

**A SURVEY TO DETERMINE THE PRODUCT CHARACTERISTICS THAT
INFLUENCED THE RAPID ADOPTION OF M-PESA IN KENYA**

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D61/75263/2009

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**A MANAGEMENT RESEARCH PROPOSAL SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS OF DEGREE OF MASTER OF
BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF
NAIROBI.**

NOVEMBER 2012

DECLARATION

The research proposal is my original work and has not been presented for a degree to any other university

Signature 

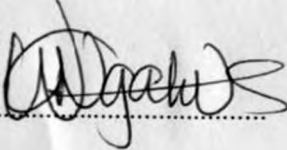
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DEDICATION

This project is dedicated to my wife Christabel and son Keith for coming to my life at this crucial point in my career and the Mdingi's family who have been my motivation and rock.

ACKNOWLEDGEMENT

First and foremost, I wish to thank the Almighty God for the gift of life, the strength to go through each day at a time and for this achievement he has given me. My indebted gratitude goes to my Supervisor Ms. Catherine Ngahu for her guidance, patience and advice throughout the project. My wife Christabel and son Keith, my dad Wilstone Mdingi my late mum Ednah who was pillar and made a great contribution to who I am today, mum Milkah for her support, brothers Oscar, Pristone, Joseph, Harrison, Graham and my only sister Alexiah thanks for their support and sacrifice made during this time, and to my friends who were really understanding when I was not available to meet them as I did my course work.

ABSTRACT

M-PESA is a mobile money transfer service in Kenya offered by a mobile telephony service provider known as Safaricom. Since its inception M-PESA had realized vast growth both usage and popularity across the country. This was in resonance with the spread of mobile phones in money transfer across the developing world as one of the most remarkable technology stories of the past decade. There was also little or no research that had been done focusing on the product characteristics that had led to the adoption of M-PESA. This study objective was therefore to identify what product characteristics led to the rapid adoption of M-PESA in Kenya.

The purpose of the proposed study was to provide valid and credible data on product characteristics that led to the rapid adoption of M-PESA in Kenya. The findings would enable developing countries in emerging markets, development partners, policymakers and even regulators grasp the dynamic economic system and characteristics that had led to high adoption of money transfer technology in Kenya. The study results would also help regulators as they came up with legislation to ensure that customers as well as mobile operators are protected from any risks associated with the service.

To achieve the intended results, I used primary data collection since we had more than fifteen million customers using M-PESA at the time of my data collection. The target population was the customers who used and those who operated M-PESA (the agents). The population of the study was from Nairobi Kenya as a result of budgetary and time constraints. The study used a sample size of one hundred respondents who were selected using purposive sampling. Primary data collection was done using questionnaire and data analysis was done using descriptive statistics.

The respondents were drawn from different demographics touching on gender, education level, and age among others. The study found that indeed M-PESA had been wide spread in the country. The most distinctive factors were that it had relative advantage in terms of simplicity, innovations, safety, and communication both from and to the service among others. The study also revealed various challenges faced by M-PESA despite its breakthrough which were highlighted as areas of improvements. The most notable ones were: - The service provider was challenged to provide stability in their system and the networks in general, curb fraudsters, faster resolution of customer queries, doubling of the transaction limits among others as detailed in the study.

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LIST OF ABBREVIATIONS

AML	Anti money Laundering
CBK	Central Bank of Kenya
CFT	Combating Financial Terrorism
DFID	Department of International Development
FSD	Financial Sector Deepening
GDP	Gross Domestic Product
HELB	Higher education's loans board
MMT	Mobile Money Transfer service
MNO	Mobile Network Operators
P2M	Person to Merchant
P2P	Person to Person
PC	Product Characteristics
PVR	Personal Recording Video
SIM	Subscriber Identification Module
STK	Sim Tool Kit
UK	United Kingdom
USSD	Unstructured Supplementary Service Data
WAP	Wireless Application Protocol
WIMAX	Worldwide Interoperability for Microwave Access a wireless communications standard

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Product characteristics might seem almost vacuous, contributing almost nothing to the study of the design problem however; this is according to Salustri (2004). Salustri (2004), uses a PC to explain the error in design that designers make, as the impact of one or more PCs in their work. It is human nature: a designer will tend to focus on issues that are of particular importance to him, and expect someone else to take care of other issues. Sometimes, some issues will "fall through the cracks" resulting in a poor design. Therefore, determining and cataloguing the product characteristics early in a design process will help the designers to be mindful of the various issues and the interplay between them so that they can design products and services that will be adopted by consumers. Roger (1995) in his study defined the characteristics as relative advantage, compatibility, complexity, trialability and observability.

The spread of mobile phones in money transfer across the developing world was one of the most remarkable technology stories of the past decade. It had been established that, millions of people sent and received money electronically every day and this industry was growing at a sound rate. Mbiti (2009) asserted that mobile telephony brought new possibilities to the African continent, across urban-rural and rich-poor divides; mobile phones connect individuals to individuals, information, markets, and services. Morawczynski and Pickens (2009) in the conclusion of their doctoral research mentioned that among all other types of online payments, online money remittance played a special role, as such services allow senders to wire money to their family and friends quickly and securely from the comfort of their home or workplace and enable receivers to get their money within the shortest time possible. This quality of online and mobile money remittance systems became especially important in situations where access to money transfer offices was limited due to distance, transportation problems or other negative factors. Omwansa (2009) mentioned that money remittance systems are also easier to use than other electronic payment solutions, which is a strong incentive for people that are not experienced enough to use modern online payment systems and electronic money. That is exactly why lots of people prefer

hassle-free direct remittance to having to deal with accounts, exchanges, online transaction and other intrinsic attributes of online payment systems.

Scholarly research on the adoption and socio-economic impacts of m-banking/m-payments systems in the developing world was scarce (Maurer, 2008- Retail electronic systems). Even less attention had been paid to the social, economic, and cultural contexts surrounding the use of these systems. Jonathan and Camilo (2008) stated that the money transfer systems offer a variety of financial functions, including micropayments to merchants, bill-payments to utilities, person to person transfers between individuals, and long-distance remittances. At the time of this study, different institutional and business models delivered these systems. Some offered entirely by banks, others entirely by telecommunications providers and still others involved a partnership between a bank and a telecommunications provider (Porteous, 2006). Regulatory factors, which varied dramatically from country to country, played a strong role in determining which services could be delivered via which institutional arrangements (Mortimer Schutts, 2007). This was a great chance to increase customer base by offering them an option to transfer money from their homes and even mobile phones instead of visiting your office, which appeared inconvenient in a number of situations. One will provide money transfer services and charge a commission on each transaction – and you don't need to create the infrastructure, the software platform, the legal documents or anything else! If you like this idea and would like to try it, secure remittance is the right foundation for a new business or an additional revenue driver for your company.

Jonathan and Camilo (2008) observed that current economic trend had resulted into various initiatives which utilized mobile phones to provide financial services to 'the unbanked population.' These services took a variety of forms (including long-distance remittances, micropayments, and informal airtime bartering schemes), and merry go round, to some extent insurance remittances (daily insurance cover). They varied from mobile banking, mobile transfers, and mobile payments. Taken together, they are no longer merely pilots; in the Philippines, South Africa, Kenya, and elsewhere, these services are broadly available and increasingly popular.

1.1.1 New Product Adoption

According to Blackwell, Miniard and Engel (2006) new product adoption is a result of a decision process. What makes the decision process for new products different from other products lies on

the emphasis of communication within the social structure rather than individual information processing. The authors affirm that, the most widely adopted model for understanding the process of adoption is Everret Rogers model, which includes knowledge, persuasion, decision, implementation and confirmation. Where knowledge stage begins when a customer receives physical or social stimuli that give exposure and attention to the new product and how it works; persuasion involves the formation of favorable or unfavorable attitudes towards innovation and the decision stage involves a choice between adopting and rejecting innovation.

1.1.2 Product characteristics that influence Adoption

Solomon, Bamossy, Askegaard and Hogg (2006) identified five major characteristics associated with successful new products. These were: compatibility, in that the product should be compatible with customers lifestyles; Triability since an unknown is accompanied by a high perceived risk, people are more likely to adopt an innovation if they can experiment with it prior to making a commitment; complexity, the product should be low in complexity. A product that is easier to understand and use will often be preferred to a competitor. This strategy requires less effort from the consumer and also lowers the perceived risk; Observability, an innovation that is observable is more likely to spread since this quality makes it more likely that the potential adopters will become aware of its existence; Relative advantage, the product or service should offer relative advantage over alternatives. The consumer must believe that its use will provide a benefit other products cannot offer.

1.1.3 Safaricom M-PESA's Product

Safaricom is a public owned company listed on the Nairobi Stock Exchange and trades on the telecommunications and technology segment. It is one of the leading integrated communications companies in Africa with over 17 million subscribers and provides a comprehensive range of services under one roof: mobile and fixed voice and data services on a variety of platforms. It has heavy investments in broadband capacity giving her a foothold in undersea cable, satellite, metro and trunk cable connectivity. It also has the widest 3G network and the most expansive WIMAX presence in Kenya. The company is currently testing the Long Term Evolution (LTE) 4G technology.

Safaricom pioneered commercial mobile money transfer globally through M-PESA, the most successful such service anywhere in the world. M-PESA was developed and deployed by Vodafone UK, in partnership with Safaricom, the leading mobile phone operator in Kenya. It has been live for over four years now and at last count (April 2011, Safaricom –M-PESA Statistics) M-PESA had more than 14 million registered customers transferring well over US\$2 million a day between themselves and over 27,000 agent outlets. It is important to note that M-PESA features are SIM card based not phone based. According to Gunnar, Emil (2009) The product works on all phones with or without WAP as it uses only one channel ; the Sim tool kit (STK), similar to zap and iko pesa and Tangaza, unlike others like Yucash which has four channels of transaction; (SIM tool kit) STK, USSD, WAP and admin console.

M-PESA (“M” for mobile and “PESA” for money in Swahili) is an electronic payment and store of value system that is accessible through mobile phones. Megan, Sherri and Geetha (2010) defined M-PESA as an innovative agent-assisted, mobile phone-based person-to- person payment and money transfer system. M-PESA literally means “mobile money”; *PESA* is the Swahili word for money or cash. M-PESA has been marketed as a quick, easy and safe way to transfer small amounts of money from one person to another. Users can store money on their mobile phones in an electronic account and can deposit or withdraw money in the form of hard currency at one of M-PESA’s numerous agent locations. They can also send and receive money from other users and in some cases can pay bills (e.g., electric) directly to a participating company through M-PESA’s pay bill function. What is referred to as person to person (p2p) money transfer and person to merchant (p2m) purchase of goods and other services from merchants and outlets like Uchumi and Nakumatt supermarkets, has also been established. There is use in loan repayment – Higher Education Loans Board remittances (HELB), bank loans with highest use amongst SME’s. Salary Payments, insurance companies collecting premiums from their customers and payment of dividends to shareholders in some companies like Safaricom.

Other developments include the April 2011 partnership with Western Union, M-PESA’s 14.2 million subscribers can now receive international money transfers from 45 countries and territories worldwide, making the partnership the largest deal of its kind in the world. M-PESA customers have over 28,000 points of contact (agents) to transact from.

Aker and Mbiti (2010) mentioned that although M-PESA has been touted as “banking the unbanked”, on average, M-PESA users are wealthier, better educated, urban and “already banked”. This study is deemed necessary to establish the driving force of M-PESA success. M-PESA and other m-money systems have recently transitioned from a pure money transfer system into a payment platform that allows non-governmental organizations, schools, hospitals and firms to send and receive payments.

Aker and Mbiti (2010) pointed out that the story of the growth of mobile telephones in Africa is one of a tectonic and unexpected change in communications technology. From virtually unconnected in the 1990's, over 60 percent of Africans now have mobile phone coverage, and there are now over ten times as many mobile phones as landline phones in use.

Even with the story of mobile phones' growth as a background, the growth of M-PESA is startling. Within eight months of its inception in March 2007, over 1.1 million Kenyans had registered to use M-PESA, and over US\$87 million had been transferred over the system (Safaricom, 2007). By September 2009, over 8.5 million Kenyans had registered to use the service and US\$3.7 billion (equivalent to 10 percent of Kenya's GDP) had been transferred over the system since inception (Safaricom, 2009). This explosive growth was also mirrored in the growth of M-PESA agents (or service locations), which grew to over 18,000 locations by April 2010, from a base of approximately 450 in mid-2007 (Safaricom, 2009 and Vaughan, 2007). By contrast, Kenya has only 491 bank branches, 500 Postbank branches, and 352 ATMs (Mas and Ng'weno, 2009). While the mobile telephone is within sight of becoming a mature business, e-money services like M-PESA are still in their early days and are continually evolving in response to competitive pressures and customer needs. Despite all the attention M-PESA has received, there is little quantitative evidence on what led to its adoption by users.

Suri and Jack (2011) in their study indicate that the explosive growth of M-PESA has inevitably inspired a great deal of discussion about what the system really is and what it could grow to be. Is it simply a low-cost money transfer system competing with (or replacing) modalities such as cheques and Western Union? Is it a nascent form of electronic money that will someday largely displace cash? Can it be used as a savings account? Is it a means by which financial services can

be provided to the unbanked? They go further to say in their report that three out of four M-PESA users indicate that they use it to save money

1.2 Research problem

Studies on MMT fell between two main mobile technologies related research areas namely mobile payment and mobile banking. Whereas literature on the adoption of mobile banking (Cheng et al, 2006; Chen, 2008) and mobile payment (Fang et al, 2005; Wang et al, 2006) and the more broader scope of m-commerce (Dai and Palvia, 2008; et al, 2006) although not quite exhaustive had enjoyed significant attention of many scholars in recent times, research on mobile money was at its formative stages with a few UK non-governmental organization department of International development (DFID) reports dominating (Jenkins, 2008; Porteous, 2006; Hughes, 2007) recent research. However, scholarly research on the new phenomenon of bringing financial services to the unbanked (Mobile Money) was generally said to be scarce (Maurer, 2008). There was, therefore, the need to understand users' acceptance of mobile Money and to identify the factors affecting their intentions to use mobile Money. This information could assist mobile Network operators (MNOs) and service providers of mobile Money systems in creating services that consumers can utilize, or help them discover why potential users avoided using the existing system. (Economist print Edition on Telecoms Sept 24th 2009 Edition, The power of mobile money)

Mobile phones compensate for inadequate infrastructure, such as bad roads and slow postal services, allowing information to move more freely, making markets more efficient and unleashing entrepreneurship. All this has a direct impact on economic growth: an extra ten phones per 100 people in a typical developing country boosts GDP growth by 0.8 percentage points, according to the World Bank. More than 4 billion handsets are now in use worldwide, three-quarters of them in the developing world. Even in Africa, four in ten people now have a mobile phone. With such phones now so commonplace, a new opportunity beckons: mobile money, which allows cash to travel as quickly as a text message. By far, the most successful example of mobile money transfer service is M-PESA in Kenya (Economist print, 2009).

Various channels were available in Kenya for the transfer of remittances between urban and rural areas. This included commercial banks, post offices, forex bureaus, bus companies, and friends and family. Even with these numerous channels market research argued that there were 'service

gaps, inefficiencies and unmet demand' in the remittance market, especially among the low-income segment of the population (Kabbucho et al., 2003). To address this unmet demand, Safaricom Kenya's largest mobile service introduced an m-banking application called M-PESA (Vaughan, 2007). Launched in March of 2007, this application allowed for the real-time transfers of e-money via the mobile phone and is being rapidly adopted for urban-to-rural remittances.

According to Financial Sector Deepening (FSD) research (2008), Kenyans used the M-PESA service to transfer money safely and efficiently. Examples include: paying field staff their allowances and expenses so they don't need to travel to Nairobi, sending a long haul truck driver money for spare parts, a taxi driver requesting customers to use M-PESA rather than cash so he doesn't have to worry about the risk of theft, a customer depositing cash before making a journey to pick it up at his destination again avoiding the risk of theft. The new service appeared to meet the needs of many customers and as a result it is becoming very popular.

Jack and Suri (2008) made it clear that this is trend world over for the product and service innovations, which were often first used by the better off. The speed, at which the service had reached ordinary Kenyans, and their apparent high valuation of it, was unprecedented. Given the remarkable outreach and use of M-PESA, many policymakers and donors were interested in supporting similar initiatives that could help produce a more inclusive and efficient financial sector that provides a broad range of financial services. Before advocating the relatively new system for other areas, donors and policymakers needed to clearly understand the reason why M-PESA was adopted easily. The biggest challenge however, lay in the fact that there existed limited scholarly research papers on the parameters that significantly led to this massive adoption:

In Kenya, though many studies had been done about M-PESA, Akaar and Mbiti (2009) did a study that focused on adoption of mobile phones and its effects on economic development, FSD (2010) focused on community effects of M-PESA, Mbugua (2010) also did a study that focused on economic effects of M-PESA as a mobile money transfer. There was little or no research that has been done that has focused on the product characteristics that have led to adoption of M-PESA.

This study thus sought to fill that gap by exploring and examining Product characteristics that have influenced adoption of M-PESA in Nairobi, Kenya.

The proposed study sought to answer the following research question:-

- i) What product characteristics led to the rapid adoption of mobile money transfer (M-PESA) in Kenya?

1.3 Objective of the Study

This study explored the following objective:

- i) Identify what product characteristics led to the adoption of M-PESA in Kenya

1.4 Value of the Study

The proposed study on the adoption of M-PESA by users was of integral importance to business researchers, policy makers (CBK), the government and other stakeholders interested in the mobile phone industry. The study findings added to available literature on the uptake of adoption of new products in developing countries and further discuss the impact of mobile phone adoption to financial inclusion. It offered practical skills that can be adopted by emerging markets. The study provided insights to mobile operators on how to leverage on various product characteristics to position their brands and drive product usage.

Further, given the remarkable outreach and use of M-PESA, many policymakers and donors were interested in supporting similar initiatives that could help produce a more inclusive and efficient financial sector that provided a broad range of financial services.

The purpose of the proposed study was to provide valid and credible data on product characteristics and adoption of M-PESA in Kenya. The findings would enable development partners and policymakers grasp the dynamic economic system and characteristics that had led to high adoption of M-PESA in everyday transactions.

The study results would also help regulators as they came up with legislation to ensure that customers as well as mobile operators are protected from any risks.

CHAPTER TWO

LITERATURE REVIEW

2.1. Product Characteristics

Salustri(2004) describes product characteristic (PC) as an attributes or properties of the product that describes the product's ability to satisfy its purpose in a larger system. Consider the sentence "The car must be light, safe, and fuel-efficient." Here, three PC's are given for the product's weight, safety, and efficiency. PC's describe what a product ought to be, but not what the product ought to do.

Salustri (2004) further states that at first glance, product characteristics might seem almost vacuous, contributing almost nothing to the study of the design problem. However, this is not really the case. A common source of error in design is that the designers will forget to consider the impact of one or more PCs in their work. It is human nature: a designer will tend to focus on issues that are of particular importance to him, and expect someone else to take care of other issues. Sometimes, some issues will "fall through the cracks" resulting in a poor design. Therefore, determining and cataloguing the product characteristics early in a design process will help the designers to be mindful of the various issues and the interplay between them so that they can design products and services that will be adopted by consumers.

Rogers (1962) introduced five main dimensions that influenced the adoption of an innovation, namely, complexity, compatibility, observability, trialability, and relative advantage. Rogers and Shoemaker (1971) further discussed these five dimensions which formed the foundation of subsequent studies on adoption of new innovations. Ostlund (1974) built on this research by adding a sixth dimension, the perceived risk of adoption. Perceived risk and risk attitudes were further discussed in various literature. For instance, Rogers (1995) indicated that early adopters tend to be less risk averse than late adopters, hence providing an association between risk attitudes and adoption of innovation. Smith and Andrews (1995) explained that when the perceived risk of the innovation increased, it would have a negative impact on the evaluation of the product; this further correlated risk with the adoption of innovation.

Roger (1995) in his study defined the characteristics as follows: *Relative Advantage*: the degree to which the innovation is perceived as being better than the practice it supersedes; *Compatibility*: the extent to which adopting the innovation is capable of existing together in harmony with the people to use it; *Complexity*: the degree to which an innovation is perceived as relatively difficult to understand and use; *Trialability*: the degree to which an innovation may be experimented with on a limited basis before making an adoption (or rejection) decision; and *Observability*: the degree to which the results of an innovation are visible to others .

2.1.1 Relative Advantage

Relative advantage is sometimes called competitive advantage. According to Kevin Jones (2006) relative advantage is the degree to which an innovation is perceived superior to existing products. In order to succeed, an innovation has to be perceived as offering advantages relative to existing comparable products or services. For example, it has more chance of selling if it is cheaper to make and buy, does the job better or does something previously not possible, offers more features, is easier to use, or is reliable and safe.

Open learn University (2011) in the statement "How do we get adoption for anything?" brings out two Key parts: First, It must be seen as better. Better how? More efficient? More cost effective? More quick? Less of a hassle? Less obtrusive? A good example is how the steady reduction in size and increase in efficiency of the electric motor encouraged the development of a range of labour-saving domestic appliances with rapid growth in the UK in the 1960s and 70s. Devices such as washing machines, vacuum cleaners and food mixers at first offered an obvious advantage to users in reducing the effort involved in carrying out domestic chores and they diffused widely. Each new generation of machines offered an advantage over the previous generation.

Notice that 'better' may be monetary or social or ego or convenience or what is better for your organization and culture? Secondly is the perception, whether 'better' is truly better & can be quantified or not doesn't matter (at least not for adoption). What do *they* perceive is better – the old solution or the new one? The old way of thinking or the new one

2.1.2 Compatibility

Kotler and Keller (2006) defined compatibility as the degree to which an innovation matches the values and experiences of the individuals and he went ahead and gave an example of PVRs (Personal Recording Videos) as being compatible with avid television watchers.

Sarina ,Rushami and Fariza (2010) in their study stated that Absorptive capacity and technological compatibility are among the many elements that facilitate the transference of technology. However, studies that discussed absorptive capacity overlooked most elements that have been suggested to comprise the construct. In addition, they say studies on technology transfer have also not integrated both the firm's capacity to absorb the technology and the appropriateness of the technology, even though both are seen as important to ensure the success of technology transfer

2.1.3 Complexity

In general usage, complexity tends to be used to characterize something with many parts in intricate arrangement. According to Kotler and Keller (2006), In terms of technology it refers to the degree to which an innovation is perceived as relatively difficult to understand and use. Rogers (1995) says that complexity is a major hindrance to adoption in that if a product or service is hard to understand, it will take longer or even not be adopted by the target market.

Teece (1977) found that the cost due to technology transmission can range from about 20%-80% of a project costs depending on the technological complexity. Complexity also determines how easy to market a more or less technological complex product. The level of complexity therefore determines the rate at which an innovation is adopted by consumers.

2.1.4 Trialability

This is the degree to which an innovation may be experimented with on a limited basis before making an adoption (or rejection) decision. The technology adoption lifecycle model describes the adoption or acceptance of a new product or innovation, according to the demographic and psychological characteristics of defined adopter groups. Blackwell, Miniard and Engel (2006) in their study state that the process of adoption over time is typically illustrated as a classical normal distribution or "bell curve." The model indicates that the first group of people to use a new product

is called "innovators," followed by "early adopters." Next come the early and late majority, and the last group to eventually adopt a product are called "laggards." They go further to state that adopters are people who are willing to put to trial the service or technology and as many others "watch them try, they begin to gain confidence.

2.1.5 Communicability/Observability

Rogers (1995) defines communicability as the degree to which the results of an innovation are visible to other or are capable of being easily communicated or transmitted. The communicability of an innovation is presumed to be positively related to adoption and implementation of an innovation. The notion of communicability is very similar and obviously related to that of observability which refers to the extent to which the results of the innovation are visible to others.

Kotler (2006) says that when a product has clear visible benefits over another, it triggers curiosity and consumers tend to try it out. Essentially, this trial helps the customers improve their estimate value of that product and can lead to adoption.

David and Nigel (2009) observed that rapid and accurate movement of information through organizations and even to the public is essential in implementation. Both vertical and horizontal communications are needed in linking together the people and activities involved in implementation .They go further to say that communication objectives help determine how the promotion strategy components are used in the marketing program for any new service or product. Some of these communication objectives they identified include; Need recognition which gears the communication in such a way that it triggers the need to use the service or product you want to offer. Finding Buyers-In this approach the message is designed to get the prospective buyer to respond. In brand building the communication is designed to aid the buyers search for information and in the process that aids buyers learn about the product/service. Evaluation of alternatives-Both comparative advertising and personal selling are effective ways of demonstrating brand's strength over competing brands. The communication is thus designed to get buyers to evaluate brands. The communication is designed to influence the buyer's decision to purchase a brand. Customer retention-This is communication to buyers after they purchase a product. This focuses on issues like the firms service capabilities, information or any other post purchase communication. This is a key element in communication in the service industries.

2.2. Technology and Innovation

Technology is the making, usage, and knowledge of tools, machines, techniques, crafts, systems or methods of organization in order to solve a problem or perform a specific function.

Innovation is the creation of better or more effective products, processes, technologies, or ideas that are accepted by markets, governments, and society. Innovation differs from invention or renovation in being a substantial positive change rather than a modest incremental change.

Nick Hughes and Suzie Lonie (2007) mentioned Safaricom as the leading mobile operator in Kenya, its success has mainly been innovation based. Since it was started in 2003, it has led other mobile operators in innovating new products and value added services. This has seen it being the first telecom to launch money transfer in Kenya. In March 2007, Kenya's largest mobile network operator, Safaricom (part of the Vodafone Group) launched M-PESA, an innovative payment service for the unbanked. "Pesa" is the Swahili word for cash; the "M" is for mobile. Within the first month Safaricom had registered over 20,000 M-PESA customers, well ahead of the targeted business plan. This rapid take-up is a clear sign that M-PESA fills a gap in the market. The product concept is very simple: an M-PESA customer can use his or her mobile phone to move money quickly, securely, and across great distances, directly to another mobile phone user. The customer does not need to have a bank account, but registers with Safaricom for an M-PESA account. Customers turn cash into e-money at Safaricom dealers, and then follow simple instructions on their phones to make payments through their M-PESA accounts; the system provides money transfers as banks do in the developed world. The account is very secure, PIN-protected, and supported with a 24/7 service provided by Safaricom and Vodafone Group

2.3. Risk and Uncertainty

Kotler (2006) mentions risk and uncertainty as some of the product characteristics that influence adoption. Waceke (2010) expounded that mobile money transfer has led to safe storage and transfer of money making it a reliable means of money transfer in most developing countries.

FSD (2008) in their study of mobile payments in Kenya, stated the following as potential risks that can arise in the operation of these sort of payment system;

Credit risk: The risk that one party to a financial transaction will not receive what they are owed when they are due it. What is the financial strength of the operators?

Operational risk: Potential risks from inadequate or failed internal processes. Are the communications systems robust? What is the risk of retail agent fraud?

Liquidity risk: The risk that agents do not have sufficient cash to meet customers' demands when due and or anytime thereafter?

E-money risks: The risk that customers would not be able to convert digital cash balance into cash owing to insufficient liquidity to back the aggregate e-money in circulation by the service provider

Reputational risk: The risk that customers will shun usage of the system (lose confidence in the system) as a result of liquidity risk, credit risk and operational risk. E.g. when retail agents underperform or are robbed, the public image of the service provider and the service may be undermined.

Inadequate consumer protection: The risk that customers would lose confidence in the system due to inadequate information control, poor pricing, poor complaint procedures and weak dispute resolution procedures.

Anti-money laundering and combating financing of terrorism (AML/CFT): The risk that agents make payments without sufficient customer due diligence. This is also the risk that the level of compliance to AML requirements is inadequately provided by the internal procedures?

Legal risks: The risk that customers would lose value owing to lacking or weak legal framework to underpin mobile phone based payment systems and/or transactions.

All these characteristics influence the way, in which consumers adopt the payment system, unless the consumer feels they are protected from the potential risks, they can shy from trying out innovations.

2.4. M-PESA Profile

Safaricom Company launched M-PESA in Kenya in March 2007, since then, the company has become the most famous and probably the most successful implementation of mobile money service to date. In May 2008, 14 months after the launch, M-PESA, Kenya had 2.7 million users and almost 3,000 agents. To date, over three years since its inception, M-PESA has gained 13 million registered customers and has over 23,000 agents spread across the country. Currently over 22 million people use phones, this exceeds the reach of all financial services combined in Kenya.

(Finaccess survey 2009). The survey further showed that M-PESA has become the most popular method of money transfer in Kenya with 40% of all adults using the service. The same Kenyan survey also shows a dramatic increase in national remittances; from 17% in 2006 to 52% in 2009, which may be attributed to the ease of money transfer through ubiquitous M-PESA agents hence creating many job opportunities and enhancing the economic development of the country. Judging from the surveys, it is evident that M-PESA has succeeded to impress and attract its customer's. The literature herein highlights various characteristics as stated by various authors and scholars that would give a product or service an added advantage in a market where there is stiff competition.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Methodology

This chapter highlights the research methodologies which were used for this study. Further, this section justified the methods and processes that were used in order to collect data on the product characteristics that have led to high adoption of M-PESA by users in Nairobi Kenya. This chapter was presented under the following sections namely: the selected research design, target population, sampling procedures, methods of data collection, procedures of data collection, and data analysis.

3.2 Population of the Study

Joan Castilo (2009) defined Target population as the entire group of individuals or objects to which researchers are interested in generalizing their conclusions. The researcher focused only on customers situated in the Nairobi Central Business area. This was as a result of budgetary and time constraints as well as the researchers own convenience.

3.3 Sample

A sample size of 100 respondents was selected using purposive sampling technique. According to Maholtra (1996) sample size is the number of units to be included in a study; this represented the true findings of an entire population. Moore and Maccabe (2005) describes convenient sampling (accidental sampling) as a type of non-probability sampling which involves the sample being drawn from that part of the population which is close to hand. Hence, the population was selected because it was readily available and convenient .This was an ideal method of sampling for this study since majority of the population were users of the product in question.

The research had an equal representation of both male and female respondents who had subscribed to M-PESA Services. The entire 100 respondents was selected within Nairobi central business area, and targeted offices and small business holders and interviewed within a period of two weeks and thereafter analysis conducted.

3.4 Data collection

The researcher used a questionnaire containing both open ended and close ended questions to collect primary data. The study used questionnaires which were clear and to the point to effectively direct the respondents to respond to questions accordingly to suit the purpose of this study which was to state the reasons for their adoption of M-PESA MMT Service.

The questionnaire was divided into sections; A, B and C. Section A contained general information of the respondent, section B, enquired on the respondent's best characteristics that triggered adoption, and section C enquired on the potential improvements that should be put into consideration by the Service provider.

Further the Likert scale was used to collect data because it is reliable and easy to use and is evaluated through the severity and occurrence evaluated on the basis of its highs and lows. The questionnaire was administered by the researcher and research assistant in order to generate immediate responses, reduced the risk of lost questionnaire, and guide the respondents who might otherwise have had low education background to understand the questionnaire and fill through correctly. The data collection was done from Monday to Saturday and took a period of six days to complete.

3.5 Data analysis method

The filled questionnaires were analyzed in reference to the research questions and objective of this study. Analysis was done using descriptive statistics. Mugenda (2008) stated that these involve mean which measures central tendency, standard deviation which measures dispersion, frequencies and percentages.

Data was then presented using tables and graphs for easy interpretation and understanding. Ngechu (2006) states that diagrammatic presentations like frequency diagrams of findings, pie charts, graphs provides an attractive and easy presentation of data and are useful in comparison while at the same time being simple to understand.

CHAPTER FOUR

DATA ANALYSIS INTERPRETATION PRESENTATION

4.1 Introduction

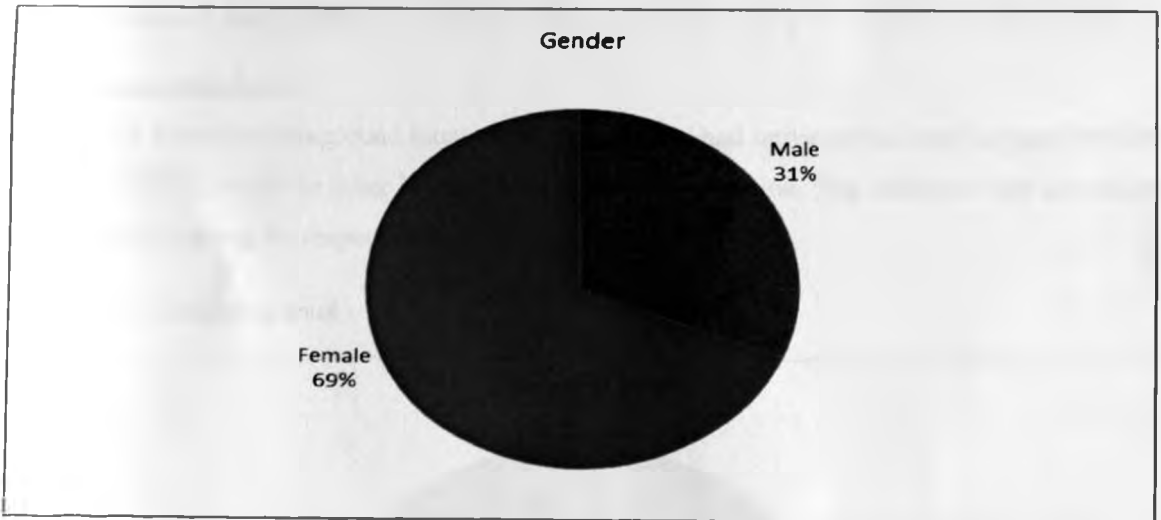
This chapter presents the findings from the research, the interpretation of the data in tables, charts and detailed discussions. The presentation and interpretation was in line with the study's objective.

4.2 General Information

4.2.1 Gender

The female gender formed the highest number of respondents since they composed of 69% of the total respondents. Male gender followed distantly with 31% as shown in the figure below.

Figure 4.1: Gender

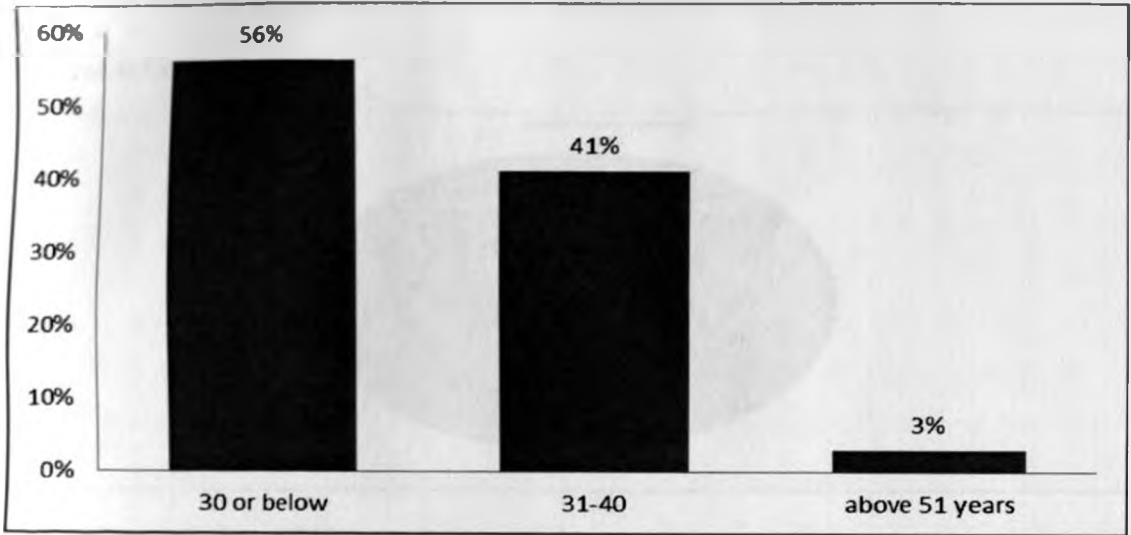


Source: Research data, (2012)

4.2.2 Age

Figure 2 below shows how the respondents had different age distributions. 56% were in the age of 30 and below. Those who were of the age between 31 and 40 years comprised of 41% of the respondents. Respondents who were of the age above 50 years were not many as they comprised of 3% of the total number.

Figure 4.2: Age

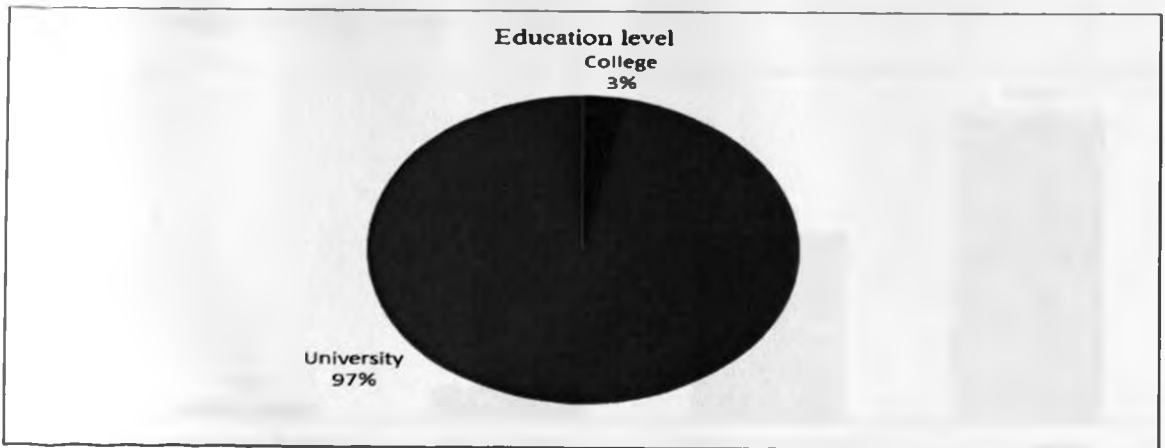


Source: Research data, (2012)

4.2.3 Education Level

In terms of education background most of the respondents had university as their highest level of education (97%), while the other 3% had college level of education. This indicated that there high literacy levels among the respondents. See figure 3 below.

Figure 4.3: Education level



Source: Research data, (2012)

4.2.4 Employment

Most of the respondents were employed 97% while the other virtually small proportion made their livelihoods from self-employment. This was as shown in figure 4.

Figure4.4: Employment

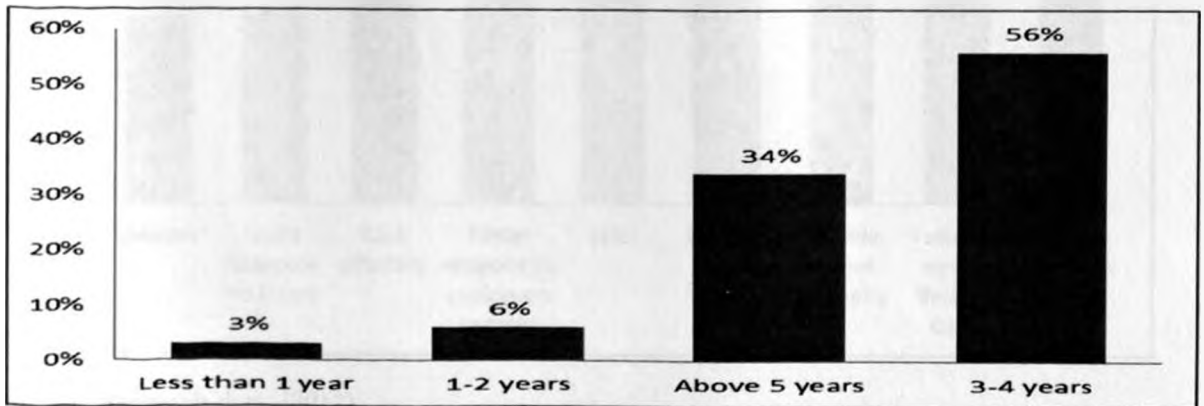


Source: Research data, (2012)

4.2.5 Length of MPESA Usage

Since the inception of MMT service in the country most of the respondents had gained experience in its usage. A 56% of them said that they had used it for between three to four years while 34% of the respondents had used the MMT services for over five years. Those who had used it for between none and two years comprised of 6% while those who had used it for less than one year comprised of 3% the total respondents. See figure 5.

Figure 4.5: Length of MPESA usage



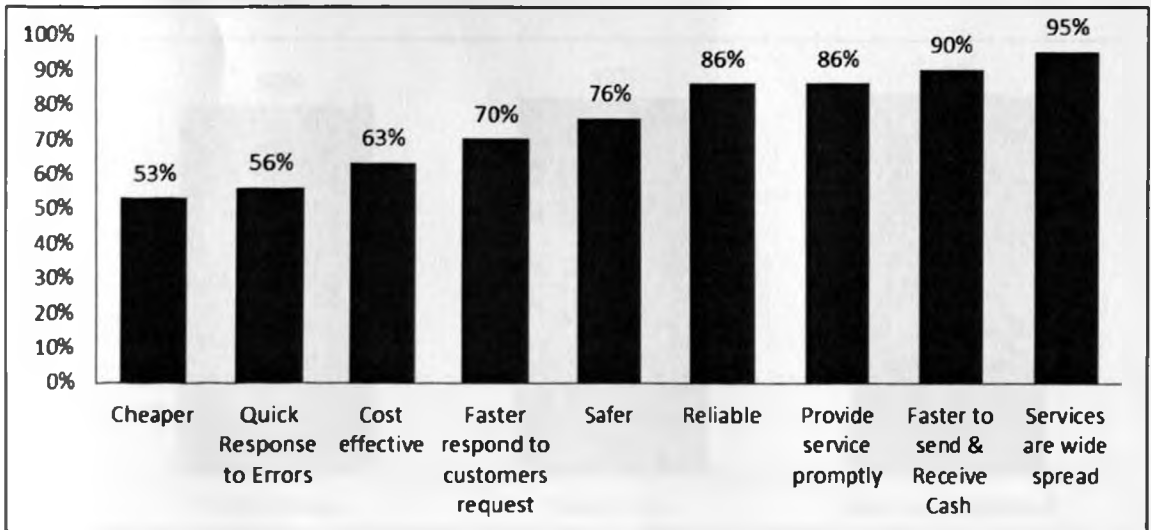
Source: Research data, (2012)

4.3 Important Attributes

4.3.1 Relative advantage

The Safaricom mobile money transfer service MPESA had what respondents perceived as relative advantage over the other modes of money transfer services. As shown in figure 6 and table 2, MPESA as a product had various competitive advantage factors that influenced its rapid adoption. Just as its mother brand mobile network Safaricom, the MMT services were wide spread (95%) and was within the reach of different customers within Nairobi CBD. MPESA was also basically fast in sending and receiving cash (90%). The mobile money transfer service has had high levels of reliability and promptness of the service both with a score of 86%. The mobile money transfer service was equally thought to be safer by 76% of the respondents as the others had noted that that it was faster to respond to customers requests (70%). The M-PESA service was also deemed to be cost effective (63%). However some factors such as MPESA being cheaper and quick to respond to customer queries were given a low rating of 53% and 56% respectively. It was also worth noting that the overall MPESA's relative advantage over the other modes of money transfer rating was 3.75 in a likert scale of five. This translated to 75% worth of rating which was relatively commendable.

Figure 4.6: Relative advantage



Source: Research data, (2012)

Table 4.1: Relative advantage

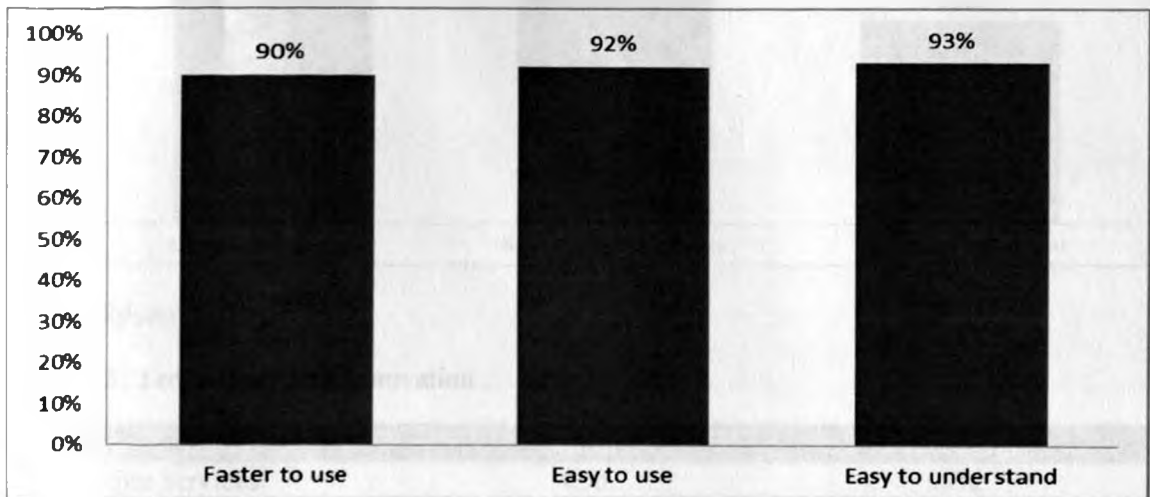
Attribute	Mean	Percentage
Cheaper	2.65	53%
Quick Response to Errors	2.78	56%
Cost effective	3.16	63%
Faster respond to customers request	3.52	70%
Safer	3.81	76%
Reliable	4.31	86%
Provide service promptly	4.31	86%
Faster to send & Receive Cash	4.50	90%
Services are wide spread	4.74	95%
Average	3.75	75%

Source: Research data, (2012)

4.3.2 Complexity

Complexity was not viewed to be a hindrance to the adoption of M-PESA. The respondents thought it was basically easy to use, easy to understand and faster to use with scores of 92%, 90% and 93% respectively. This is as depicted in both the figure 7 and the table 3 below.

Figure 4.7: Complexity



Source: Research data, (2012)

Table 4.2: Complexity

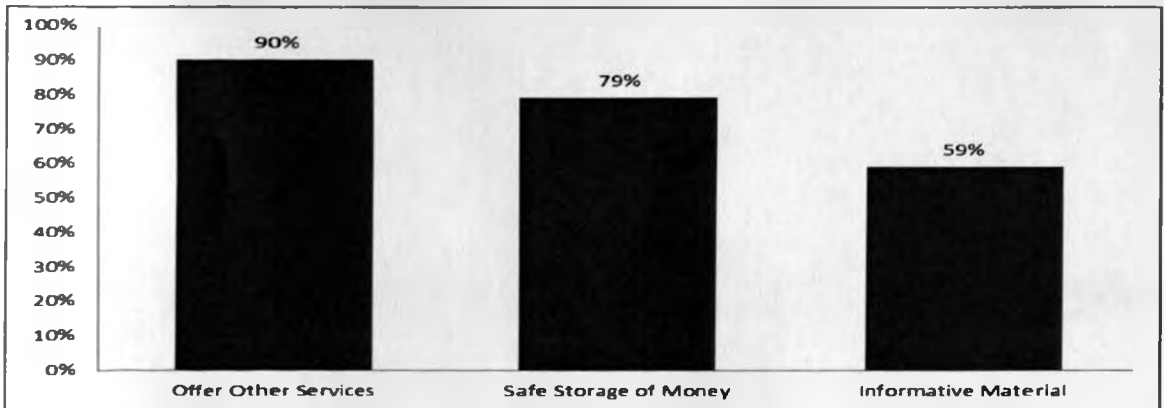
Attribute	Mean	Percentage
Easy to use	4.56	92%
Easy to understand	4.50	90%
Faster to use	4.66	93%
Average	4.57	92%

Source: Research data, (2012)

4.3.3 Technology and Innovation

In terms of technology and innovation MPESA offered other customers with other functionalities such as buying airtime, buying goods, data purchase and paying bills alongside the money transfer. This attribute had the highest score of 90%. In the same course respondents thought that electronic money in an MPESA account was a safe way to store money, this accounted for (79%). 59% of the population thought that M-PESA had informative material to help customers understand the service better. However many respondents noted that basically there were more areas to explore to in terms of technology and innovation.

Figure 4.8: Technology and Innovation



Source: Research data, (2012)

Table 4.3: Technology and Innovation

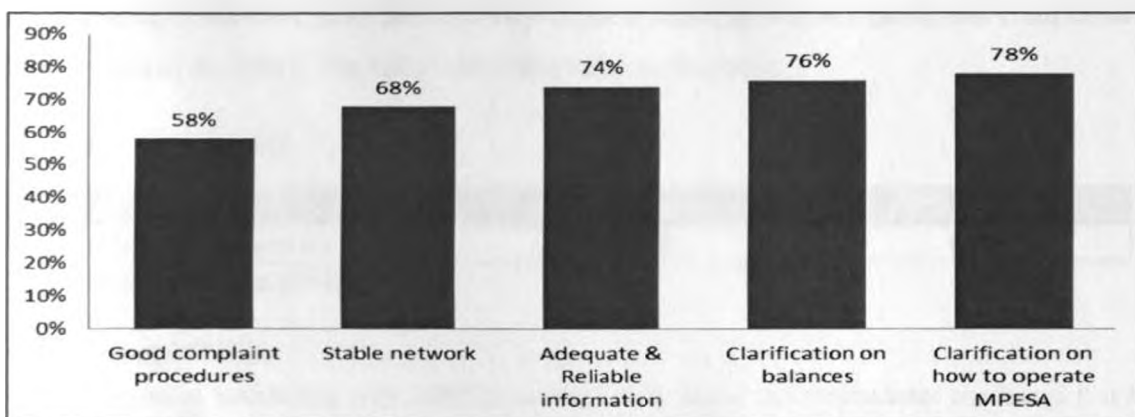
Attribute	Mean	Percentage
Offer Other Services	4.50	90%
Safe Storage of Money	3.94	79%
Informative Material	2.94	59%
Average	3.79	76%

Source: Research data, (2012)

4.3.4 Communication

MPESA communication factors were as highly rated as other factors as shown in the figure below. It was perceived to have relatively good complaint procedures with a (58%) rating. The MMT was operated on a stable network as attested to by some 68% of the respondents. However MPESA was given an accolade for providing adequate and reliable information (74%) good communication in clarification of balances (76%) as well as excellent communication on how to operate the MMT (78%).

Figure 4.9: Communication



Source: Research data, (2012)

Table 4.4: Communication

Attribute	Mean	Percentage
Clarification on balances	3.88	76%
Clarification on how to operate MPESA	3.91	78%
Adequate & Reliable information	3.72	74%
Good complaint procedures	2.88	58%
Stable network	3.41	68%
Average	3.56	71%

Source: Research data, (2012)

4.3.5 Communicability

In relevance to the communicability as a whole MPESA was thought to perform exemplarily well as compared to other modes of money transfer. Actually the ability of the service to be easily

understood had a rating of 4.48 in Likert scale of five. This was an equivalent of 90% satisfaction as depicted by the respondents. This was as shown in the table below.

Table 4.5: Communicability

Attribute	Mean	Percentage
Understanding MPESA	4.48	90%

Source: Research data, (2012)

4.3.6 Trial ability

All the interviewees who participated in the study had tried various functions in the MPESA menu. The scrolling of MPESA menu had only 68% of them attesting to it as a factor that contributed to the adoption of the MMT. The table below demonstrates the score.

Table 4.6: Trial ability

Attribute	Mean	Percentage
Trial of MPESA functions	3.38	68%

Source: Research data, (2012)

4.3.7 Compatibility

In the process of interacting with MPESA on their daily basis, the respondents confessed that the service had become a part of their lives. Though not fully but up to 85%, it emerged that the daily interaction with the service's had become a part of their lives.

Table 4.7: Compatibility

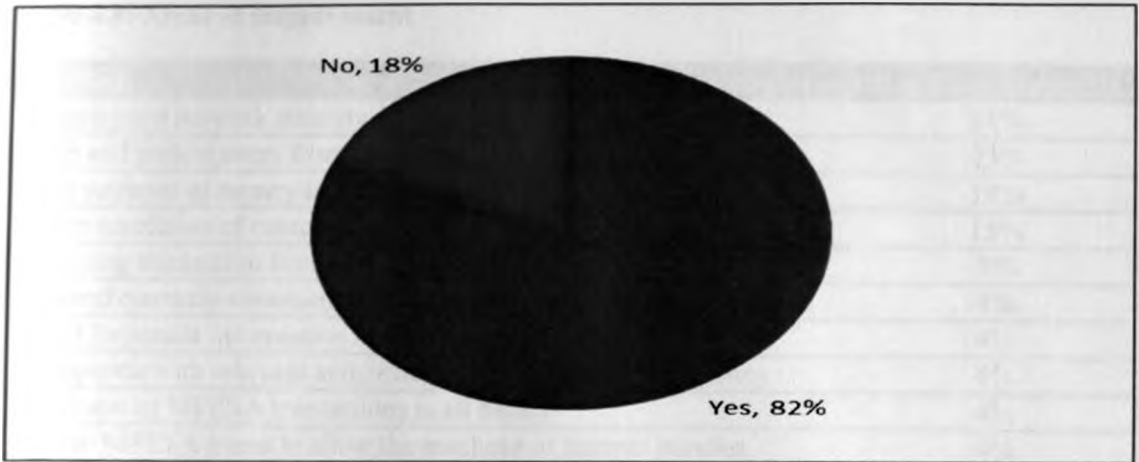
Attribute	Mean	Percentage
MPESA becoming part of life	4.26	85%

Source: Research data, (2012)

4.4 Areas of Improvement

This focused on those areas that MPESA needs to make improvements. An 82% of the respondents highlighted some of the areas that the service was supposed to improve. This was as shown in figure 10 below.

Figure 4.10: Areas of Improvement



Source: Research data, (2012)

4.4.1 Areas of improvement

As highlighted in table 9. The respondents suggested areas in which they thought the MMT service could improve. Safaricom was faced with the challenge of improving the network and ensuring proper network stability (31%). Safaricom needed to curb the high rates of fraudulent transactions and also protect the MMT users from individuals with such intentions (23%). In most cases there were difficulties in retrieving money lost through erroneous transactions; respondents thus challenged the service provider to come up with ways of simplifying the lengthy and difficult procedure of reversing such transactions (19%). The respondents lamented that queries forwarded to Safaricom in relation to MMT took a relatively longer amount of time to resolve (15%). The operator was challenged by respondents to come up with a better procedure of resolving such issues. Other highlighted areas to improve on were:- doubling transaction limits (8%), sending quarterly transaction statements (4%), availing important information in all agents outlets (4%), cooperating with relevant authorities to return stolen money, adding more options to the service's menu (4%), addressing most of the issues at the dealers outlets (4%), registering more and more MPESA outlets (4%), customers being allowed to purchase Google applications (4%), moving the service to online(4%) and reviewing MPESA charges to become more user friendly (4%)

Table 4.8: Areas of improvement

Attribute	Percentage
Ensure good network stability	31%
Curb and protect users from fraudsters	23%
Easy retrieval of money in wrong transactions	19%
Faster resolution of customer queries	15%
Doubling transaction limits	8%
To send quarterly statements of transaction via phones upon request	4%
Avail important information in agents outlets	4%
Co-operate with relevant authorities to return fraud stolen money	4%
Provision of MPESA transactions in all banks	4%
Add to MPESA menu to allow the purchase of internet bundles	4%
Address issues of float at dealers outlet	4%
Register more MPESA agents	4%
Customers should be allowed to purchase Google applications	4%
Enable online MPESA transactions	4%
Review MPESA charges to be consumer friendly	4%

Source: Research data, (2012)

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the findings of the study in a summarized state, deriving conclusions from the findings and further suggesting recommendations on the way forward. It also gives suggestions for further research.

5.2 Summary of Findings

The main objective of the study was to identify those characteristics that led to rapid adoption of mobile money transfer service (M-PESA) in Kenya. The study revealed that there were various factors that the users of this service were looking for in the service delivery. The respondents were drawn from a cross section of population profile that looked into aspects like gender, education level, employment, and how long they had used the service.

M-PESA exhibited relative advantage over other modes of money transfer service in that it was cheap, safe, reliable and fast in service delivery among other factors. M-PESA was not basically complex though it had many functionalities. This made it easy to understand and use. The service is attributed to innovativeness of Safaricom company in that, it enabled users to transfer money at the comfort of their sits using their mobile phones, the service gave the agents/dealers an opportunity to do other businesses alongside with M-PESA. Customers also viewed the money transfer service as a safe way to store money instead of carrying it around.

There was good communication from and to MPESA system. Most of the communication was basically on clarification of operations and balances. The good communication was facilitated by the wide Safaricom network. The respondents also mentioned the fact that there was adequate and reliable information as well as good complaint procedures.

The study also found that it was easy to use and scroll through the MPESA menu and that the functionalities in there were simple and easy to use. With the profound ease of operation and communication, accompanied innovations, simplicity as its advantageous aspects over other modes of money transfer, the mobile money transfer service became a part of its user's lives.

There were also areas of improvements that were highlighted from the study. The service provider, needed to ensure stability of the M-PESA system as well as come up with ways of curbing fraudsters and ensuring easy retrieval of money sent erroneously to unintended recipients. Faster resolution of customer queries, doubling transaction limits as well sending statements upon request among others discussed in the previous chapter.

5.3 Conclusion

From the results of the study, there were a number of conclusions that were drawn. The study affirmed that the mobile money transfer service MPESA was growing faster in terms of usage, popularity and spread. The spread was drawn across all demographics and psychographics including, gender, age, and education level and employment status of its users.

The rapid spread of MPESA was found to spread across the country and was attributed to a number of factors as depicted in the study. It was fast, secure and a very safe way to send and receive money was also cost effective in that its charges were comparatively cheap compared to the older ways of sending money. Many business owners found it as a good business venture since it allowed them to operate the service as an add on to their already existing businesses.

In the process of interacting with the service many users found it to be user friendly and hence easy to transfer the knowledge to their loved ones for ease of sending them money home, this transferability made it easy for the service to reach many people even in remote places of the country.

Despite the mobile money transfer service seeming to do well, it had its fair share of challenges which were indicated as areas of improvement. For the service to function exemplarily well the service provider was challenged to ensure stability of the M-PESA system, there was emphasis for the service provider to curb and protect the MPESA users from fraudsters. Customers observed

delayed retrieval of money from wrong and unintended transactions, and demanded a fast resolution to their constant queries. The transaction limits were noted to be rather small hence the service provider was advised to double it.

5.4 Recommendations

MPESA had widely grown in terms of usage popularity and spread. However the service provider Safaricom was challenged continue in enhancing the measures that realized the growth usage, popularity and spread. This was because though the growth rate was widespread it had not reached its optimum there is therefore room for more growth.

There was a need to review the money transfers service's system reliability and safety of customer cash sent erroneously. The service provider needs to adopt measures that would enhance the stability of the M-PESA system and avoid downtimes that inconvenience millions of users. With stiff competition from other mobile operators offering money transfer services, Safaricom will need to further review their tariff charges downwards.

Simplicity was an important aspect of MPESA that the money transfer service provider needs to uphold. The company will need to make it easy for those who want to do the M-PESA business. Communication both from and to the service was a milestone to maintain as realised from the study and Safaricom needs to work on the MPESA support team to make the turnaround of customer queries more fast.

The M-PESA users have had bad experiences with fraudsters and many have lost money to them and also through sending money to unintended people. The service provider needs to come up with ways of reducing the cases of fraud and a simplified procedure of reversing erroneous transactions so that customers cannot lose more money.

I would recommend further studies on why M-PESA customers have stuck on Safaricom network regardless of the fact that it is not the cheapest mobile money transfer service provider.

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APPENDICES

APPENDIX 1: LETTER OF INTRODUCTION

Philbert Julai Mdingi
University of Nairobi,
School of Business Studies
P.O Box 30197,
Nairobi.

Dear sir/Madam,

I am a postgraduate student in the school of business studies, University of Nairobi currently undertaking a research project on "Product characteristics that have led to adoption of Mobile money services in Kenya.

I therefore request you to participate as one of the respondent's .The information and data collected will be exclusively for academic purposes and will be treated with strict confidence.

Your cooperation will be highly appreciated, while thanking you in Advance,

Yours faithfully,

Philbert Julai Mdingi

MBA Student, University of Nairobi

Catherine Ngahu

Supervisor, University of Nairobi

APPENDIX 2: QUESTIONNAIRE

Section A: General Information

Respondent's name _____ (optional)

Telephone number _____ (optional)

This information in the questionnaire will be treated confidentially and will not be used for any purpose other than academic. The questions have been set in relation to the study.

1. Please answer the following questions (tick appropriately)

2. Gender: Male [] Female []

3. Please indicate your age bracket

30 or below [] 31 -40 [] 41-50 [] above 51 years []

4. Indicate your level of education

Primary [] Secondary [] College [] University []

5. Profession

Unemployed [] Self employed [] Employed []

6. How long have you used M-PESA?

Less than 1 year 1- 2 years

3 - 4 years above 5years

7. To what extent did the following aspects contribute to your adoption of the M-PESA services on a scale of 1-5 where; 5 = Very large extent, 4= Large extent, 3= To some extent, 2= A small extent 1=To no extent at all

Aspects	To no extent at all 1	A small extent 2	To some extent 3	Large extent 4	Very large extent 5
Relative advantage					
Cheaper					
Safer					
Reliable					
Provide service promptly					
Faster respond to customers request					
Cost effective					
Faster to send & receive cash					
Quick response to errors					
Services are widespread					
Complexity					
Easy to use					
Easy to understand					

Faster to use					
Technology & Innovation					
Offer other services, like buying airtime, pay bills					
Safe Storage of money					
Informative material					
Communication					
Clarification on balances					
Clarification on how to operate M-PESA					
Adequate & reliable information					
Good complaint procedures					
Stable network					
Communicability					
Did you understand M-PESA					
Trialability					
Have you tried all M-PESA functions(in the Menu)					
Compatibility					

Has M-PESA become part of your life?					
Others: 1. _____ — 2. _____ — 3. _____ _____					

SECTION C

11. Do you see any aspects of M-PESA that Safaricom should improve on?

Yes ()

No ()

12. If the answer in question above is Yes, indicate what you would like Safaricom M-PESA, to improve

on. _____

