."

4.5.7 Poverty

Poverty was a major hindrance to the growth of M-PESA in Migwani. Due to poverty some respondents could not afford to purchase mobile handsets.

"I cannot afford to buy a phone so I do not have an M-PESA account of my own," said one respondent.

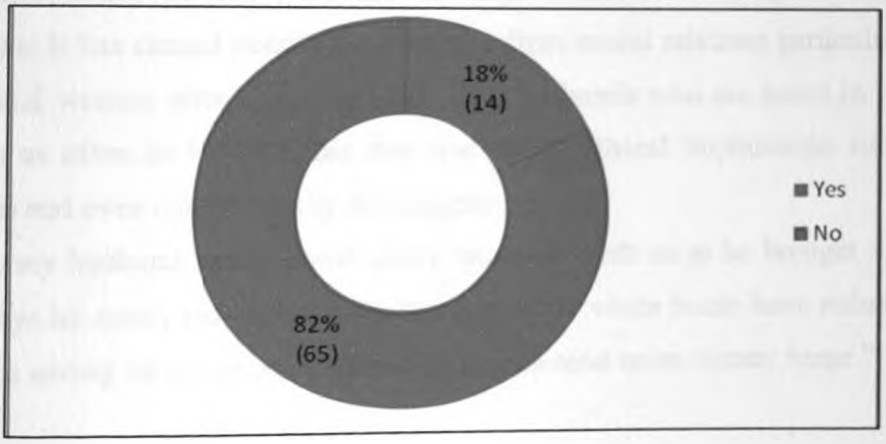
4.5.8 Lack of Electricity

Some areas of Migwani did not have access to electricity. This had an impact on usage of their phones and even services offered by M-PESA. Lack of electricity limited their use of the phones which in turn also affected the use of M-PESA. In addition there were services offered by M-PESA that were consequently of no significance. From figure 8, 14 (18%) respondents indicated to have used M-PESA services to pay utility bills like water and electricity while 65 (82%), do not use it to pay utility bills. This response was influenced by the fact that not all areas in Migwani had access to electricity and did not receive water from the town council.

"I have no electricity in my home so I have no need to use the utility service offered by M-PESA," said a respondent.

"Our service is not growing because of forces beyond our control. For instance there are areas without electricity. This is the government's responsibility," said a key informant from Safaricom.

Figure 8: M-PESA usage to pay utility bills



4.6 OBJECTIVE 4 - Social Implications of M-PESA Services to Rural Dwellers

The economic implications of the M-PESA service have greatly been emphasised overshadowing social implications that this technology has brought. This study highlights some of the social implications of M-PESA which are both positive and negative.

Migwani residents who lived further from the town noted that their safety had improved with the introduction of the M-PESA service. This has ensured that society remains intact and free from harm. The convenience of the service has reduced cases where one had to physically move from one end to another.

"Before the introduction of M-PESA, I had to cover quite a distance to carry out some tasks that the M-PESA service now performs. My safety was compromised while making these trips but not anymore."

Of the respondents who indicated that M-PESA services had aided in developing better money saving habits. Respondents indicated that this had created some sort of discipline for them. Most respondents felt that they were in control of their finances and had encouraged them to do away with habits that would deplete their savings. Such habits like drug abuse had as result reduced and savings were used to venture in more constructive areas especially those that would improve quality of life.

"With M-PESA I am thriftier with money. Unlike the bank, where I have to wait for a bank statement at the end of the month or unless I request, with M-PESA I check my account balance and in an instant I have it. I maintain a record of what I have received and sent on my phone."

The convenience of the M-PESA service has impoverished the interpersonal culture of the Migwani people. It has caused people to disengage from social relations particularly in families. Most of the rural women were concerned that their husbands who are based in urban areas did not visit them as often as before. This has also led to ethical implications such as infidelity among partners and even caused family disintegration.

"Before my husband would come every month to visit us as he brought some money. Nowadays he sends money with M-PESA and his visits home have reduced. He says that he is saving on transport costs so that he can send more money home."

By creating employment opportunities the M-PESA service continues to act as a control mechanism of society's evils. Since opening of M-PESA outlets is fairly affordable the unemployed particularly the youth are restrained from engaging in theft, drug abuse, prostitution which was resorted to previously as they could not get meaningful employment.

"I was jobless for quite a while. I did not have a good education so I could not get a job that could bring meaningful returns. When M-PESA was introduced, I saved up to open an outlet. Now I have a source of income."

"I was employed in this kiosk. When my boss expanded his business to offer M-PESA services, he gave me the additional task to handle the M-PESA operations. He added my salary as a result. I am glad M-PESA was introduced."

Domestic violence was also noted among families. One respondent explained;

"I once refused to share my M-PESA secret pin number with my husband. He beat me for doing so and since then it has caused him to doubt my fidelity."

"My neighbour who does not have an M-PESA account uses my phone to send and receive money. Once my partner saw a text from a number not known to him and this aroused suspicion. I tried to explain to him but he would not hear of it."

Social evils have emerged due to the M-PESA service. Incidences of theft are on the rise despite efforts to curb this vice by the Safaricom M-PESA department.

"We have received cases where our customers receive phone calls from people claiming that they have won a prize as a result of using M-PESA. They probe some questions so as to get information on one's secret pin. That is why we are advocating for people not to share their pin numbers."

With M-PESA there is no social status or social class – everyone is treated equally unlike banks where there were clients who would receive special treatment. For instance chiefs and the rich would not make any queues in the bank. A respondent said;

"One time I had waited almost 45 minutes in a queue at my bank, the chief just came in and in an instant was allowed to skip me without even my consent. I found it very unfair. I have never experienced this with M-PESA. There is no special treatment whether you are rich, poor, well known – all are the same."

4.7 Summary of Barriers

As per the findings, the M-PESA system has bridged several barriers in Migwani. These barriers are;

- **Accessibility barrier**: Residents of Migwani had to travel more than 30Kms to access the nearest bank. With M-PESA the agents are available within Migwani centre and the outlets are several unlike bank branches which were mostly limited to one or two branches. It has also proven reliable during emergencies.
- **Regulations barrier**: Migwani residents were pleased with the fact that M-PESA had fewer regulations unlike banks which required one to meet several requirements.

- **Cost Barrier:** The M-PESA service has broken down the cost barrier. It is an affordable account to maintain. Also since it has several pay bill partners it has reduced the necessity to spend on transport to travel to such partners physically. For instance there is no need to go to a school physically to pay fees.
- **Time Barrier:** Conducting transactions with M-PESA is fast and efficient as compared to other financial institutions.
- **Reliability Barrier**: M-PESA service is a 24-hour service without stringent opening and closing hours. One can also perform several transactions without necessarily going to the M-PESA outlet physically.
- **Poverty Barrier:** With over 17,000 M-PESA outlets M-PESA continues to break the poverty barrier.
- **Security Barrier:** M-PESA has reduced the need for Migwani residents to travel to major towns to access services that M-PESA currently provides. There were cases of insecurity when people travelled. Considering that M-PESA is within arm's reach, insecurity cases have reduced immensely. Also it is being used as a means to safeguard savings instead of keeping money in houses which also is a huge risk in case of theft.
- **Information Sharing Barrier:** Information flow is constant and easily available to M-PESA users. It is a relatively transparent system as compared to banks.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter concludes the study by summarizing its findings and on the basis of these findings making recommendations for areas for further research. Limitations and challenges encountered during the study are also mentioned since they had a huge impact on the study's findings.

5.2 Summary of findings

The objectives of the study were to; determine rural peoples' perceptions of M-PESA services, establish its benefits, growth constraints and social implications. The researcher also determined the relationship between the quality of the M-PESA services and the overall satisfaction levels of M-PESA consumers since it indirectly determined their perceptions of its services.

In determining perceptions, majority of respondents indicated that they used M-PESA because of convenience. It was clear that in terms of financial transactions, the M-PESA service was used more often than bank accounts-most respondents indicated that they used M-PESA services on a weekly basis whereas for those who had bank accounts as well, used them monthly. Majority of respondents felt that the M-PESA service gave them a sense of control of their finances in comparison to banks.

The transaction time was rated as the most important attribute of the M-PESA service that determined choice of M-PESA service over other financial modes of money transfer. Cost, reliability, accessibility, understanding, safety and competence of staff followed in that order. The aforementioned attributes also doubled up as benefits as residents of Migwani elaborated time efficiency in comparison to other financial institutions, proximity of M-PESA outlets, flexible hours of operation, affordability of M-PESA transactions, good customer service realtions and sound knowledge of M-PESA products and services. The service seems to have eased the cumbersome traditional way of travelling to make payments physically and carrying liquid cash.

The researcher sought to find the challenges facing the growth of M-PESA services in the rural areas. According to the feedback, various hindrances were discovered in relation to the effectiveness of use of M-PESA services. Network coverage, illiteracy, geographical distribution of M-PESA outlets, operation hours, lack of civic education on M-PESA, poverty, technology phobia and lack of electricity were seen to influence effective use of M-PESA services. Illiteracy caused many of the users to share their secret pin with the M-PESA agents and this was seen to compromise safety. Mobile ownership is still low in Migwani because of poverty.

Although M-PESA has great economic implications it also has social implication both negative and positive. The greatest threat it has posed to society, like most new technologies, is that it compromises the 'intimacy' of society which is a major characteristic of the African society. It has evidently lessened social interaction. At the same time M-PESA has improved quality of life through creation of employment opportunities especially for the youth, keeping them away from evils such as theft, drug abuse, prostitution and others.

5.3 Conclusion

M-PESA has been widely adopted in this area due to its convenience in terms of cost and time efficiency in carrying out tasks. Since these two attributes – cost and transaction time are seen as most important, the M-PESA service should improve these further. Other than these two attributes the other attributes –reliability, accessibility, understanding, safety and staff competency are also likely to affect the M-PESA user's satisfaction. As per the information retrieval conceptual model, the M-PESA service has potential to develop further as they conduct frequent field research to ensure that consumer satisfaction is maintained. With civic education, the residents of Migwani will be more receptive to the service and even explore other services within M-PESA beyond just sending and receiving money.

Despite costs of handsets being relatively affordable, quite a number of residents of Migwani still do not have access to mobile phones due to abject poverty. Sharing of phones is very common in the area. Some respondents saw no need of owning a phone as they did not have electricity which would be used to charge phones. This was also an indication that the residents were not aware of the existence of solar phones which did not depend on electricity.

As much as the M-PESA service is more inclined to economic implications, it also has an effect on society as a whole. These implications are underscored in the study.

For a population that is predominantly unbanked, the M-PESA service has potential to thrive in many areas of rural Kenya. It is a service of immense benefit to all Kenyans and it remains to reach more and more. This technological revolution is one that has broken down barriers irrespective of social class or race. Its uniformity in services to all irrespective of status is particularly striking.

5.4 Recommendations

From the conclusions of the study, the researcher put forward the following recommendations;

i. There is need for Safaricom to carry out civic education to M-PESA users and potential users in rural areas on the capabilities of the M-PESA service. This should also incorporate social aspects so as to minimise negative social implications that the technology could bring with it.
ii. The Government of Kenya should intensify its rural electrification programs as there are still many parts of the country which do not have access to electricity which in turn has been an impediment to development.
iii. M-PESA dealers should consider opening outlets in the interior parts of rural areas to further cater for the majority of the unbanked.
iv. Use of solar should be encouraged in rural areas. Existence of solar phones is still not known to many.
v. The social contribution of the mobile telephony sector should be studied as opposed to its economic contribution that has been the norm.

Recommendations for further research;

i. This study was carried out in Migwani area within Mwingi District. For comparison purposes, a similar study needs to be carried out in other districts in the country.
ii. Similar services offered by other mobile operators could be done for comparison purposes.

REFERENCES

Bechhofer, F., & Paterson, L. (2000). *Principles of Research Design in the Social Sciences.* London: Routledge

Bezzina, J. (2005). *Interconnection Challenges in a Converging Environment: Policy Implications for African Telecommunications Regulators.* World Bank Global Information and Communication Technologies Department. Washington DC: The World Bank.

Bhavnani, A., Chiu, R. W.-W., Janakiram, S., & Silarszky, P. (2008). *The Role of Mobile Phones in Suistainable Rural Poverty Reduction.* World Bank Global Information and Communication Technologies Department. Washington DC: The World Bank.

Bimber, B. (1998). *Three faces of technological determinism. The Dilemma of Technological Determinism*, pages 79-100. MIT Press, Cambridge, MA.

Bryman, A. (2001). *Social Research Methods.* New York : Oxford University Press.

CGAP (2008). *CGAP Brief: Why Has M-PESA become so Popular.* Washington D.C.CGAP

Common Markest for Eastern and Southern Africa. (2009). *Report of the 5th Meeting of the Technical Committee on Information Technology.* Victoria Mahe: COMESA.

Cresswell, J. W. (1998). *Qualitative Inquiry and Research Design: Choosing among Five Traditions.* Thousand Oaks, CA: Sage,

Cooper, P.S., & Schindler, D.R., (2000). Business Research Methods, 7ed. New York, McGraw-Hill.

Dervin, B. & Nilan, M. (1986). Information needs and uses. *Annual review of information science and technology*, **21**, 3-33.

DeSanctis, G. and Poole, M. S. (1994). *Capturing the complexity in advanced technology use: adaptive structuration theory.* Organization Science, 5(2):121-147.

Donner, J. (2004). Microentrepreneurs and Mobiles: *An Explorationof the Uses of the Mobile Phones by Small Business Owners in Rwanda:* Information Technologies and International Development 2 (1): 1-21.

Dymond, A. (2004). *Telecommunications Challenges in Developing Countries: Asymmetric Interconnection Charges for Rural Areas.* Washington DC: The World Bank

ECA, (2005). *4th Meeting of the Committee on Development Information (COD IV).* Ethiopia: United Nations Economic and Social Council.

ECOWAS (2007). *31st Session of the Authority of Heads of State and Government.* Ouagadougou, Burkina Faso

FinAccess, (2009). *Results of a National Survey on Access to Financial Services in Kenya.* (see www.fsdkenya.org/finaccess).

FinAccess, (2007). *Results of a National Survey on Access to Financial Services in Kenya.* (See www.fsdkenya.org/finaccess).

Frempong, G. (2009). *Mobile Telephone Opportunities: The Case of Micro and Small Enterprises in Ghana.* Info- The Journal of Policy, Regulation and Strategy for Telecommunications 11 (2):79-94.

Gichoya, D. (2005). *Factors Affecting the Successful Implementation of ICT Projects in Government.* Lougborough University, UK: Research School of Informatics.

Giddens, A. (2006). Sociology 5ed. Cambridge: Polity

Gikunju, W. (2009, September 14). *Dependency rises with collapse of Rural Economy.* Business Daily

Global ICT Department (2004). Impact Assessment: ECTEL States; *OECS/Telecommunications Liberalization Programme.* Washington DC: The World Bank.

Global ICT Department (2005). *Financing Information and Communication Infrastructure Needs in the Developing World: Public and Private Roles.* Washington DC: The World Bank.

Global ICT Department (2006). *Best practice options for the implementation of European Structural Funds for the stimulation of demand for electronic communications services in Lithuania.* Washington DC: The World Bank.

Global ICT Department (2007). *Assessment of Best Practice Options for Demand Stimulation of Electronic Communications Service in Rural Ukraine.* Washington DC: The World Bank.

Government of the Republic of Kenya (2007). *A Globally competitive and Prosperous Kenya: Kenya Vision 2030.* Ministry of Planning and National Development. Nairobi: GoK Printer.

Government of the Republic of Kenya (2009). *Budget Speech for the Fiscal Year 2009/2010.* Nairobi: GoK Printer.

Government of the Republic of Kenya (2010). *Central Bank of Kenya Monthly Economic Review.* Nairobi: Central Bank of Kenya

Government of the Republic of Kenya (2006). *Central Bank of Kenya Supervision Annual Report.* Nairobi: Central Bank of Kenya

Government of the Republic of Kenya (2009). *Communications Statistics Report 2nd Quarter 2008-2009.* Nairobi: CCK.

Government of the Republic of Kenya (2001). *District Commissioner's Office, Mwingi.* Nairobi: GoK Printer

Government of the Republic of Kenya (2002). *Mwingi District Development Plan 2002-2008.* Nairobi: GoK Printer.

Government of the Republic of Kenya (2010). *Mwingi District Statistics Office,* Mwingi.

Government of the Republic of Kenya (2002). *National Development Plan, 2002-2008. Economic Survey.* Central Bureau of Statistics, Ministry of Planning and National Development. Nairobi: GoK Printer.

Government of the Republic of Kenya (2006). *National ICT Policy.* Ministry of Information and Communications. Nairobi: GoK Printer.

Government of the Republic of Kenya (2005). *Universal Access Report: Universal Access Strategic Plan and Implementation Guidelines.* Nairobi: CCK.

Government of the Republic of Kenya (2008). Well being in Kenya: *A socio-economic Profile.* Nairobi: GoK Printer.

Hammersley, M. & Atkinson, P. (1995). *Ethnography: Principles in Practice.* 2nd ed. London Routledge

Ingwersen, P. (1996). *Cognitive perspectives of information retrieval interaction. Elements of a cognitive IR theory.* Journal of Documentation, **52**, 3-50.

Kibiwott, K. (2009, July 21). *Expect More Calls from the Village.* Daily Nation Newspaper. p8

Kock, N. (2005). Media Richness or Media Naturalness? *The Evolution of our Biological Communication Apparatus and its Influence on our Behaviour Toward E-Communication Tools.* IEEE Transactions on Professional Communication, 48(2), 117-130.

Manuel, C. (1996). *The Rise of the Network Society. Vol. 1, The Information Age: Economy Society and Culture*. Malden, MA: Blackwell Publishing Ltd.

Markus, M. L., & Robey, D. (1988). Information Technology and Organisational Change: *Causal Structure in Theory and Research.* Management Science, 34(5), 583-598.

McKenzie, D. J. (2007). *Youth, ICTs and Development.* Global Information and Communication Technologies Department. Washington DC: The World Bank.

Meso, P., Musa, P. & Mbarika, V. (2005). *Towards a model of consumer use of mobile information and communication technology in LDCs: the case of sub-Saharan Africa.* United Kingdom: Blackwell Publishing Ltd.

Morawczysnki, O., (2009). Exploring the Usage and Impact of 'Transformational' Mobile Financial Services: *The Case of M-PESA in Kenya.* Journal of Eastern African Studies 3 (3):509-525.

Mustafa, M., Laidlaw, B., & Brand, M (1997). *Telecommunications Policies for Sub-Saharan Africa.* Washington DC: The World Bank.

Navas-Sabater, J. (2005). *Access and Output-Based Aid in Telecommunications and ICT.* World Bank Global Information and Communication Technologies Department. Washington DC: The World Bank.

Neto, I., Niang, C. & Ampah, M. (2005). *Fostering Pro-Competition Regional Connectivity in Sub-Saharan Africa.* World Bank Global Information and Communication Technologies Department. Washington DC: The World Bank.

Organisation of Eastern Carribean States (2004). *Telecommunications Liberalisation Programme.* Washington DC: The World Bank

Orlikowski, W.J. (1992). *The duality of technology: Rethinking the concept of technology in organizations*. Organization Science, 3(3):398-427.

Patton, M. Q. (2001). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Porter, M. (1998). Competitive Strategy: *Techniques for Analyzing Industries and Competitors.* New York: Free Press.

Quah, D. (2003), "Digital Goods and the New Economy", chapter 13 in: Derek Jones (ed.), *New Economy Handbook*, Academic Press / Elsevier, San Diego, pp. 289-321.

Safaricom Limited. (n.d.). *About Us: Our Heritage.* http://www.safaricom.co.ke/index.php?id=30

Safaricom. (2009). *Information Memorandum.* Nairobi: Safaricom.

Safaricom Limited. (2008). *Prospectus in respect of an Offer for Sale by the Government of Kenya.* Nairobi: Safaricom Limited.

Safaricom Limited. (2009). *Safaricom Annual Report & Accounts.* Nairobi: Safricom Limited.

Safaricom Group. (2010, May 25). *Safaricom Limited Audited Results for the Period Ended 31st March 2010.* Nairobi, Kenya.

Safaricom Limited. (2009). *The Option Magazine. (September - November).* Safaricom Limited.

Schware. (2006). *Cyber Security: A New Model for Protecting the Network.* World Bank Global Information and Communication Technologies Department. Washington DC: The World Bank.

Short, J,. Williams, E., & Christie, B. (1976). The Social Psychology of Telecommunications, London: John Wiley & Sons, Ltd.

Singh, R., & Siddhartha, R. (2008). *Convergence in ICT Services: Emerging Regulatory Responses to Multiple Play.* World Bank Global Information and Communication Technologies Department. Washington DC: The World Bank.

Singh, R., & Siddhartha, R. (2008). *Nothing endures but change: Thinking strategically about ICT convergence.* World Bank Global Information and Communication Technologies Department. Washington DC: The World Bank.

Souter, D., Scott, N., Garforth, C., Jain, R., Mascararenhas, O., & McKemey, K., (2007). The Economic Impact of Telecommunications on Rural Livelihoods and Poverty Reduction: *A Study of Rural Communities in India (Gujarat), Mozambique and Tanzania.* Commonwealth Telecommunications Ogranisations for UK.

Stern, P. A., & Townsend, D. N. (2007). *New Models for Universal Access.* Bogota: Ochoa Impresores Ltd.

Waburi, N. (2009) The Contribution of mobile phones to the Kenyan Economy: *Paper prepared for Market and Social Research Association.*

Waverman, L., Meschi, M., & Fuss, M. (2005). *The Impact of Telecommunications on Economic Growth in Developing Countries.* London Business School, Canada.

Wellenius, B. (2002). *Closing the Gap in Access to Rural Telecommunications: Chile 1995 - 2002.* Washington DC: The World Bank.

APPENDICES

Appendix 1: Key Informant Interview Guide for Safaricom Employees (M-PESA department) in Nairobi an

1. Number of M-PESA outlets in Migwani rural centre
2. Accessibility of M-PESA outlets to majority of the consumers.
3. Success of M-PESA outlets
4. Other types of activities your organisation is engaged in other than providing the directly-related services.
   a) Health
   b) Education
   c) Food Security Services
   d) Others (Please Specify)
5. Familiarity with the major needs of the community and how this need was established.
6. How well the community needs have been met by the organisation.
7. Changes the community has undergone as a result of the organisation's interventions
8. Benefits that M-PESA has brought to both the community and the organisation
9. How the organisation ensures that quality of service is maintained.
10. Other organisations that this organisation partners with within the area to achieve development.
11. How beneficiaries are involved in the organisation's activities.
12. Challenges encountered in your organisation. Coping mechanisms and lessons learned.
13. Measures put in place to ensure the sustainability of the organisation and its programmes.
14. The impact of the introduction of M-PESA services to banks in Migwani rural centre

3: Observation Guide

Location Details: Village, sub-location
1. Time M-PESA outlets open and close
2. Information material on M-PESA put up in the M-PESA outlets.
3. Time when most transactions take place
4. Distribution of M-PESA outlets and the convenience of the outlets.
5. Description of other services in the M-PESA outlets e.g. charging phones, selling airtime etc.
6. Determine why M-PESA agent provides additional services in No. 5 above.

4: Questionnaire for Consumers

This questionnaire is targeted at M-PESA users in Migwani location. Its objective is to determine the impact of M-PESA services to community development in rural Kenya. The researcher is a Master of Arts Sociology student at the University of Nairobi.

(Please tick✓ one box only where applicable)

SECTION A: PERSONAL INFORMATION:

Name..... **(Optional)** Gender: Male ☐ Female ☐

Occupation .....

Marital Status

Single ☐

Married ☐

Divorced ☐

Separated ☐

Level of Education:

Primary ☐

Secondary ☐

Tertiary (Please Specify e.g. College, University etc) .....

Age:

Under 20 ☐

20-29 ☐

30-39 ☐

40-49 ☐

50 and over ☐

Income:

below Ksh. 10,000 ☐

Ksh. 10,000-20,000 ☐

Ksh. 20,000-30,000 ☐

above Ksh. 30,000 ☐

SECTION B:

1. Which of the following statements best describes why you use M-PESA?

   I don't have a bank account ☐
   M-PESA is comparatively cheaper than my bank account ☐
   M-PESA is more convenient ☐
   Other (please specify) .....

2. a) How frequently do you use M-PESA?

   Daily ☐
   Weekly ☐
   Monthly ☐
   Occasionally ☐

   b) In a month how many times do you use M-PESA to; *(state number in the boxes)*

   Withdraw ☐
   Deposit ☐
   Transfer money to other people ☐

3. If you have a bank account what is the number of transactions per month in terms of; *(state number in the boxes);*

   Withdrawals ☐
   Deposits ☐
   Money transfers to other people ☐

4. Which money transaction service were you using before the introduction of M-PESA?

   Banks ☐
   Cooperative Society ☐
   Other (Please Specify).....

5. a) Has M-PESA improved your money saving habits?

   Yes ☐ No ☐

   b) If YES, how much do you save in a month as compared to your previous savings?

   .....

c) Do you save in terms of;

TIME ☐

TRANSACTION FEES ☐

TRANSPORT ☐

OTHER (Please Specify) .....

6. a) Has M-PESA sped up some of your tasks?

Yes ☐ No ☐

b) If YES, Please list down some of the tasks in 6(a) above.

.....

.....

.....

.....

c) How were you carrying out these tasks before the introduction of M-PESA?

.....

.....

.....

.....

7. a) Do you use M-PESA to pay utilities such as electricity and Water?

Yes ☐ No ☐

b) Please state your reasons for your answer in 7(a) above.

.....

.....

.....

c) How were you making payments for these utilities before the introduction of M-PESA?

.....

.....

.....

.....

8. a) Have you used M-PESA to:

Pay school fees ☐

Pay salaries ☐

Pay for an emergency ☐

Conduct a business transaction (Please specify).....

b) How were you making payments for 8(a) above before the introduction of M-PESA?

.....

.....

.....

9. a) Are you more confident with:

Walking with mobile money ☐

Having money in your bank account ☐

b) Please explain the reason for your answer in 9(a) above.

.....

.....

.....

10. What other benefits have you gained from the introduction of M-PESA?

.....

.....

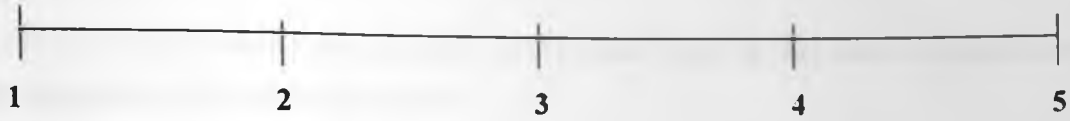
.....

.....

.....

SECTION C:

Use the scale below to indicate the importance of the M-PESA service in determining your choice:



(1 = Strongly Disagree; 2 = Disagree; 3 = Indifferent; 4 = Agree; 5 = Strongly Agree)

	Question	1	2	3	4	5
1	I am confident in the safety of the M-PESA system					
2	M-PESA is a reliable mode of money transfer					
3	M-PESA is a cost efficient money transfer system					
4	M-PESA agents have sound knowledge of the service					
5	M-PESA is accessible all the time					
6	I use M-PESA because it is fast					
7	I prefer using M-PESA because I can operate the sytem on my own					

.....

SECTION D

11. (a) Have you experienced any situation in the recent past that has caused dissatisfaction with the quality of M-PESA services?

Yes ☐ No ☐

(b) If YES, please give details for your answer in 13(a) above.

.....

.....

.....

.....

12. a) Have you experienced any social challenges that you believe has been caused by the introduction of M-PESA?

Yes ☐ No ☐

b) If YES, please state the social challenges that you have faced.

.....

.....

.....

.....

13. a) Do you read information at M-PESA outlets?

Yes ☐ No ☐

b) If YES, what was the information about?

.....

.....

.....

c) If NO, please state you reasons.

.....

.....

.....

14. On a scale of 1 to 10, how would you evaluate the overall quality of M-PESA services?

☐

15. How likely are you to recommend M-PESA to anyone who would want to use it?

Definitely would recommend it ☐

Probably would recommend it ☐

Might or might not recommend it ☐

Probably would not recommend it ☐

Definitely would not recommend it ☐

16. If you could make a recommendation to the management of M-PESA, what would you seek to change?

.....

.....

.....

Thank you very much for your cooperation. The researcher greatly appreciates your help in furthering the objectives of the research.

5. Researchers' Schedules

Researcher 1

	Saturday	Sunday	Monday	Tuesday	Wednesday
8 to 9	0	0	1	1	
9 to 10	2	0	2	1	
10 to 11	1	1	0	0	1
11 to 12	1	1	1	1	0
12 to 1	2	0	1	2	1
1 to 2	1	0	2	1	0
2 to 3	2	1	0	1	
3 to 4	1	2	1	0	
4 to 5	1	0	1	1	
5 to 6	2	0	2	1	
No.of Respondents	**13**	**5**	**11**	**9**	**2**
Total Respondents	**75**				

Key

Outlet 1
Outlet 2
Outlet 3
Outlet 4
Outlet 5

Researcher 2

	Saturday	Sunday	Monday	Tuesday	Wednesday
8 to 9	1	0	0	2	
9 to 10	1	0	1	1	
10 to 11	0	1	2	0	0
11 to 12	2	1	0	0	1
12 to 1	1	0	1	1	0
1 to 2	1	0	2	1	1
2 to 3	0	1	1	1	
3 to 4	1	0	0	0	
4 to 5	2	1	1	1	
5 to 6	1	0	2	2	
	10	**4**	**10**	**9**	**2**