THE ROLE OF MOBILE TELEPHONY ON CREATING COMPETITIVE ADVANTAGE IN THE INFORMAL SECTOR BUSINESSES IN KENYA. A SURVEY OF MUTHURWA OPEN MARKET.

REUBEN KIMANI MWAURA

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KENYATTA UNIVERSITY

Mwaura, Reuben Kimani
The role of mobile telephony on creating

MAY, 2012
DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the Kenyatta University in Nairobi for academic credit.

Signed: ____________________________ Date: 04/05/2012

Reuben Kimani Mwaura

This project has been presented for examination with our approval as the appointed supervisors.

Signed: ____________________________ Date: 09/06/2012

Mr Eliud Obere

Signed: ____________________________ Date: 08/05/2012

Mr Isaac Mungai

Signed: ____________________________ Date: 10/05/2012

Mr Shadrack Bett
Chairman Business Administration
DEDICATION

To my family, my dear wife Wawira, my daughters, Njoki and Mumbi. Their love, support and understanding has made it possible for me to reach this stage of my studies.

To my dear mother Njoki and late father Mwaura, for having brought me up with great love, care and support for my education.
ACKNOWLEDGEMENT

I credit my achievements to the help of our Almighty God and I thank Him for the opportunity I have had to study up to this stage.

I also thank Kenyatta University management for providing a conducive environment for my studies. It is in this environment that I have met supervisors, staffs and colleagues who have made a remarkable impact on my academic life.

I also thank my employer, the management of Ministry of Finance for their understanding and the permission they have given me to attend my classes.
ABSTRACT

The purpose of this study was to examine the role of mobile phones on creating competitive advantage in the informal sector businesses in Kenya. The study employed a descriptive research design to explore the impact of mobile phones on the growth and survival of informal sectors business in Kenya. In particular, the current study searched to answer the question "What is the role of mobile phones on creating competitive advantage by the informal sector businesses in Kenya?"

The study also sought to determine whether the use of mobile phones reduces the costs of operation, increase sales, improve business growth and meet customers' needs.

The scope of the study was limited to the informal sector businesses within Nairobi county particularly Muthurwa open market.

The population of interest consisted of all the operators at Muthurwa open-market. The target population composed of 1200 operators. From the sampling frame, 150 respondents from the various categories were be involved. The respondents were selected using stratified random sampling. The population was stratified on the basis of category of informal sector business operated.

The data collection method for this research was a questionnaire. A draft questionnaire was presented to ten respondents from two informal business categories after which it was redesigned based on the feedback. The questionnaire was administered through drop and pick method. A interview was administered to respondents who would not read and write.

The collected data was edited, coded and tabulated then entered into a personal computer for analysis using the statistical packages, SPSS and Microsoft Excel.

The collected data was the analyzed based on the objective of the study. A systematic presentation of both quantitative and qualitative was done using graphs and pie charts. Challenges facing informal sector businesses were identified and how the use of mobile phones have tried to solve the identified challenges.

From the analysis of the data collected, the researcher summarizes the various findings from the study on how mobile telephony had impacted on the informal sector businesses. The researcher further suggest in depth study to be carried out on how the use of mobile telephony can enhance survival of informal sector businesses in a dynamic competitive environment.
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Definition of Terms

**Competitive advantage** - refers to the advantage one firm has over its rivals in a given market, strategic group or industry.

**Informal sector** – defined the informal sector as being characterized by ease of entry, reliance on indigenous resources, family ownership of enterprises, small scale of operation, labour-intensive, using adapted technology, skills acquired outside the formal school system, unregulated and competitive markets.

**Gross Domestic Product** - is the total market value of all spending plus the final goods and services, value of exports produced in a country in a given year, equal to total consumer, investment and government minus the value of imports.

**Poverty** – is the state of one who lacks a certain amount of material possessions or money.

**Information Communication Technology** - consists all technical means used to handle information and aid communication including computer and network hardware as well as necessary software.

**m-pesa** - m-for money, pesa is Swahili word for money. Is the product name of a mobile-phone based money transfer service for Safaricom. It is a branchless banking service, meaning that it is designed to enable users to complete basic banking transactions without the need to visit a bank branch.

**Short Messaging Services** - is the text communication service component of phone web or mobile communication systems using standardized communication protocols that allow the exchange of short text messages between fixed line or mobile phone devices.

**e-government** - refer to the utilization of IT, ICT and other web based telecommunication technology to improve and/ or enhance on the efficiency and effectiveness of service delivery in the public sector. It also includes employment of the internet and the world-wide-web for delivering government information and services to the citizens.

**Strategy** - refers to a game plan for getting or achieving goals.

**Competitors** – refers to firms that satisfy the same customer needs.

**Transactions** – is a trade of various values between two or more parties.

**Mobile Telephony** – is the provision of telephone services to phones which may move around freely rather than fixed in one location.
# Abbreviation and Acronyms

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<tr>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>CCK</td>
<td>Communication Commission of Kenya</td>
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<td>ERP</td>
<td>Enterprise Resource Planning</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GPS</td>
<td>Global Positioning Systems</td>
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<td>ICT</td>
<td>Information Communication Technology</td>
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<td>ITU</td>
<td>International Telecommunication Union</td>
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<td>KBS</td>
<td>Kenya Bus Services</td>
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<td>LAN</td>
<td>Local Area Network</td>
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<td>M-Pesa</td>
<td>M stand for Mobile Pesa-Money</td>
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<td>NAFIS</td>
<td>National Agricultural Farming Information Systems.</td>
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<tr>
<td>NGO</td>
<td>Non Governmental Organization</td>
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<tr>
<td>PDA</td>
<td>Personal Digital Assistants</td>
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<tr>
<td>PIN</td>
<td>Personal Identification Number</td>
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<td>SMS</td>
<td>Short Messaging Services</td>
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<tr>
<td>SPSS</td>
<td>Statistical Program for Social Sciences</td>
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<td>VoIP</td>
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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Informal sector are widely acknowledged as an important sector for national economic development. Growth oriented small business make a major contribution to economic development and employment generation within the local and national economies. Smallbone and Welter, (2001).

The survival and growth of organizations in an increasingly turbulent environment would depend upon effective utilization of information technology for aligning the organizational structure with environmental preference. The increased importance of information technology has made it a key resource for most businesses in the world today. Every organization is embarking or improving upon its customer relationship management by using the aid of information technology through the internet and mobile phones in order to create a competitive advantage over others in the business Nwaimo, (2007).

The Kenyan economy has over the recent decades gone through substantial liberalization and changing economic opportunities, which has lead to many organizations to either down size or retrench their employees, forcing them into the informal sector. Lack of employment alternatives has pushed many people into self-employment activities in the country (Poverty Reduction Strategy Paper for the Period 2001-2004). This sector is not clearly defined or understood in Kenya as well as in other developing countries. Thyra and Steel,(2000).

The Informal Sector represents an important part of the economy and certainly of the labour market in many countries especially developing countries, and thus plays a major role in employment creation, production and income generation. In countries with high rates of population growth and/or urbanization, the informal sectors tend to absorb most of the growing labour force in urban areas. Ng’ethe and Wahome, (1987) The role of the informal sector is not only the source of employment, it is also a device against poverty and it’s goods and services cater for some of the basic needs of

The informal sector businesses experienced a lot of challenges. These challenges include lack of market information, marketing challenges arising from competition, lack of credit facilities in terms of loans and locations of the businesses as most of them are located in marginalized areas hence the problem of accessibility. These challenges hinder the informal sector business from creating and maintaining sustainable competitive advantage. Informal businesses especially those located in the rural areas have major problems accessing business services because of lack of awareness of what is in the market. The little information available to these businesses is hindering the small businesses from seeking the services they need to enable them thrive. Muteti R. (2005)

In recent years, there has been a rapid growth of mobile phones networks in developing countries especially Kenya. Most people in Kenya own a mobile phone. This is attributed to the drop in the price of mobile handsets to within reach of those with low incomes and the drop in mobile tariffs as a result of stiff competition between the four mobile phone operators as well as the low cost of prepaid calling cards (CCK, 2010).

There are several reasons why mobile phones can be important for the growth of the informal sector businesses. Beyond basic connectivity, mobile phones offer benefits such as mobility and connectivity to owners. Donner, (2000). Mobile phones only require basic literacy and therefore are accessible to a large segment of the population. Mobile phones enjoy some technical advantages that make them particularly attractive for development. In addition to voice communication, mobile phones allow for data transfer, which can be used in the context of applications for the purposes of business. The use of the mobile phones has been found to improve competitiveness thus providing an opportunity for the firms in the informal sectors to compete on equal terms with large organizations. The development of mobile phones in the country has involved a growing number of businesses. It is important for a firm to be continuous
in growth if the firm wants to maintain competitive advantage, otherwise it’s competitor will grow more to gain edge. Continuous growth ensures firm’s survival in the competitive environment. Thus firms should struggle for continuous growth keeping the aim of increasing or simply maintaining their sales and profits levels, to ensure their survival. Claver et al.(2006).

Competitive advantage refers to the advantage one firm has over it’s rivals in a given market, strategic group or industry. Competitive advantage can take many forms, including superior production system, better management of suppliers or customer services and more advanced technology. Hoopes et.al (2003). Unique resources are the source of sustainable competitive advantage which leads to sustainable superior performance.

For those informal businesses that use mobile phones in their daily operations, they enjoy reductions in transaction costs, increased productivity, access to market information, open to new trade opportunities, increase competition and improve efficiency.

1.1.1 Muthurwa Open Market

Muthurwa market is located about one and half kilometers from the Central Business District. It spans a two kilometre square area which also consists of a bus terminus. The main purpose for constructing Muthurwa market was to decongest the Central Business District. The hawkers market and bus station were hived off the 72 acres Muthurwa Estate, one of the oldest residential areas for Kenya Railways workers. According to the Nairobi City Council the market can accommodate up to 8,000 hawkers. Currently, more than 12,000 people are trading in the market. Lack of space is a big question facing the market. According to the KBS Management Limited memorandum to the Minister for Nairobi Metropolitan dated 30th April 2008, other challenges facing the market include insecurity, management of the facility, conflicts among the players such as hawkers and touts, passengers and touts and the incomplete sheds that affects operators during rainy seasons.
1.2 Statement of the problem

Running informal businesses has proved to be a challenge to most operators due to lack of useful business information. Kenya’s informal sector has become a key driver of the economy contributing between 20% and 30% of the country’s GDP and employing nearly 7 million people (World Bank 2006). These businesses have major problems assessing business services because of lack of awareness of what is in the market. The scanty information about the market hinders the informal businesses from taking advantages of emerging opportunities hence hinder the growth and survival of the sector. This in turn results to high failure rates.

Although many researchers such as Sridhar & Sridhar, (2007); Souter et al. , (2005); Chakraborty, (2005); Samuel et al. , (2005); and Donner, (2005) see mobile phones in developing countries in a chiefly positive light. The impact of mobile phones on the informal sector businesses has not being realized. The use of mobile phones has immense advantages in businesses such as improving competitiveness, reducing the cost of operating businesses, facilitating provision of the needed market information, increasing sales through differentiation and efficiency in services delivery among others. It is against this background that the researcher finds it necessary to investigate how the use of mobile phones can play a role in the creating and maintaining a sustainable competitive advantage in the informal sector businesses.

1.3 Objectives of the Study

The study was guided by the general objective of establishing the role of mobile phones on the informal sector businesses performance.

Specific objectives

i. To determine whether the use of mobile phones reduces operational costs by the informal sector businesses.

ii. To establish the role of mobile phones on increasing market share for the informal sector businesses.

iii. To establish to what extent mobile phone increase sales and revenue for the informal sector businesses.
iv. To establish whether the use of mobile phones assist the informal sector businesses to meet customer needs.

1.4 Research Questions

The research questions that assisted in achieving the specific objectives of the study;

i. How has the use of mobile phones reduce the operational costs?

ii. How has the use of mobile phones facilitated the growth of the business?

iii. How has the use of mobile phones increased sales within the informal sector business?

iv. How has the use of the mobile phones enabled the informal sector business meet customer needs?

1.5 Significance of the study

1.5.1 Informal Sector Operators

The findings of the study provide the relationship between mobile telephony and sustainable development in the informal sector that has not yet been exhaustively explored. This will help in developing growth strategies for the informal sector businesses and identifying market opportunities.

1.5.2 Management of Mobile Phone Service Providers

Findings from this study could help mobile phone service providers by giving them insight into how their services influence the operations of the informal sectors. They would therefore use this knowledge to address the concerns of the informal sector who want to use their services by making such services affordable, accessible and available.

1.5.3 Mobile Phone Manufacturers

Findings from this study could help mobile phone manufacturers in producing mobile phones that are capable of internet access, sending and receiving photos and files, equipped with GPS technology among others. Mobile phone manufacturers should
produce a wide range of cell phones which are sold for competitive prices. The available options will give the user the choice of purchasing a basic phone to use simply for making calls, or choosing a complex, technologically mobile phone that can perform as many or even more task that a home computer.

1.5.4 Government and Government Agencies

Finding from the study could help the government and its agencies to deliver services effectively and efficiently. The continued growth of mobile phones and SMS usage by members of the public provide an opportunity for government to use SMS technology as a medium to interact with the public.

1.5.5 Academia

The current study may have implications for future research community in several ways. First it will add to the reservoir of existing knowledge on the impact of mobile telephony in creating and maintaining sustainable competitive advantage in the informal sector. As the current study examines how the use of mobile phones impact on the operations of the informal sector in Nairobi, further studies could be conducted to determine the how the use of mobile phones affects all the sectors of the economy for national development. Thus future studies in the area of mobile telephony may rely heavily on the findings of this study.

1.6 Scope of the Study

This study was limited to the informal sector business operators within Muthurwa open market (Nairobi). This was because of the available resources which were only enough to cover Muthurwa market area. In addition most of the informal sector businesses in Kenya are concentrated in urban areas particularly Nairobi and therefore the area provided a good sample for the study.

1.7 Assumption and limitations of the Study

In recent years, there has been a rapid growth of mobile phones network in Kenya. Most people in Kenya own a phone. This includes the informal business operators. Running informal businesses has proved to be a challenge to most operators due to
lack of a centralized pot to serve useful information to the informal sector, competition and high costs of operation. Even though the informal sector have been cited as one of the key sectors expected to drive the growth of the economy, and provide the bulk of jobs for Kenyan youth as well as being the engine for economic development, lack of information on where to access business services, markets and products is causing their downfall.

Market opportunities arising out by modern ICT’s such as e-commerce, VoIP, ERP systems, supply chain management tools have been of much more relevance to medium and large firms than to micro and small firms given the investments in infrastructure, education and production scale required to the effective roll out of such technologies. Small firms especially in the informal sector cannot gain new markets and thus not guaranteed conditions for promoting their business sustainability, efficiency and competitiveness.

The main limitation of the study was the size of the population. The study covered all the operators in the informal sector businesses. The study also encountered unwillingness by the respondents to reveal certain information especially one touching on business transactions. There was also be the limitation of time and resources required to carry out the study.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a critical review of the relevant literature related to the topic under study. It is structured on the basis of the specific research objectives. The chapter covers the role of mobile telephony on the informal sector businesses growth, reduction of operational costs, increase in sales and meeting customer’s needs.

2.2 Informal Sector Businesses Growth

In the past few years, several macroeconomic studies have suggested a link between mobile phones and economic growth (The Economist, 2009). Sridhar and Sridhar (2004) investigated the relationship between telecommunications and the economic growth using data from 28 developing countries. The study found that there was a positive impact of fixed lines and a significant impact of mobile phone penetration on national output. The impact of telecommunications penetration on total output is found to be significantly higher for developing countries.

One of the most direct economic impacts of mobile phones in Africa is through job creation. With an increase in the number of mobile phone operators and greater mobile phone coverage, labour demand within these sectors has increased. For example, formal sector employment in the private transport and communication sector in Kenya rose by 130% between 2003 and 2007 (CCK, 2008), suggested that mobile phones have contributed to job creation. Waverman et al. (2005), found that mobile telephony has a positive and significant impact on economic growth.

Previous empirical studies on the geographical concentration of poverty show a positive relationship between remoteness and poverty. Stifel et al. (2003), found that the incidence of poverty in rural Madagascar increases with remoteness. Minot (2005) indicated that poverty is positively associated with the distance to regional urban centres in Tanzania.
Regarding the impact of mobile phone networks on poverty reduction, there are some anecdotal articles. Jensen, (2007) however, is the only study, as far as we are aware of, that rigorously identifies the impact of the introduction of mobile phones on marketing in developing countries. He shows that fishermen in India increased arbitrage among local fish markets after the introduction of mobile phones, leading to a decrease in the variation in fish prices and a reduction of spoilage.

With an increase in the number of mobile phone operators and greater mobile phone coverage, labour demand within these sectors has increased. For example, formal sector employment in the private transport and communications sector in Kenya rose by 130 percent between 2003 and 2007 (CCK, 2008), suggesting that mobile phones have contributed to job creation.

Klonner and Nolen (2008) assessed the effect of mobile phone coverage on rural labour market outcome in South Africa. Like other sub-Saharan Africa countries, South Africa labour markets are characterized by low wages, high rates of under- and unemployment and significant search costs. They found that the introduction of mobile phone coverage was associated with a 15 percent increase in employment, with most of the effect due to increased employment by women. They also found a significant shift in occupational patterns with the availability of mobile phone coverage, employment shifts away from agricultural occupations, with no significant shifts between self employment and wage employment.

The mobile phone sector has also spawned a wide variety of business and entrepreneurship opportunities in the informal sector. While we would expect job creation in any new growth sector, many of these employment opportunities are directly related to the specific business strategies of mobile phone companies in Africa. For example, because most Africans use pre-paid phones, mobile phone companies had to create extensive phone credit distribution networks in partnership with the formal and informal sector. Thus, small shops that traditionally sold dietary staples and soap now sell mobile phone credit (airtime), particularly in small denominations. Young men and women are often found selling airtime cards in the street. Numerous small-scale and often informal firms have also opened shops to sell, repair and charge mobile phone handsets, either using car batteries or small
generators. In the early years of mobile phones usage, entrepreneurial individuals started businesses to rent mobile phones especially in rural areas. While Klonner and Nolen (2008) suggested that mobile phone coverage has been successful in generating employment opportunities, to date, there have not been studies to examine the impact of mobile phones on both formal and informal job creation.

The Republic of Kenya poverty reduction strategy paper for the period 2001-2004 (Government Printer 2001) identified the major cause of poverty as unemployment and low wages. Communities explained that although their children had completed schooling, many had failed to secure meaningful employment due to lack of opportunities and skills for gainful employment and lack of crucial resources for production such as electricity. Lack of employment implies lack of income necessary for meeting the basic needs such as food, shelter, clothing, education and medical services. The report recommended that telecommunications, information services and information technology are not only dynamic growth sectors but also engines of development and economic growth throughout the economy. This result to job creation, raising productivity, increased incomes and opening many opportunities for increased trade and human development. Sub-Saharan Africa is an inherently risky environment. Natural disasters, conflicts and epidemics routinely affect households. Kinship ties play both important social and economic functions in African society, especially in creating informal insurance networks, increasing access to credit and savings and reducing risk (Grimad, 1997; de Weerdt and Dercon, 2006).

2.3 Costs of operations.

Households and firms use numerous avenues to search for information in a variety of areas: input prices, output prices, jobs, potential buyers and sellers, natural disasters, new technologies, politics and the status of friends and family members. Traditional search mechanisms include personal travel, radio and, to a much lesser, landlines, letters, newspapers and television. Of these, personal travel has often been the most common mechanism used – primarily due to limited access to other alternatives. In Niger, for example, 89% of grain traders surveyed preferred obtaining price information by visiting weekly radio program (Aker, 2008). However, personal travel requires transport and opportunity costs, which can be relatively high with a combination of long distances and poor roads.
The rollout of mobile phones in Sub-Sahara Africa over the past decade introduced a new search technology that offers several advantages. Firstly, mobile phones greatly reduced search costs. While mobile phones required an initial fixed cost, the variable costs associated with their use significantly lower than equivalent travel and other opportunity costs. Mobile phones also allowed people to obtain information immediately and on a regular basis rather than waiting for radio broadcast, newspapers or letters. Rather than being passive recipients of information, mobile phones allowed individuals and firms to take an active role in the search process, enabling them to ask questions and corroborate information with multiple sources.

Mobile phones are more accessible than other alternatives in terms of cost, geographical coverage and ease of use. While radio can be used across all segments of the population, they generally provide a limited range of information. Newspapers are primarily concentrated in urban areas, are expensive and are inaccessible to illiterate populations. Less than 19 per cent of individuals in Sub-Saharan Africa read a newspaper at least once per week, with a much smaller share in rural areas. Access to other search mechanisms, such as fax machines, e-mail and internet, is similarly low, primarily due to their dependence upon landline infrastructure. On average, less than 4.2 percent of the African population has access to internet (ITU, 2009).

The impact of mobile phones on grain markets in Niger, Aker, (2010) found that the introduction of mobile phones reduced dispersion of grain prices across the markets. The effect was stronger for those market pairs with higher transport costs, namely, those that are farther apart and linked by poor quality roads. The primary mechanism through which mobile phones improve market efficiency is a change in trader’s marketing behaviour: grain trader operating in mobile phone markets search over a greater number of markets, sell in more markets and have more market contacts as compared with non-mobile phone counterparts (Aker, 2008). Aker, (2008) also found that the introduction of mobile phones is associated with increased trader and consumer welfare. Mobile phones increased the trader’s welfare, primarily by increasing their sales prices.
At a basic level, mobile phones improve communications among members of a social network both within a country and across international boundaries. The reduction in communication costs can increase the speed of information flows within the network, thereby allowing them to respond better to shocks. Mobile phones also allow households to obtain information about potential shocks, allowing them to use such information to make planting and harvesting decisions, which can have important effects on yields. Rosenzweig and Binswanger, (1993).

2.4 Increase Businesses Sales

Jensen, (2007) and Aker (2008, 2010) both exploited the staggered introduction of mobile phone coverage to estimate the impact of mobile phones on agricultural markets in developing countries. Examining the effect of mobile phones on the fisheries sector in Kerala, India, Jensen found that the expansion of mobile phone coverage leads to a significant reduction in the dispersion of fish prices across markets as well as a decline in waste. He shows that this lead to important welfare improvements for both the fishermen and consumers. With improved access to information via mobile phones, fishermen are better able to take advantage of spatial arbitrage opportunities, thereby improving efficiency.

Mobile phones are facilitating access to agricultural market information, in many cases replacing the message boards and radio programs of traditional market information systems. In the francophone countries in West Africa, consumer prices for staple grains are broadcast weekly via radio for the largest markets in the country. Yet in many cases, farmers live tens of kilometers from the nearest large market and the data is up to six days old. Farmers in countries as diverse as Niger, Senegal and Ghana can now type in a code send a text and receive the price of a variety of goods immediately. Mobile phones are also extending the reach of agricultural extension services; in Kenya, Uganda and India, farmers can call or text hotlines to ask for technical agricultural advice. (National Agricultural Farming Information Systems NAFIS and Kenya Agricultural Commodity Exchange).
Information technology has the potential to increase productivity growth in Africa, especially of small-scale firms. In the literature from industrialized countries, Litan and Rivlin, (2001) found that the internet improved management efficiency of U.S firms. By improving communication between firms and their suppliers, mobile phones can enable firms to manage their supply chains more effectively, streamline their production processes and engage in new activities Hardy,(1980); Roller and Waverman, (2001). This would reduce stock-outs and interruptions in production, which are of particular concern for small-scale firms in rural areas with limited supply options. Research in South Africa and Egypt suggested that mobile phones were associated with increased profits, significant time savings and improved communication with suppliers for small-scale firms. Samuel, Shab and Handinham, (2005).

In China, the Ministry of Agriculture teamed up with China Mobile to launch the mobile service Nong Xin Tong (which translates roughly to farmers’ communication network), which gives farmers advice on planting techniques, pest management and government policies on agriculture. The service already has 50 million users, and pumps out 13 million text messages every day.(http://www.futureov.asia/articles/2010/apr/27/can-mobiles-close-digital-divide/)

2.5 Meeting customers’ needs

Sub-Saharan Africa is an inherently risky environment. Natural disasters, conflicts and epidemics routinely affect households. Kinship ties play both important social and economic functions in African society, especially in creating informal insurance networks, increasing access to credit and savings and reducing risk ( Grimad, 1997; de Weerdt and Dercon,2006). At a basic level, mobile phones improve communications among members of a social network both within a country and across international boundaries. The reduction in communication costs can increase the speed of information flows within the network, thereby allowing them to respond better to shocks. Mobile phones also allow households to obtain information about potential shocks, allowing them to use such information to make planting and
harvesting decisions, which can have important effects on yields. (Rosenzweig and Binswanger, 1993)

Since 2005, mobile financial applications known as m-money or m-banking have emerged in a variety of developing countries. The systems usually involve a set of applications that facilitate a variety of financial transactions via mobile phone, including transmitting airtime, paying bills and transferring money between individuals. Different institutional and business models provide these services; some are offered entirely by banks, others entirely by telecommunications providers and are still others involve a partnership between a bank and a mobile phone service provider Porteous, (2006). Most m-money systems allow the user to store value in an account accessible by the handset, convert cash in and out of the stored value account and transfer value between users by using a set of text messages, menu commands, and personal identification numbers (PINs). The user can then send e-money to another recipient with a phone, who then withdraws the e-money from their local transfer agent. Fees are generally charged for each transaction.

Introduced in 23rd May 2007, M-pesa is a mobile phone application that facilitates a variety of financial transactions for its users, such as purchasing airtime, transferring money and paying bills. As of May 2010, M-Pesa had 9.5 million subscribers and a network of 13,000 agents, with almost 40 percent of Kenyans ever having used the service to send and receive money. Safaricom, (2010).

Although M-Pesa has been touted as banking the unbanked, on average, M-Pesa users are wealthier, better educated, urban and already banked. M-pesa and other m-money systems have recently transitioned from a pure money transfer system into a payment platform that allows non-governmentals, schools, hospitals and firms to send and receive payments.

According to Morawczynski and Pickens (2009), M-pesa users often keep a balance on their M-pesa accounts, thereby using the system as a rudimentary bank account. M-pesa users also send smaller but more frequently remittance, suggesting that the system might allow informal insurance networks to function more effectively.
According to Jack and Suri (2009) the inconspicuous nature of M-Pesa transfers allows individuals to increase their personal savings, because friends and relatives would be less likely to know about the timing or amount of transfers.

According to Wilson, Harper and Griffith, (2010) members of informal savings groups used M-pesa to deposit individual savings into their group account. Kenya’s leading bank by clients base Equity Bank and leading integrated telecommunications provider Safaricom launched ultimate bank accounts that let customers transfer money to and from their M-Pesa accounts via their mobile phones handsets while enjoying other benefits that come with the bank account. The new initiative offers new service that target customers who look for convenience of a bank account that uses M-Pesa as a tool deposit money into their accounts. This drive customers to save into their bank accounts and enjoy the benefits of having the value added services of both M-Pesa and an Equity Bank account. Customers do not have to go to the bank to check their account balances. This is done on the mobile phones.

In the case of m-government which is a sub-set of e-government, those ICT are limited to mobile and/or wireless technologies like cellular/ mobile phones and laptops and PDAs (personal digital assistants) connected to wireless local area networks (LANs). m-Government can help public information and government services available “anytime, anywhere” to citizens and officials.

According to Carly Fiorina, in her book, Tough Choices, she states that “we are currently in an era dominated by power of individuals, driven by technology that is ‘digital, mobile, virtual and personal’”. She describes the digital, mobile, virtual and personal world as one in which the traditional barriers of time geography access, wealth, power and position begin to fall.

Information Communication Technologies (ICTs), are now being applied in innovative ways, such as mobile phones short-messaging systems (SMS text) facility for service delivery in areas such as electronic voting, law enforcement and traffic updates. In South Africa, there are three key challenges that impact on the ability of government to deliver services efficiently and effectively and these are slow response of government to citizen request, poor access to services particularly in rural and
under serviced areas, limited ability of citizens to provide feedback on services received to government and this result in long queues at service points, inadequate staff to attend to service enquiries, lack of customer and etiquette by staff, limited and long distances to reach local office especially in rural areas.

The continued growth of cell phones and SMS usage by members of the public provides an opportunity for government to use SMS technology as a medium to interact with the public.

The flow of medical information and knowledge is shifting with increased access to the internet, mobile phones and data retrieval systems. More and more people are using these mediums of communication to get health information.
## Table 2.1 Empirical review and research gaps.

<table>
<thead>
<tr>
<th>Researchers</th>
<th>Focus of the study</th>
<th>Findings</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asheeta Bhaunani, Rowena Won-Wai Chui, Subramanian Jana Kiram and Peter Silarszky, (2008).</td>
<td>The study focus on the role of mobile phones in sustainable rural poverty reduction. The objective of the study was To examine the role of mobile phones in sustainable poverty reduction among the rural poor.</td>
<td>-Mobile telephony has a positive impact on the economic welfare such as GDP growth, job creation, and productivity increase and taxation revenue. -Mobile telephony can enhance entrepreneurship, reduce information asymmetries and market inefficiencies and substitute transportation.</td>
<td>The study did not look at the effect of costs on poverty reduction.</td>
</tr>
<tr>
<td>Wakari Gikenye Dennis Ocholla, (2010).</td>
<td>The Diffusion &amp; Impact of Mobile Phones on the Informal Sector in Kenya. The objective of the study was to establish the status of ICT penetration in the MSE sector in Kenya To establish rate and level of ICT diffusion through mobile phones in Kenya in the face of the rapidly changing global information</td>
<td>-Gender composition of MSE traders in Kenya is the same for men and women. -The size of MSEs are getting smaller as shown by continued mushrooming of the micro retail businesses. -Lack of growth among most MSEs has not endeared them to the use of the most expensive types of ICTs like the computer and related internet. -Small size MSEs have greatly adopted the affordable mobile</td>
<td>The study did not look at the impact of mobile phones on informal sector’s savings, work efficiency, costs and profitability.</td>
</tr>
<tr>
<td>Discipline</td>
<td>Author</td>
<td>Title</td>
<td>Key Points</td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>Technology</td>
<td>Raphael Ngatia Kanothi, (2008)</td>
<td>The dynamics of entrepreneurship in ICT. Case of mobile phones downstream services in Kenya.</td>
<td>Mobile technology has easily been adopted to the local economic environment. Majority of the enterprises providing the services are survivalists and they are characterized by barriers to entry and specialization. Enterprises created patterns and opportunities for women, youth, people with disability and those with low or no education.</td>
</tr>
<tr>
<td>Variables</td>
<td></td>
<td></td>
<td>The study did not look at the effect of behavioral and usage patterns of mobile phones. Trend in rate of deaths or closures of the enterprises and net impact on the operators and the economy as whole.</td>
</tr>
<tr>
<td>Kathleen Diga, (2007)</td>
<td>Mobile phones and poverty reduction: technology spending patterns and poverty</td>
<td>Challenges which rural households face include making sacrifices such as travel expenses and store-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The study did not look at the effect of mobile</td>
</tr>
</tbody>
</table>
The objective of the study was to examine the spending behaviour of households with mobile phones in rural Uganda. The objective of the study was to examine the spending behaviour of households with mobile phones in rural Uganda.

**Variables**

- Mobile phones
- Households spending behaviour

K. Litondo, (2010). Mobile phones and employment among informal micro and small enterprises in Nairobi. The objective of the study was to explore the impact of mobile phones usage on employment among MSEs in the informal sector in Nairobi.

- The sector is dominated by literate people, the majority of whom were male operators.
- Many of the operators had mobile phones and they used them for business transactions.
- Mobile phone possession and usage of the phone for business transactions increases employment in the informal sector.

The study did not look at the effect of mobile phones on job creation, sales - that is it's impact on exports and imports.
level change among households in Uganda.

The objective of the study was to examine the spending behaviour of households with mobile phones in rural Uganda.

Variables

- Mobile phones
- Households spending behaviour

bought food budgets in order to pay the costs of mobile phone services.

- Gender inequality through exacerbated asset control and mobile phone inexperience drive further digital divide.

Variables

- Mobile phones and household spending behaviour


Mobile phones and employment among informal micro and small enterprises in Nairobi. The objective of the study was to explore the impact of mobile phones usage on employment among MSEs in the informal sector in Nairobi.

Variables

- The sector is dominated by literate people, the majority of whom were male operators.
- Many of the operators had mobile phones and they used them for business transactions.
- Mobile phone possession and usage of the phone for business transactions increases employment in the informal sector.

The study did not look at the effect of mobile phones on job creation, sales - that is it’s impact on exports and imports.
<table>
<thead>
<tr>
<th>-Mobile phone</th>
<th>-Employment</th>
</tr>
</thead>
</table>

J.C Aker,(2010). Information from markets near and far: mobile phones and agricultural markets in Niger. The objective of the study was to establish the impact of mobile phones on agricultural price dispersion in Niger.

<table>
<thead>
<tr>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Mobile phones</td>
</tr>
<tr>
<td>-Agricultural markets</td>
</tr>
</tbody>
</table>

The introduction of mobile phones coverage reduced agricultural price dispersion across markets especially for markets that are more remote and those connected by unpaved roads.

The study did not look at the effect of mobile phones on poverty reduction, costs and promotion of economic development.

Source: Researcher 2012
Conceptual Framework

The independent variables were factors which explained what determined the performance of the businesses (dependent) within the informal sector. These factors were the use of mobile phones to reduce operational cost, make sales, growth of the business and meeting customer needs. The level of informal sector businesses performance by any enterprise depended on the extent of application of the mobile telephony.

Figure 2.1 Conceptual Framework

Source: Researcher 2012.
Variables of operationalization

The operationalization table assisted in coming up with the questionnaire.

Table 2.2 Variables of operationalization

<table>
<thead>
<tr>
<th>Variables</th>
<th>Indicators</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational Cost</td>
<td>• Amount spent in any transaction</td>
<td>• Amount in Kshs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Profit/loss generated</td>
</tr>
<tr>
<td>Business Growth</td>
<td>• Acquisitions of other businesses</td>
<td>• Number of new businesses acquired.</td>
</tr>
<tr>
<td></td>
<td>• New businesses opened</td>
<td>• Number of new businesses</td>
</tr>
<tr>
<td>Sales</td>
<td>• Number of items traded in a transaction using mobile phones</td>
<td>• Sales in Kshs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Number of transactions</td>
</tr>
<tr>
<td>Customer’s needs</td>
<td>• Responsiveness to customer</td>
<td>• On-time delivery</td>
</tr>
<tr>
<td></td>
<td>• Operational efficiency</td>
<td>• Service performance</td>
</tr>
</tbody>
</table>

Source: Researcher 2012.
RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlighted the methodology and the analytical methods that were used to carry out the study. This included the research design, population of the study, sample design, data collection methods, research procedures and data analysis methods employed in the study.

3.2 Research Design

The study adopted a descriptive research design. This design was appropriate where the focus of a study was to describe phenomena or characteristics associated with a subject population (Schindler and Cooper, 2001). This research design was considered appropriate for a study seeking to describe the impact of mobile phones on informal sector businesses in Kenya on creating competitive advantage.

Descriptive designs result in a description of the data, whether in words, pictures, charts, or tables, and whether the data analysis showed statistical relationships or was merely descriptive, and were useful when we answered to the “What” questions (Cooper and Schindler, 2000). The research question considered in the study sought to establish the impact of mobile phones in informal sector business growth, reducing costs of operations, increase sales and meeting customer needs.

3.3 Target Population

The population of interest consists of all operators in the informal sectors in the Muthurwa open market. This population consisted of 1,200 operators, registered by the Nairobi City Council and given authority to operate within the already constructed 36 stalls. The use of the stalls helped the researcher to identify the operators.
3.4 Sampling Design

The sampling design strategy narrowed the elements in the population of interest to a representative group that was studied within the time and resources available. The sampling frame consisted of all registered informal sector businesses operators within Muthurwa open market. As the population did not constitute a homogenous group, the researcher applied stratified random sampling technique in order to obtain a representative sample. The population was divided into several sub-populations that were individually homogenous than the total population and then selected items from each stratum to constitute the sample.

The strata were formed on the basis of common characteristics of the items to put in each stratum. This meant that various strata were formed in such a way that ensured elements were more homogenous within each stratum and heterogeneous between the different strata.

To select items for the sample from each stratum, the researcher resorted to simple random sampling. The researcher followed the method of proportional allocation under which the sizes of the samples from the different strata were kept proportionate to the sizes of the strata.

3.5 Sample Size and Distribution

According to Cooper and Schindler (2001), a sampling frame is the list of elements from which the sample is actually drawn. From the sampling frame, 150 operators from all the registered operators within Muthurwa open market were selected. The respondents selected the sample using the stratified random sampling. The sample was stratified on the basis of operated stalls. The questionnaires was administered on a 150 operators selected from the 11 categories of operators. The stalls assisted in identifying the operators.

Gay (1983) suggests that for correlational research, 30 cases or more are required, for descriptive studies 10% of the accessible population is enough and for experimental studies at least 30% cases are required per group.
Roscoe (1975) proposed that in determining the sample size, sample sizes larger than 30 and less than 500 are appropriate for most research.

The researcher clustered the operators into 11 categories of operators. For instance, a strata with 300 operators (fruits and vegetables), from the sample size of 150, 38 operators will be selected randomly. i.e 300/1200 = 0.25*150 = 38

The distribution of the respondents making up the sample was tabulated as follows.

<table>
<thead>
<tr>
<th>Categories of Operators</th>
<th>Total</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fruits and Vegetable Vendors</td>
<td>300</td>
<td>38</td>
</tr>
<tr>
<td>2. Food kiosks operators</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>3. Selling clothes</td>
<td>250</td>
<td>31</td>
</tr>
<tr>
<td>4. Selling shoes</td>
<td>200</td>
<td>25</td>
</tr>
<tr>
<td>5. Shoes shiners and repair</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>6. Mobile phones repair/airtime selling</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>7. Posters designers</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>8. Selling music tapes and videos</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>9. Barbers (kinyozis) and hair dressers</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>10. Selling books/magazines/newspapers</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>11. Electronic dealers</td>
<td>100</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,200</strong></td>
<td><strong>150</strong></td>
</tr>
</tbody>
</table>

3.6 Data Collection Method

The primary data collection method for this research was a questionnaire which was developed by the researcher. The questionnaires were dropped to the respondents and the picked after being filled. In order to make the respondents felt comfortable, they were informed that the questionnaire was to be treated confidentially. As some of the respondents could not read and write, the researcher requested the respondents to be interviewed and their response recorded. The use of structured questionnaires in a
A survey of respondent's opinions on the role of mobile phones on carrying out their businesses provided a suitable basis for a descriptive study.

The first part was concerned on demographic information about the informal sector operators. In the second part, there were four sections with questions related to costs of operation, business growth, business sales and meeting customer needs. At the end of the questionnaire, there was an open-ended questions where the respondents were able to give general information on usage of mobile phones.

### 3.6.1 Reliability

In order to ensure that the research instrument yields consistent results or data, the researcher constructed simple and clear questionnaires with questions well phrased to avoid ambiguity. The respondents were requested to answer the questionnaire and be informed that the questionnaires were treated with confidentiality. This led to a higher reliability since the respondents hopefully had not fear being troubled and could speak more freely.

### 3.6.2 Validity

The survey was conducted using a 5-point likert instrument, a psychometric scale commonly used in questionnaires, and the most widely used scale in survey research Emory, (1985). In addition to this, a semi-structured interview was used to take profound information about this process. The researcher collected the data from the targeted population which was good representative of the operators in the informal sector businesses in Kenya.

### 3.7 Research Procedure

The study started by seeking the permission to carry out research from the Provincial Administration, the informal business sector representatives and Nairobi County Council following research clearance from the School of Business. A draft questionnaire was presented to ten respondents from two informal business categories after which it was redesigned based on the feedback. The questions were simple and
short that encouraged respondents' to participate in the survey. Selected introductory letter was included in the questionnaire explaining the nature of the study and instructions.

3.8 Data Analysis Methods

The collected data was edited, that is, examining the collected raw data to detect errors and omissions and correct these where possible. It involved a careful scrutiny of the completed questionnaires as it ensured that data were accurate consistent with other facts gathered. Data was then be coded by assigning numerical or other symbols to answers so that responses were put into limited number of categories or classes. The data was reduced into homogenous groups so as to get meaningful relationships.

Data was then summarized and displayed in the form of statistical tables for further analysis. The scores from the questionnaire was summarized for the factors that sought to be measured. Qualitative data analysis seeks to make general statements on how categories or themes of data are related (Mugenda and Mugenda 2003).

Descriptive statistics such as mean, mode and median was used to present the various characteristics for data sets after descriptive analysis. Data was presented using frequency tables, bar graphs and pie charts.
CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction
This chapter presents methods of data analysis that were used in the study, a systematic presentation of both quantitative and qualitative findings based on the study objectives and discussions of the findings.

4.2 Response Rate
From the study, a sample size of 150 respondents was targeted. Out of the 150 respondents, 135 filled and returned their questionnaires. This constitutes 90% response rate. This response rate was acceptable for generalization of the findings. Frequencies and percentages were used to display the results which were presented in tables, charts and graphs.

Table 4.2 Response Rate

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responded</td>
<td>135</td>
<td>90%</td>
</tr>
<tr>
<td>Not responded</td>
<td>15</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Research Data (2012)

Figure 4.2 Response rate
4.3 General findings

4.3.1 Gender information

From the findings on the gender of the respondents, the study found that 70% of the respondents indicated that they were males while 30% of the respondents indicated that they were female. This shows that though both genders were represented in the study, majority of the respondents were male.

**Figure 4.3.1: Gender of the respondents**

![Gender of the respondents](image)

Source: Research data (2012)

4.3.2 Marital status

From the findings regarding the marital status of the respondents, the study found that 60% of the respondents indicated that they were single while 40% of the respondents indicated that they were married. This shows that majority of the respondents were single.
4.3.3 Level of education

The distribution of education shows that 15% of the respondents indicated that they had attained primary level education, 50% had attained secondary education, 25% had a diploma certificate and 10% had bachelor degree. From the finding, it was observed that most respondents had secondary education level and above. This showed that respondents were educated and were in a position to give credible information on the use of mobile phones in their businesses.

Table 4.3.3 Level of education

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>18</td>
<td>15%</td>
</tr>
<tr>
<td>Secondary</td>
<td>60</td>
<td>50%</td>
</tr>
<tr>
<td>Diploma</td>
<td>30</td>
<td>25%</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>12</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>120</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Research data (2012).
4.3.4 Type of business
Fourteen categories of informal businesses were surveyed. It was observed that out of the 14 categories, only 7 categories actively using mobile phones in their business operations. From the findings, respondents who were in business of selling clothes actively used mobile phones in their operations. They were followed by mobile phone repair, those selling fruits and vegetables, airtime, art and designing, shoes and those dealing with cereals.

4.3.5 Monthly Business Income
From the findings on the monthly business income, the study found that 15% of the respondents indicated business monthly income of Kshs 1,000.00 to 5,000.00, 60% of the respondents indicated that they business monthly income of between Kshs 5,000.00 to 10,000.00, 20% of the respondents indicated monthly income of between Kshs 10,000.00 to 20,000.00, 5% indicated monthly income of above Kshs. 20,000.00. This shows that majority of the respondents were earning monthly business income of more than Kshs 5,000.00.

Table 4.3.5 Monthly business income

<table>
<thead>
<tr>
<th>Income (Kshs)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 1,000.00</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>1,000.00 – 5,000.00</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>5,000.00 – 10,000.00</td>
<td>60</td>
<td>60%</td>
</tr>
<tr>
<td>10,000.00 – 20,000.00</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>Above 20,000.00</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

Source: Research data (2012).

4.4 Information on costs of operating business using mobile phones
The first objective of the study was to establish how the use of mobile phones reduces the costs of operating businesses. The respondents were presented with 6 cost items which were considered important in the operations of the informal businesses. Respondents were requested to indicate which costs they thought had been reduced drastically by the use of mobile phones. Out of the 135 respondents, 100 respondents indicated that the cost of ordering materials had significantly been reduced. 120
respondents revealed that transport expenses were reduced as the operators do not travel to search for materials. 75 respondents indicated that costs of paying debts were reduced. 45 respondents indicated costs of reaching customers were reduced while only 5 respondents indicated that costs of paying salaries and wages were reduced. 125 respondents indicated that costs for payment for their respective chamas were reduced.

Table 4.4 Frequency on how mobile phones reduced costs of operating business.

<table>
<thead>
<tr>
<th>Costs</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordering materials</td>
<td>100</td>
<td>74.07%</td>
</tr>
<tr>
<td>Transport expenses</td>
<td>120</td>
<td>88.9%</td>
</tr>
<tr>
<td>Debts payment</td>
<td>75</td>
<td>55.5%</td>
</tr>
<tr>
<td>Reaching customers</td>
<td>45</td>
<td>33.3%</td>
</tr>
<tr>
<td>Payment of salaries/wages</td>
<td>5</td>
<td>3.7%</td>
</tr>
<tr>
<td>Payment of chamas</td>
<td>125</td>
<td>92.6%</td>
</tr>
</tbody>
</table>

Source: Research data 2012

From the findings, the respondents identified the costs of ordering materials, transportation as well as payment of chamas (merry go-round) as one that had drastically been reduced.

Figure 4.4 Costs of operating businesses.
4.5 Effects of mobile phones on business growth

The second objective of the study was to determine how the use of mobile phones improved informal business growth. To meet this objective various factors were considered. These factors included: entry to new markets, introduction of new products, acquisition of new businesses, diversification, profitability and savings. A 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree) was used where the respondents were to rank whether they strongly agree, agree, neutral, disagree and strongly disagree with the statement.

Table 4.5 Use of mobile phones on improving business growth

<table>
<thead>
<tr>
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<td>16</td>
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<td>Introduce new products</td>
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<td>19.4</td>
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<td>3</td>
<td>4.3</td>
<td>12</td>
<td>17.1</td>
<td>35</td>
<td>50.0</td>
<td>10</td>
<td>14.3</td>
</tr>
<tr>
<td>Increased savings</td>
<td>25</td>
<td>30.1</td>
<td>32</td>
<td>38.6</td>
<td>20</td>
<td>24.1</td>
<td>5</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Source: research data 2012

Key 1- strongly agree 2- Agree 3- Neutral 4- Disagree 5- Strongly disagree

M- mean sd- standard deviation var- variance

Table 4.5 shows the extent to which the use of mobile phones improved business growth.

The mean indicates the average response to the key variable while the standard deviation indicates the fluctuations of the response. The standard deviation therefore indicates the reliability of the information collected.
4.5.1 Entry to new markets

Of the total respondents, a higher proportion (26.7%) strongly agreed that the use of mobile phones assisted firms to enter new markets. On average 20% (15 respondents) agreed that mobile phones assisted firms to enter new markets with a lower fluctuation deviation from the mean of 3.08. This implied that there was a higher reliability that mobile phones assisted firms to enter new markets. This confirmed the findings of Aker (2010) who found that the introduction of mobile phones reduced dispersion across the markets and mobile phones improved market efficiency changing trader’s marketing behaviour: grain trader operating in mobile phone markets searched over a greater number of markets, selling in more markets and had more market contacts as compared with non-mobile phone counterparts.

4.5.2 Introduction of new products

From the findings, a higher proportion of the respondents (53.2%) strongly disagreed that the use of mobile phones had assisted firms to introduce new products. On average 20% of the respondents agreed that this factor assisted in improving business growth but with dispersion as can be seen from the standard deviation of 15.53. These findings confirmed the findings of Kanothi (2008), in the case of mobile phones downstream in Kenya. Kanothi(2008) found that most enterprises that provided services were survivalists and they were characterized by barrier to entry and specialization.

4.5.3 Acquisition of other businesses.

A small proportion of the respondents (14.1%) agreed that the use of mobile phones assisted firms to acquire new businesses. This implied that a majority of the respondents disagreed that the use of mobile phones assisted the firms to acquire new businesses. On average only 15.4% of the respondents agreed that the use of mobile phones assisted firms to acquire new businesses. This factor had a higher standard deviation reflecting a higher dispersion on this factor on use of mobile phones. This was in line with the findings of Jensen (2007) and Aker (2008, 2010) on the effects of mobile phones on agricultural markets in developing countries.
4.5.4 Diversifying business operations

On average only 17.6 mean of the respondents felt that use of mobile phones assisted firms to diversify their businesses. The higher standard deviation of 14.99 respondents signified that a higher dispersion of their views on this factor. This was in line with the findings of Grimad (1997); de Weerdt and Dercon,(2006) who found out that Sub Saharan Africa was an inherently risky environment, hence creating a higher deviation on individual investors perception on the effect of the use of mobile phones. The findings also confirmed with the findings of Rosenzweig and Binswanger, (1993) that mobile phones allowed households to obtain information about potential shocks.

4.5.5 Increased profits

A majority of the respondents 50.0% were neutral on whether the use of mobile phones increased profits. On average, only 14 respondents representing 17.5% of the total agreed that use of mobile phones increased the profits of the firms. This was in contrast with the findings of Samuel, Shab and Handinham (2005) in their research in South Africa and Egypt who suggested that mobile phones were associated with increased profits among small-scale firms. This might be because the users of mobile phones in the informal business sector are not well informed on the benefits that accrue from the use of mobile phones in their operations.

4.5.6 Increased savings

From the study, the majority of respondents (68.7%) felt that the use of mobile phones increased savings. This was in line with the findings of Litan and Rivlin (2001) who found that the internet improved management efficiency of U.S firms. The study was also in line with the findings of Hardy, (1980); Roller and Waverman, (2001) who found that with improved communication between firms and their suppliers, mobile phones enabled firms to manage their supply chains more effectively, streamline their production processes and engaged in new activities. This would reduced stock-outs and interruptions in production, which are of particular concern for small-scale firms in rural areas with limited supply options. A lower standard deviation of 13.20 indicated a lower dispersion of the respondents' agreement on the positive effect of mobile phones usage on increased savings.
4.6 Effects of mobile phones on business sales

The third objective of the study was to investigate the effect of mobile phones on informal business sales. To address this objective, the researcher presented 6 items to measure what factors were considered important on the use of mobile phones that affected informal business sales. The respondents were requested to respond to the items on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree).

Their responses are summarized in Table 4.6

Table 4.6 Effects on business sales

<table>
<thead>
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<td>Availability of mobile phones</td>
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<td>18.3</td>
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<td>Affordability of charges</td>
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<td>21.1</td>
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<td>Connectivity with customers</td>
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<td>15.3</td>
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<tr>
<td>Availability of mobile banking</td>
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<td>41.2</td>
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<tr>
<td>Acceptance of the mobile banking services</td>
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<td>10.2</td>
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<td>Connectivity with suppliers</td>
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<td>17.2</td>
<td>20</td>
<td>34.5</td>
<td>15</td>
<td>25.9</td>
</tr>
</tbody>
</table>

Source: research data 2012

Key 1- strongly agree 2- Agree 3- Neutral 4- Disagree 5- Strongly disagree

M- mean sd- standard deviation var- variance

From the table above the mean represented the average preferences of the factors which were considered important on the use of mobile phones in the informal business sales. Connectivity with customers and acceptance of the mobile banking services were first (19.6%), followed by affordability of charges and availability of mobile banking (17.0% each), availability of mobile phones (16.4%) while connectivity with suppliers was the least important factor.
The standard deviation indicates the fluctuation of the responses from the mean. It therefore indicates the riskness of variable. From the research, connectivity with customers had the lower fluctuation from the expected responses while availability of the mobile phones had the greatest fluctuation from the mean.

4.6.1 Availability of mobile phones
The majority of respondents (61.0%) felt that the availability of mobile phones affected their business sales. On average, 20% of the respondents were in agreement that the availability of mobile phones affected business sales. This confirmed with the findings of safaricomin (2010) that almost 40% of Kenyans were using the m-pesa services. This signified that a majority of Kenyans still do not have access to mobile phones.

4.6.2 Affordability of charges
On average only 20.0% of the respondents felt that affordability of mobile phones affected their sales. This was in line with the findings of Wilson, Harper and Griffith (2010) who argued that most individuals used mobile money through services such as m-pesa to deposit their savings and do not care about the costs and saved customers since they do not have to go to the bank to check their account balances.

4.6.3 Connectivity with customers.
A majority of the respondents (40.8%) argued that connectivity with customers affected their business sales while 25.5% were indifferent on the effects of connectivity with customers to be a vital factor on their business sales with a lower dispersion (3.65). The lower dispersion indicates a lower deviation from the respondents views concerning this factor. This confirms the findings of Carly Fiorina in her book, Tough Choices where she stated that as a result of technology, traditional barriers of time, geographical access, wealth, power and position begin to fall.

4.6.4 Availability of mobile banking
The majority of respondents (70.6%) felt that the availability of mobile banking affected the sales of the businesses. There was no respondent who strongly disagreed with this fact (0.0%) and only 5.9% disagreed. This indicated the importance of mobile banking and why there is increased use of mobile banking. This confirmed the
findings of Wilson, Harper and Griffith (2010) on the effects of m-pesa on individual savings into group accounts and enabled customers transfer money to and from their m-pesa accounts via their mobile phones handsets.

4.6.5 Acceptance of mobile banking
From the findings of the study, the majority of respondents (65.3%) felt that acceptance of mobile banking services affected business sales. This confirmed the findings by Morawcynski and Pickens (2009) who argued that m-pesa users often kept a balance on their m-pesa accounts as a rudimentary bank account. The m-pesa users send smaller but more frequently remittance suggesting that the system allowed informal insurance network functioned more effectively.

4.6.6 Connectivity with suppliers
A higher proportion of the respondents agreed that mobile phones connected the firms with the suppliers. On average 60.3% agreed that connectivity with suppliers affected the business sales. Only 8 (13.8%) strongly disagreed that connectivity with suppliers affected business sales. This contrast with the findings of Hardy (1980), Roller and Waverman (2001) who argued that by improving communication between firms and their suppliers, mobile phones enabled firms to manage their supply chains more effectively, streamline their production processes and engaged in new activities.

4.7 Meeting customers’ needs
The fourth objective was to establish how the uses of mobile phones enabled informal businesses meet their customers’ needs. The respondents were presented with a 5-point Likert scale comprising of 5 items ranging from 1 (strongly agree) to 5 (strongly disagree) on factors that the use of mobile phones enabled respondents to meet customers’ needs. Table 4.7 summarizes their responses.
### Table 4.7 Meeting customer's needs

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<td>16.0</td>
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<td>37.0</td>
<td>8</td>
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<td>Shorter delivery time</td>
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<td>0.00</td>
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<td>3.2</td>
<td>55</td>
<td>57.9</td>
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</table>

Source: research data 2012

**Key** 1- strongly agree  2- Agree  3- Neutral  4- Disagree  5- Strongly disagree

**M**- mean  **sd**- standard deviation  **var**- variance

Table 4.7 shows that respondents agreed that by raising orders using mobile phones and the feedback acted upon promptly, informal businesses were able to meet their customers' needs. For instance, respondent strongly agreed that by raising orders using mobile phones, respondents were able to meet their customers’ needs. This was shown by a mean of 20.40 in table 4.7. However, a considerable proportion of the respondents indicated that improved quality of service (41.7%), having customers’ databank (18.5%) and shorter delivery time (26.3%) did not enable the respondent met the needs of their customers.

#### 4.7.1 Raising orders

On average 22.0% of the respondents agreed that mobile phones assisted to increase the number of orders made. However, a higher proportion of the respondents (32.6%) were neutral concerning the effects of mobile phones on number of orders a firm made. This might be because most operators were not informed of the uses of technology in business. This concur with the findings of Wakari and Ocholla (2010) who found out that mobile phones could easily be adopted to the local economic environment and that small sized SMEs had greatly adopted the affordable mobile ICT.
4.7.2 Improved quality of services
A minority of the respondents (5.0%) agreed that use of mobile phones had improved the quality of services. On average only 30.0% agreed that the use of mobile phones had improved the quality of services provided. 41.7% respondents strongly disagreed that the use of mobile phones improved on the quality of the services offered by informal businesses. The lower standard deviation indicated lower diversion of the views of the respondents. This might be due to the decreased use of ICT in the SMEs as it was found out by Wakari and Ocholla (2010) because of the expensive type of ICT.

4.7.3 Customers databank
Although most of the operators uses mobile phones, they rarely keep track of their customers. This was evidenced from the findings in table 4.7 that none of the respondents strongly agreed that by keeping customers databank and tracking them, this could enable them to meet their needs. On average 43.3% respondents agreed that by keeping customers databank mobile phones assisted in meeting customers’ needs. This was in line with the findings of Asheeta Bhaunani et al (2008) who found that mobile phones reduced information asymmetries.

4.7.4 Shorter delivery time
Table 4.7.3 shows that the use of mobile phones did not shortened the delivery time by the respondents. This was indicated by the fact that none of the respondents strongly agreed that the use of mobile phones shortened delivery time for goods and services. This prevented the businesses from meeting their customers’ needs.
4.7.5 Customers feedback acted upon

20.0% of the respondents on average agreed that mobile phones affected the customer feedback acted upon. This indicated the reliability and efficiency on use of mobile phones on solving customers problems. This indicated that use of mobile phones improved the efficiency on the informal sector was on rise as per the findings of K. Litondo (2010) who found that many operators had mobile phones and they used them for business transactions.

These findings indicated that if the informal sector businesses were well trained on the effects or role of ICT on the improved service delivery then businesses would realize the gains of ICT as per the findings of Grimad (1997) and de Weerdt and Dercon (2006).

4.8 Challenges of informal businesses.

The respondents were asked to make general comments on the main challenges facing the informal sector businesses. In response, they noted that their main challenges were lack of capital, insecurity, competition and lack of space/stalls. Most respondents were in agreement that lack of capital hinders growth of the informal business as most financial institutions were unwilling to extend credit facilities due to lack of security. They also noted that stiff competition was a major challenge as most of them were selling similar goods to same customers. Lack of operating spaces/stalls was noted as a major issue especially during rainy seasons as the stalls are not enough to accommodate all the operators in Muthurwa open market. This was forcing operator to place their wares along the pavements hindering ease flow of traffic and in the bus stop.

Regarding on whether mobile phones had reduced the challenges, the respondents identify the issue of competition as one of the challenges that the mobile phone had alleviated. They stated that through connection with customers, they were able to sell their wares by informing their customers about their goods and also meet their needs. This meant that those operators who used mobile phones in their operations achieved competitive advantage.

Respondents also noted that although lack of capital was a major challenge, they were able to borrow from their colleagues or through merry go-round (chamas) and make their repayments by the use of mobile phones.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study, conclusions and recommendations arrived at. The chapter also presents suggestions for further studies.

5.2 Summary of the study

The research was aimed at establishing the role of mobile phones on creating competitive advantage in the informal sector businesses. The study specifically investigated whether the use of mobile phones reduced costs of operation, facilitated business growth, increased sales and meet customers’ needs. Data for the study was collected from 135 operators in the informal sector in Muthurwa open market. Given below is a summary of the main research findings.

5.2.1 Costs of operation

The research revealed that cost of operating businesses was drastically reduced when they used mobile phones. From the findings on whether the use of mobile phones reduced the costs of ordering materials, the study found that most respondents indicated that they felt the use of mobile phones reduced the costs of ordering materials. This made their businesses more competitive.

From the findings on the transport expenses, the research found that most of the operators agreed the use of mobile phones reduced transport costs as operators do not need to travel long distances to look for materials as they had call suppliers.

The study also revealed that the cost of paying debt was reduced as payments were made through mobile money transfers. This further reduced travel expenses by the operators.

The mobile phones had customer databank that facilitated ease reach of customers. Most operators indicated that they could easily reach their customers and suppliers without much travelling and thus reducing the costs of operating businesses.
Most operators were operating chamas or merry go round. The money from the chamas was used for business expansion. The study revealed that the operators were using mobile phones to make their payments for the chamas.

From the findings on whether the operators were using mobile phones to pay salaries and wages, the study revealed that very few operator were using mobile phones to pay salaries and wages.

As a result, the following conclusion can be derived from using mobile phones in their operations. The use of mobile phones enabled the informal businesses gain cost minimization thus competitive advantage.

### 5.2.2 Improved business growth

On whether the use of mobile phones improved informal business growth, most respondents were positive that the use of mobile phones had improved their businesses. The use of mobile phones enables informal business operators to enter new markets. The operators were aware of new markets through contacts with other operators. The operators could inform each other on new market opportunities hence growth.

From the findings on whether the use of mobile phones assisted the operators introduce new products into the market; the research revealed that the operators rarely used mobile phones to introduce new products into the market. The customers bought what they were aware of than trying any new unknown products in the market.

From the findings on how the use of mobile phones assists in acquisition of other businesses, the research revealed that informal business operators did not rely on mobile phones to acquire other businesses. Acquisition of other businesses was not very common in the informal sector businesses.

Diversification is very common in businesses. From the findings on whether informal businesses relied on mobile phones to carry out diversification, the research revealed that few operators practiced diversification as a risk mitigation strategy.
The research also revealed that the use of mobile phones increased informal businesses profitability. Profits were realized as the cost of operation was reduced drastically.

From the findings on how the use of mobile phones assisted the informal businesses improved their savings, the research revealed that the use of mobile phones increased and improved savings through the mobile banking facilities that were available in the market such as m-pesa, air money and yu-cash.

5.2.3 Informal business sales

From the findings on how the use of mobile phones improves the businesses sales, the research established that the availability of mobile phones improved sales. The research found that operators were able to communicate with both the customers and suppliers.

The research also revealed that most mobile phone services were affordable to both the operators and customers. As the services were affordable, operators were able to get in touch with both the customers and suppliers. Operators did not care about the costs.

From the findings on whether connectivity with both customers and suppliers enhanced business sales, the research revealed that connectivity facilitated communication with both the customers and suppliers thus enabling informal businesses to improve sales. Mobile phones enables operator to keep a databank for both customers and suppliers.

On mobile banking technology and it’s effects on business sales, the research found that mobile banking was available and acceptable among most operators. Research found that many operators were applying mobile banking in their business operations. The research revealed that most business operators were aware of and using mobile banking in doing businesses. The researcher also observed that the availability and acceptance of mobile banking facilitated easy money transfers which enabled the operators to pay bills. Operators were able to receive supplies from suppliers and
made payment later. Customers were able to raise orders and made payments using the mobile banking facilities. This enabled business operators to increase sales.

5.2.4 Meeting customer’s needs

From the finding on how the use of mobile phones enabled the informal businesses meet customer’s needs, the research revealed that customers did not raised order using their mobile phones and the orders were acted upon promptly and efficiently. The research found that customers rarely called operators for goods or through short message services. This affected customers satisfaction.

The research also revealed that the use of mobile phones did not improve the quality of services offered by the operator. Although customers could raise order for goods, the delivery time depended on the availability of goods ordered. In the same line, operators ordered for supplies from suppliers but the delivery depended on their availability. This affected the operators from meeting customer’s needs.

From the finding on whether the existence of customers’ databank enabled operators to meet customer’s needs, the research revealed that operators took advantage of the databank to gather timely information and feedback from customers and used the same to enhance customer satisfaction and create loyalty.

5.3 Conclusion

The research found that mobile phones had an impact on creating competitive advantage in the informal sector businesses. The research revealed that those informal businesses that had adopted mobile telephony in their businesses operations had their operational costs reduced drastically. The main costs involved transportation and ordering that were reduced drastically. By making a call, the operator would order and sell goods without much travelling and therefore reducing costs of operation.

Mobile payment technology is increasingly used by the informal business operators. The research findings established that mobile payment was convenient and well supported. This provides greater support and enhances customer’s convenience; therefore the businesses were able to achieve competitive advantage.
Based on the findings of the research, the government and the mobile service provider can enhance the informal business use of mobile telephone through increase of daily transactions that enable businesses to transact cheaply.

5.4 Recommendations

The study recommends that there is the need the informal businesses to adopt mobile telephony technology in their business transactions in order to achieve competitive advantage.

The study recommends that mobile telephone service providers should maintain or lower their charges so that the services can remain affordable to all the operators in the informal sector businesses.

The study also recommends that the survival of the informal businesses depend availability of credit. The financial institutions and mobile service providers should be innovative on how to reach the informal sector businesses and their customers. This will ensure benefits of the services offered.

5.5 Suggestions for further research

From the findings, conclusions and recommendations, the study recommends that an in-depth study should be carried out to determine how the use of mobile telephony enhance survival of informal sector businesses in a dynamic competitive environment.

The study should further address how the government should work with service providers and financial institutions to ensure survival of the informal sector businesses as the driver of the economic development. Such partnership can be used to develop and disseminate relevant and effective information technology solutions to solve specific informal sector business challenges.
REFERENCES


Chogi, B. F. *The Impact of Mobile Phone Technologies on Medium and Small Enterprises/Jua Kali (MSEs).* Nairobi.


Research Instrument

A survey on the role of mobile telephony on creating competitive advantage in the informal sector businesses in Kenya

Please spare some few minutes to complete the following questionnaire about your type of business. Information supplied is for academic purposes and will be treated with confidentiality.

PART I
Demographic Data

A. Indicate your gender.
   1. Male
   2. Female

B. Indicate your age.
   1. Less than 20 years old
   2. 20 - 35 years old
   3. 36 - 45 years old
   4. 46- 55 years old
   5. Over 55 years old

C. Indicate your marital status.
   1. Single
   2. Married

D. Indicate your highest level of education you have completed.
   1. Primary
   2. KCSE
   3. Diploma
   4. Bachelor
   5. Masters
   6. Others specify

E. Indicate one category that best describes your type of business.
   1. Selling fruits and Vegetable
   2. Food kiosk
   3. Selling clothes
   4. Selling cereals
   5. Shoes shine and repair
   6. Selling shoes
   7. Mobile phone repair
   8. Selling air time
   9. Selling utensils
   10. Selling books, posters and magazines
   11. Art and designing
12. Barbers/saloons
13. Garbage collection
14. Others (specify)

F. What is your monthly business income (Kshs)

1. Below 1,000
2. 1,000 to 5,000
3. 5,000 to 10,000
4. 10,000 to 20,000
5. Above 21,000

PART II
Section 1
Information on Costs of operations

Please indicate, by ticking the check box, the type of costs that have been reduced by
the use of mobile phones in your business. You can indicate as many types as
applicable.

1. Costs of material-------------------------------------
2. Transport expenses----------------------
3. Debt payments------------------------------------------
4. Costs of raising orders ------------------------------
5. Payments of salaries/wages-------------------
6. Payments for chamas---------------------------
7. Others (specify)

Tick Here
Section II
Use of mobile phones in business growth

Has the use of mobile phone increase your business growth: Yes ___ No ___

Please rate the extent to which you agree on how the use of mobile phone has improved your business growth on a scale of 1 to 5:

<table>
<thead>
<tr>
<th>1. Enter new markets</th>
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<th>Neutral</th>
<th>Strongly Disagree</th>
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<tbody>
<tr>
<td>2. Introduce new products</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Acquisition of other businesses</td>
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<tr>
<td>4. Diversifying of the operations</td>
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<td>5. Increase in Profits</td>
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<tr>
<td>6. Increased savings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Others (specify)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Section III
Factors that influencing increase business sale

Please rate the extent to which the following statements explain how the use of mobile phone improves your business sale on a scale of 1 to 5:

| 1. Availability of mobile phones          | Strongly Agree | Neutral | Strongly Disagree |
| 2. Affordability of charges               |                |         |                   |
| 3. Connectivity with customers            |                |         |                   |
| 4. Availability of mobile banking(m-Pesa, yu cash, zap) |                |         |                   |
| 5. Acceptance of the mobile banking services by public |                |         |                   |
| 6. Connectivity with suppliers            |                |         |                   |
| 7. Other factors (please Specify)         |                |         |                   |
Section IV
Information on meeting customers needs.

Please rate the extent to which the following statements explain the use of mobile phone assist your business meet customers’ needs on a scale of 1 to 5.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Neutral</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

1. Raising orders using mobile phones
2. Improved quality of service
3. Customer databank
4. Customer feedback acted on
5. Shorter delivery time
6. Other factors (please Specify)

What are the main challenges facing the informal businesses?

________________________________________________________________________

________________________________________________________________________

Does the use of mobile phones reduce the challenges outlined above?
Yes ________  No ___________

If Yes, explain how mobile phones have reduced the challenges.
________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

What kind of difficulties did you encounter when using mobile phones in your business operations?
________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

What are other sources of information do you rely on in your business operations? (e.g. word of mouth, gossips, newspapers, electronic media, internet, and web pages etc).
________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Do you think mobile phone usage has met your expectations in business?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
24th January, 2012

TO WHOM IT MAY CONCERN:

RE: REUBEN KIMANI MWAURA – D53/OL/16097/06

This is to confirm that the above named is a Master of Business Administration MBA (Strategic Management) student in the School of Business, Kenyatta University.

He is through with course work and has successfully defended his Masters Degree proposal (The Role of Mobile Telephony on Creating Competitive Advantage in the Informal Sector Businesses in Kenya. A Survey of Muthurwa Open Market) and has done all the corrections that were pointed out by the examiners during the defense. He is now embarking on data collection.

Any assistance accorded to him will be much appreciated by this office.

Thank you.

MUATHE SMA (PhD)
DOCTORAL AND MBA PROGRAMME COORDINATOR

SMA/mk