

**THE DIFFUSION OF INFORMATION AND  
COMMUNICATION TECHNOLOGIES IN THE INFORMAL  
SECTOR IN KENYA**

**BY**

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**Thesis submitted in fulfilment of the requirements for the award of the  
Degree of Doctor of Philosophy (Library and Information Science) at the  
University of Zululand, Kwa Dlangezwa, South Africa**

**2012**

## DECLARATION

I declare that this study, "The diffusion of information and communication technologies (ICTs) in the informal sector in Kenya", except where indicated otherwise in the text, is my own original work and has not been presented for the award of any degree at any other university. All the sources that were used in compiling this document have been acknowledged both in the text and in the references.



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## **DEDICATION**

This thesis is dedicated to my immediate family - my husband, Gichambira, and daughters, Wambui, Njeri and Wairimu, for their patience, sacrifice, encouragement and help. Their support has been a great inspiration to me.

I also dedicate it to my late father whose peaceful demeanour rubbed off a little on me;

To my late father-in-law, who maintained an attitude of continuous learning until the end; and

To my mother, for her constant prayers and intercession.

## **ACKNOWLEDGEMENTS**

First and foremost, I wish to thank and honour God Almighty for giving me the good health, energy and will to pursue this program.

I am grateful to the University of Nairobi, my current employer, for granting me study leave and the support that enabled me to carry on with my work. I am also grateful to the University of Zululand for granting me the support and opportunity to pursue my studies in this prestigious institution, as well as the financial support that they provided for me in carrying out my fieldwork and facilitating visitations and consultations with my supervisors.

To my supervisor, Professor D. N. Ocholla, I express sincere and deep gratitude for the unfailing encouragement and inspiration that he has tirelessly extended to me throughout the research process. My gratitude also extends to Professor Le Roux for his support and helpful comments, and Professor Mutula for his helpful and insightful comments.

I also wish to thank Bilhah Wanjie and Kamondo, my assistants in data collection, and Christopher Owino for his support and efforts in facilitating access to the village market for data collection.

Special thanks go out to my colleague and friend Dorothy Njiraine, both at work and at the University of Zululand, who right from the beginning provided me with inspiration, encouragement and motivation. She gave me the much-needed will and strength to plod on. I am also grateful to my colleague, Mugo, and my daughter, Wairimu, who effectively became my computer instructors when I needed help. Their instruction went a long way in making this work manageable.

I also extend my appreciation to Nonhle Mtshali and Ntando Nkomo for their assistance whenever I needed it..

I am grateful to my sister, Muthoni, and her colleague, Isabella, for offering much needed support and assistance at very short notice when I needed it.

I am grateful to my family for their patience, support and encouragement: Gichambira, Wambui, Wairimu, Njeri and Shane, and especially Wairimu for her help in typing and formatting parts of the work at short notice. Special thanks go to my brother, Nduati, for pointing me in the right direction with data analysis and Njeri Nduati for working tirelessly to compile the raw data.

To all those who I have not been able to mention (and they are many), I am in no way less grateful; your efforts and encouragement in every way have been greatly appreciated.

## **ABSTRACT**

The purpose of this study was to investigate the diffusion of information and communication technologies (ICTs) in the informal sector in Kenya. The study specifically focused on micro and small enterprises (MSEs) in two provinces in Kenya, namely Nairobi Province and Central Province.

Information for the study was gathered through a literature review, a field survey, and personal observation. Questionnaires were used to solicit information from micro and small enterprise participants drawn from the two provinces. A combination of purposive and probability random sampling was used to generate the sample frames of MSE clusters and respondents respectively.

The sample of respondents was drawn from the central business district in the city of Nairobi, two markets (Gikomba market and Kenyatta market) and a horticultural products' depot next to Jomo Kenyatta International Airport in Nairobi Province. Two urban centers and two market centers were selected from Central Province, namely Kiambu and Thika towns and Kabati and Makutano market centers in Muranga District. Questionnaires were administered to a sample of 390 MSE participants comprising of owner/managers and selected employees.

The overall results revealed that the majority of MSEs are small and are started with little preparation and scarce capital. Only 5.6% of the enterprises had more than five employees, while less than one percent had over ten employees. The majority of the MSEs (over 90%) therefore fell in the micro-enterprises category.

The use of ICTs by the micro enterprises' participants, with the exception of the mobile phone and mobile money services, was found to be quite low. The use of the mobile phone and mobile phone services was over 90%. . Access to formal business information sources was also poor, and the majority of the MSE participants relied

mainly on their knowledge and experiences, customer reactions, telephone contacts, and friends and relatives. Information was rarely sourced from government agencies and other formal sources like the internet and mass media.

MSEs face many challenges in the use of ICTs because of the nature and small scale of their businesses, which do not allow them to focus on much else beyond survival. The MSEs lacked institutional capacity and support in the form of affordable telecommunications facilities and ICTs as formal sources of information.

The mobile phone has been embraced by MSE workers, as an affordable and quick way to communicate and perform business transactions. The mobile phone technology has been quickly adopted and is heavily relied on in MSE operations.

The study recommends accelerated government involvement in order to address the various challenges of providing the necessary infrastructure, developing and implementing effective policies, improving the distribution of economic resources, improving business premises and infrastructure that can reach the MSEs, improving skills and training to enable the use of ICTs, raising awareness, facilitating access to credit and finance, as well as improving information structures for formal information sources and dissemination.

The study recommends more research to gain a deeper understanding of the context and information needs of small business enterprises in order to be able to offer a strategic framework for appropriate intervention in providing information for MSEs.

Further research is also recommended in the area of mobile telephony, given its rapid adoption and use in a short span of ten years, to bring out its full potential and benefits.

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## **ACRONYMS AND ABBREVIATIONS**

ANT	Actor Network Theory
CCK	Communication Commission of Kenya
GDP	Gross Domestic Product
GNP	Gross National Product
ICTs	Information and Communication Technologies
ILO	International Labour Organisation
ITU	International Telecommunications Union
MSEs	Micro and Small Enterprises
SCOT	Social Constructivism Theory
SMEs	Small and Medium Enterprises
SSJKE	Small Scale and Jua Kali Enterprise

## GLOSSARY OF CONCEPTS

**Diffusion:** This is the process by which new ideas or technologies are dispersed to large areas or to the members of a social system.

**Diffusion of Innovation theory:** Is a theory that seeks to explain how, why and at what rate new ideas and technologies are adopted by communities and cultures.

**Harambee:** The concept means 'collective effort' or 'pull together' in Kiswahili, and embodies ideas of mutual assistance and joint effort in community activities. It is geared towards self-help projects for self-reliance. The concept was popularized into a national slogan in Kenya by the first president of Kenya, Mzee Jomo Kenyatta.

**Information and communication technologies:** This encapsulates an array of digital technologies designed to collect, organize, store, process and communicate information or data inside and outside an organization. They facilitate the movement and flow of information and ideas and include fixed phones and mobile phones, fax machines, computers, printers, scanners, the internet, email, etc.

**Informal sector:** The informal sector can generally be viewed as an economy that is not taxed or closely monitored by the government, because in reality it is a way of earning a living for people who are self-employed and who are outside the formal sector. The informal sector enterprises are started by those who have failed to get jobs in the formal/modern sector, with little capital, which does not allow the use of expensive technology, the enterprises therefore continue to remain as sustenance outfits with little or no growth.

**Jua kali:** Literally means 'in the hot sun' in Kiswahili, and is used to refer to the many business operations that are carried out anywhere, often outside in the open, and without the benefit of offices, factories or showrooms that are associated with formal sector businesses.

**Kiosks:** These are micro shops, which are operated by informal sector traders, for groceries, greens, and food-preparation outlets.

**Matatus:** The term is used to refer to the shared taxis commonly used as one of the main forms of transport on Kenyan roads.

**Micro and small enterprises (MSEs):** The term is used to refer to those economic enterprises with a workforce of up to ten employees and an annual turnover of five million Kenya shillings for micro enterprises; fifty employees and an annual turnover of ten million for small enterprises; and two hundred and fifty employees with an annual turnover of fifty million Kenya shillings for medium enterprises. The majority of the small enterprises in Kenya fall in the micro enterprises category.



## **CHAPTER ONE**

### **INTRODUCTION AND BACKGROUND**

#### **1.1 Introduction**

This chapter presents the introduction and background of this study on the diffusion of ICTs in the informal sector in Kenya by defining the research concepts and contextual setting of the study. The chapter describes the research problem and motivation for the study and its aim and objectives, research questions, assumptions, and scope and limitations. The significance of the study and how it will contribute to existing research and policy and decision-making in this area is also discussed here.

##### **1.1. 1 Informal sector**

The informal sector, otherwise referred to as Micro and Small Enterprises (MSEs) or Small and Medium Enterprises (SMEs) (Ikoja Odongo, 2002, p.10), is a prevailing reality in many parts of the world. MSEs or SMEs do not have a universal definition. They are defined differently by different countries and within sectors. Definitions are based on size, personnel, capital, nature and status of employment, activities, skills requirements, in accordance with organizational and operational regulations, and locational terminologies (Mutula and van Brakel, 2006, p. 402; Barasa and Kaabwe, 2001, p. 332; Ikiara, 1991 p. 310). In Kenya, for example, the term 'micro enterprises' is commonly used to refer to either enterprises with one to five employees, or to those with one to nine employees (Migiro, 2006 p. 35; Opiyo and K'Akumu, 2006 p. 243). This study used one to nine employees in its definition of MSEs. One to five employees would have limited the study to only very small enterprises and denied the inclusion of larger enterprises that are also part of the sector.

According to Bangasser (2000, p.8), the concept of the 'informal sector' was first formally recognized and popularized in a study that was carried out by the

International Labor Office (ILO) in Kenya in 1972. Bangasser (2000, p. 8) describes how the ILO (1972, p. 5) noted the country's use of employment statistics that only represented the formal sector and omitted:

...a range of wage earners and self-employed persons...in the informal sector. The ILO study departed from the then popular view of informal sector activities, which was primarily defined as that of petty traders, street hawkers and shoeshine boys and that were far from being marginally productive. The study viewed the bulk of employment in the informal sector as economically efficient and profit making, though small in scale and limited by simple technologies, having little capital and lack of links with the formal sector.

The ILO study further viewed the activities in the informal sector as characterized by ease of entry, reliance on indigenous resources, family ownership of the business/enterprise, small scale of operation, and labor intensive. The informal sector's skills were acquired outside the formal school system and in the unregulated and competitive markets (ILO, 1972, p.6).

In a report of the ILO's Director General (1991, pp. 3-4) report, the definition of the informal sector is penned as:

...very small scale units producing and distributing goods and services, and consisting largely of independent, self-employed producers in urban areas of developing countries, some of whom also employ family labor and/or a few hired workers or apprentices; which operate with very little capital, or none at all; which operate a low level of technology and skills; which therefore operate at a low level of productivity; and which generally provide very low and irregular incomes and highly unstable employment to those who work in it. They are informal in that they are, for the most part, unregistered and unrecorded in official statistics; they tend to have little or no access to organized markets, to credit institutions, to formal education and training institutions, or to many public services and amenities; they are not

recognized, supported or regulated by the government; they are often compelled by circumstances to operate outside the framework of the law, and even where they are registered and respect certain aspects of the law, they are almost invariably beyond the pale of social protection, labor legislation and protective measures at the workplace.

This definition does not provide any specific figures and does not refer to specific occupations. It also limits informal sector activities to the urban areas of developing countries, while they are also in rural areas and in developed countries although to a much less extent.

The informal sector is highly heterogeneous, and ranges from enterprises that employ labor like small scale manufacturing enterprises, to one person enterprises like shoe shiners, hawkers, street vendors, and retail kiosk operators. Informal sector entrepreneurs also attain varying levels of income, with some earning incomes that are higher than wages and salaries in the formal sector, while others barely survive. Some are also licensed while others are not (ILO, 1991, p. 5; Ikiara, 1991, p. 310).

Moyi et al. (2006, p. 9) classify MSEs into two broad categories: those with 1-10 employees and those with 11-50 employees. The former are usually unregistered due to the harsh legal and regulatory environment. They also operate from little sheds and stalls, as hawkers, or simply vend directly from the streets. Moyi et al. (2006, p.9) add that the former category (1-10 employees) hardly have any potential for improved employment creation and production, while the latter enterprises are usually registered, more established, and may operate from legitimate business premises with the potential for growth and employment creation. Both categories are, however, constrained by access to financing, lack of markets and crucial market information, as well as lack of information about new technologies and linkages with international markets. They face stiff competition due to ease of entry, which

results in overproduction of similar goods. They are highly vulnerable due to their reliance on self-supporting and informal arrangements which operate separately and independently of the institutions of modern economy (ILO, 1991, p. 5 & 23).

Barasa and Kaabwe (2001, p. 333) observe that MSE activities are legal but rarely comply with official and administrative requirements; they often go unregistered and do not pay relevant taxes, not because they always escape or remain concealed, but because of the inability of governments to enforce the often inadequate regulations. They are therefore existing proof that the laws are inadequate, and have become a means for many countries to cope with population growth and rural and urban migration (GOK, International Centre for Economic Growth and K-Rep Holdings, 1999, p. 13). Informal sector enterprises operate in the open and are subject to some regulatory practices, such as licensing and restrictions to some locations and certain local authority service charge payments, although they may sometimes be compelled (by circumstances) to operate outside the framework of the law (Ikiara 1991, p.4). The informal sector is commonly referred to as the 'jua kali' or small scale and jua kali enterprise (SSJKE) sector in Kenya, which literally means "under the hot sun" in Kiswahili. This is because most of the enterprises carry out their operations in the open. Jua kali is also indicative of the difficult conditions in which they work (Orwa, 2007, p. 1; GOK, 1989, p. 164).

There are more micro and small enterprises in Kenya than there are medium enterprises, in the Kenyan industrial sector (GOK, 1992, p. 4). The Kenyan government has defined the informal sector as "enterprises comprising between 1–50 employees and up to Kenya Shillings 5 million in turn over" (GOK, 1989, p. 164). Figures for the United Kingdom, as indicated by Ramsey, Ibbotson, Bell and Gray (2003, p. 262), are 1-9 employees for microenterprises, 10-99 employees for small enterprises, and 100-250 employees for medium sized enterprises. The European Union has referred to SMEs as those with fewer than 250 employees, which is also adapted for use in the United Kingdom (Ritchie and Bridley, 2005, p. 206).

The informal sector in Kenya is characterized by activities such as shoe-making and repair, street hawking, tailoring, hair salons, traditional medicine practices, *matatu* (taxi) services, textile trading, including second-hand clothes dealers, grocery and food kiosks, as well as skilled occupational activities such as carpentry, motor mechanics, electrical/electronic and masonry, among others. The sector not only offers employment to the owner and his/her family, but also to others outside the family. The informal sector has managed to develop independently without state support and provides a training ground for the nation's entrepreneurs who have shown a capacity for risk-taking and spending a great deal of energy in problem-solving by making innovations and improvisations (GOK, 1989, p. 165; GOK, 1992, p. 1).

Informal sector activities occur in both rural and urban areas, but are more common in urban areas because of better markets and infrastructure, such as electricity and water supply (Ikiara, 1991, p. 310). They are easily 'born', but have an equally high mortality rate, which could be a reflection of economic dynamism where uneconomic activities find it difficult to survive. It has also been observed that in Kenya and other developing countries, informal sector enterprises are not primarily oriented to profit maximization, but rather to employment creation and security for members of the family. There are some, however, which go on to become success stories. Part of the high mortality rate could also be due to the harsh environment in which they operate which raises the commonly-asked question: how much support can the government give to the sector (GOK, 1989, p. 164)?

According to King (1996, p. 12), the government finds itself in a dilemma because of earlier experiments/experiences with state-funded and protected formal enterprises which could not sustain themselves when the time came for the government to withdraw active support and protection. Active involvement from the government has been found to lead to slow entrepreneurial development and creates dependency in the enterprises when the point is to encourage them to be self-reliant. This was

observed in the government's support and protection of parastatals. (King, 1996, p. 12). The government can, however, play a facilitative role by providing an enabling environment and reviewing the policies to ensure that they are favorable to informal sector development (King, 1996, p. 12; GOK, 1989, p. 166).

Most informal sector studies concur that developing countries are dominated by informal sector enterprises that make a major contribution to employment creation, and that they exist primarily due to the inability of other sectors of the economy, such as agriculture and the formal/modern sector, to provide employment opportunities to a rapidly expanding labor force (Migiro, 2006, p. 35; Mutula and van Brakel, 2006, p. 402; Bigsten, Kimuyu and Lundvall, 2004, p. 332; Ikoja-Odongo, 2002, p. 10; Barasa and Kaabwe, 2001, p. 332). Informal sector workers create activities for themselves that provide them with an income to enable them to survive (ILO, 1991, p. 9).

The informal sector is associated with the poor and suffers a poor public image. Workers in the sector are also viewed as lacking in higher education qualifications (which is mostly the case), meaning that they are not employable in the formal sector. Sometimes the informal sector has also been seen as a temporary situation, i.e. those working in it could be assisted to leave and find a place in the formal sector, which misses the point that the formal sector has been able to absorb only a small fraction of the available labor force (Bangasser, 2000:16). The reality is that employment in the informal sector has continued to grow in spite of obstacles and lack of government support and far outweighs the growth in the formal sector (Bangasser, 2000, p. 4; King, 1996, p. 13; GOK, 1989, p. 164).

Apart from the creation of jobs, the informal sector has promoted a degree of indigenous control of the economy and helped to improve the distribution of income (King, 1996, p. 25; GOK, 1989, p. 166). According to King (1996, p. 24), the informal sector is also used to refer to creativity and improvisation. 'Jua kali', as it is

commonly referred to in Kenya, is extended to refer to the Kenyan African version of capital accumulation, which is in contrast to the multinationals and Kenya Asian businesses

### **1.1.2 Information and communication technology**

Rao (2004, p. 261) has defined ICTs as the set of artifacts that facilitate the capture, storage, processing, transmission and display of information by electronic means. ICTs offer remarkable opportunities for the alleviation of poverty and the creation of employment. ICTs have the potential to expand a country's economy by making economic enterprises more accessible to local and global markets, improving access to market information, providing information for better and competitive prices, as well as lowering transaction costs (Rao, 2004, p. 261; Shiels, McIvor, and O'Reilly, 2003, p. 312). They can also be exploited by small enterprises to create a list of contacts and to make use of available information to start and sustain new business ventures. For example, Moyi (2003, p. 222) and Shiels et al. (2003, p. 312) note that they have the potential to link small sellers and buyers to the daily market prices of commodities in different places, giving them the potential to change their negotiating power for the better.

Information and communication technologies have also been defined as an electronic means of handling data that incorporates an array of digital technologies designed to collect, organize, store, process and communicate information inside and outside an organization. ICTs facilitate the movement and flow of information and ideas and include telephones, fax machines, computers, the internet and email. Their defining characteristic is the speed at which they work in transferring information, bringing about a radical change in the way business is done (Ritchie and Brindley, 2005, p. 206).

Franklin (2006, p. 85) defines 'information and communication technology' as the term that is used to refer to the integrated use of informatics, information and

communication tools and infrastructure to assist in the dissemination of knowledge. ICTs can provide massive information through the internet and have the ability to link businesses to new markets and reveal new sources of raw materials. The sheer time saving capabilities of efficient and faster communication can save business enterprises a great deal of money.

The definitions emphasize the speed and time saving benefits of ICTs which, if applied to business environments, have the potential to lead to increased productivity. But as Shiels et al. (2003, p. 312) have observed, although MSEs and SMEs form a substantial constituency of the global economy, there is limited knowledge available surrounding their adoption of ICTs.

Small enterprises stand to benefit from opportunities offered by global markets to increase their operations beyond the local to global level by providing efficient channels for advertising, marketing and the distribution of their products (Shiels et al., 2003, p. 312). Cohen and Kallirroi (2006, p. 45) agree that information and communication technologies can radically change the competitiveness of organizations, and note how electronic commerce has reduced the cost of trading among companies and also helped to tighten their relationships and collaboration. ICTs have made the response to customers' needs faster, more flexible, and of a higher quality. The World Wide Web in particular has given the opportunity for economic firms, irrespective of their size, to enter the fray by marketing their products and services internationally to trade on a global scale, regardless of and beyond their geographical and national boundaries.

The following quote is taken from a lecture delivered by the Executive Secretary of the Economic Commission for Africa, who captures the possibilities of the introduction of ICTs in the informal sector in Africa:

60% of our people are engaged in fringe activities from which, because of a lack of support and training, they eke out a living. How can we improve their



productivity? How can we boost their enterprises? How can we introduce them to new knowledge and technology which, in revolutionizing their lives, would lift the rest of Africa? ...Information technology offers a means for Africa to leapfrog into the 21<sup>st</sup> century. Apart from the intrinsic importance of information and knowledge to any development effort, it reduces the cost of doing business, cuts across the huge geographical barriers that have been such impediments to development in Africa, and offers numerous economic opportunities in and of themselves for small scale entrepreneurs (Amoako, 2000, p. 1).

The sentiments above capture the dynamics and potential of ICTs and the informal sector. ICTs can contribute to economic development by providing better market information, improving transport efficiency, facilitating the distribution of economic development, and increasing connectivity to and coordination with international economic activities. ICTs have become an important feature in the global transformation of social, economic and political life (Migiro, 2006, p. 40; Donner, 2004, p. 4; Hafkin and Taggart, 2001, p. 1). They have already reduced the cost of conducting business in many parts of the world. The internet especially is liberating because it enables businesses to access global markets (Opiyo and K'Akumu, 2006, p. 243). ICTs have thus played a vital role in changing approaches to business by making it possible for business enterprises worldwide to establish direct links with customers, suppliers, and distributors, and thus facilitate faster and more efficient service delivery and transactions (Castells, 1999, p. 3; Amoako, 2000; Hafkin and Taggart, 2001, p. 1).

While proponents of ICTs believe that they have the capacity to provide developing nations with the unprecedented opportunity to meet vital development goals (and thus leapfrog several stages of development), there are some critics who do not see ICTs as a quick fix for solving development problems. For example, Moodley (2005, p. 7) and Koanantakool (2004, p. 127) argue that technology has to be integrated into the life and culture of those who stand to benefit from it. These scholars argue

that the idea of the digital divide overemphasizes the positive role of technology while there are other divides and inequalities that hamper development. They do not see ICTs alone as a recipe for development while there is a complex set of factors at play that are yet to be appropriately addressed. In their view, ICTs are only capable of delivering minimum results.

This school of thought views the lack of access to ICTs as just a symptom of the deeper underlying problem of the main developmental divide (Chacko, 2005, p. 1; Franklin, 2006). Koanantakool,(2004, p. 127) argues that in order for ICTs to be successfully used to solve a community's problems, they must be integrated into the community's way of life and culture; members of the community have to understand, appreciate and integrate the ICTs into their production, marketing, accounting, trading and other areas of their life.

Ocholla (2006, p. 15) has also observed that poor communities, who are usually information-poor as well, prefer orally-communicated information. This, according to Ocholla, is consistent with the success of mobile phone technology which is an emerging technology that seems to have fared much better as a tool of information than, for example, libraries (as sources of information) which have been in existence for much longer. Mobile phone technology has revolutionized the way business is carried out, even in the case of small scale and micro businesses. From wherever they are, business people can communicate with their employees when they are away from their workstations and get briefings as frequently as they need to. Likewise, business people can communicate with their suppliers/consumers/ customers to get the information they need to make appropriate decisions, market their goods or make order goods and services.

### **1.1.3 Informal sector**

According to ILO (1991, p. 9), informal sector activities have always been part of the urbanization process, since the very beginning of urban civilization, as people migrated from the rural areas to towns and cities in different parts of the world to offer services in areas like crafts, petty trading and services. Informal sector-type of activities are therefore not a new phenomenon, but Mcdade and Springs (2005, p. 18) have rightly observed that, "The entrepreneurial landscape in Africa ranges from a multitude of SMEs to a small number of large corporations." This situation is sometimes referred to as "the missing middle" and can be extended to include other developing countries and not just those on the African continent (Ikoja-Odongo, 2002, p. 5; Barasa and Kaabwe, 2001, p. 351). Most developing countries are dominated by informal sector enterprises, especially micro and small enterprises.

According to Ritchie and Brindley (2005, p. 206), the SME sector is recognised as a very significant sector in all developing and developed economies worldwide. At the time of their study the European Union had 18 million SMEs that are responsible for 67% of the jobs and 59% of the Gross Domestic Product (GDP). Referring to the same study, SMEs represented 55% of employment and 51% of the GDP in the United Kingdom (Ritchie and Brindley, 2005, p. 206). In Kenya, contribution from MSEs to the Gross Domestic Product (GDP) was estimated at 18.4% in 1999 (GOK, Central Bureau of Statistics, International Centre for Economic Growth and K-Rep Holdings, 1999, p. vii). According to the 2010 Economic Survey, an annual publication representing some economic activities, the informal sector created 390,400 new jobs compared to the 55,400 thousand new jobs created in the formal sector. This constituted 87.6% and 2.8% respectively of all the new jobs created for the year 2009. Two baseline surveys in 1993 and 1999 show that MSEs grew from 900,000 enterprises employing 1.3 million workers in 1993, to 1.3 million enterprises employing 2.3 million workers in 1999 (Parker and Torres, 1994, GOK et al., 1999). A more recent study (Pollin, in Kuuya, 2010, p. 5) found that micro

and small enterprises had increased to 1.9 million and were employing 4.4 million workers.

The informal sector, in the view of Barasa and Kaabwe (2001, p. 329), is one of the responses to the challenges of rapid population increase, rising unemployment among school leavers, and a shrinking job market in formal, public and private sectors in developing countries. It is not a transient phenomenon as it was sometimes thought to be, but a growing one since the formal or modern sector (both public and private sectors) has not only failed to absorb the labour, but has also been laying off some of its workers in restructuring programs. The informal sector therefore functions as a huge labour sponge (ILO, 1991, p. 9).

The informal sector in Kenya has been around for a long time and policy makers have not done much to address its problems effectively. They have turned a blind eye in the hope that it would go away, but instead it has continued to grow. The policy makers even tried, without much success, to suppress the informal sector and subjected the entrepreneurs to various forms of harassment - using bulldozers to clear and demolish informal settlements and structures or clearing enterprises off the streets and driving them away from the city centres. But the informal sector has simply persisted, given the lack of alternative forms of employment it has expanded even more in most developing countries.

The negative attitudes of policy makers have, however, began to change in the last few decades, beginning in the mid-eighties with the realization that the informal sector was not a transient phenomenon, but one that had continued to show a great deal of resilience (King, 1996, p. 13). This change in attitude also gave way to a school of thought that views informal sector workers as the true indigenous entrepreneurs in developing countries, especially due to their risk-taking ability and determination to survive against all odds. This school of thought argues that given a more enabling environment and subject to less restrictive regulations, the

informal sector could actually be successful and go on to act as the entrepreneurial and industrial base in developing countries. There is also increasing recognition by the government of Kenya on the role played by the informal sector in developing countries' economies in the form of job creation and provision of affordable goods and services. However, the dilemma of how much support or involvement that should be given by the government to the informal sector without turning it into a dependent entity, still remains (King, 1996 p. 13; ILO, 1991, p. 16).

It is estimated that 8,332,000 persons were engaged in informal sector economic activities in 2009 in Kenya, an increase of 4.9% from 2008 (GOK, 2010, p. 78). The informal sector created 390,400 jobs, which constituted 87.6% of all the jobs created in the year 2009, while the formal sector contributed only 55,500 jobs (GOK, 2010, p. 69). The number of manufacturing firms employing 10-50 persons in Kenya is relatively small compared to other developing countries. The development of the small enterprise sector was highlighted in both the Sessional Paper No. 1 of 1986 and the Sixth National Development Plan (1989-1993) as a primary means of strengthening Kenya's economy. The sector includes enterprises employing between 1-50 workers, which represents enterprises that are bigger than what is in existence, mainly less than ten workers (GOK, 1992, p. 1).

The Kenyan government has made efforts to improve and implement policies that promote the small enterprise sector, but this was after experiences in the 1970s and 80s that showed that the modern formal sector could only create so many jobs. The government needed to refocus its development policies and strategies more on small, informal enterprises (Ikiara, 1991, p. 309). Observations contained in the Sessional Paper No. 2 of 1992, however, show that the results have not been satisfactory due to poor coordination among implementing agencies and much of the growth of small enterprise has therefore been spontaneous and without effective facilitation by the government (GOK, 1992, p. 1).

Enterprises in the informal sector continue to operate in a difficult and mainly under serviced environment with limited capital and the use of simple technologies. They have limited awareness of markets, new and modern technology, policy regulations, and access to credit. The sector also has inadequate business-related information infrastructure and inadequately trained persons, who lack the technical and entrepreneurial expertise that they need to make their businesses more competitive (Bangasser, 2000, p. 17; GOK, 2006; Orwa, 2007, p. 1; Migiro, 2006; Bigsten, Kimuyu and Lundvall, 2004, p. 701; Barasa and Kaabwe, 2001, p. 332). In a sense, the informal sector enterprises are caught in a vicious cycle of poverty and their lack of skills condemns them to more poverty. As a result, they are unable to seize new opportunities and need some kind of support mechanism and intervention from the government. The government could work out a balanced way of facilitating activities that would help them grow without necessarily turning them into dependant entities.

The ILO study in 1972 observed that the informal sector has filled a gap that was left by the formal sector by providing necessary goods and services to a large and often needy and poor section of the population. Examples of such services are in the transport industry where *matatus* (Kenyan taxis) continue to fill the void left by the formal transport sector and the sale of second hand vehicles in open-air marts. The latter compete shoulder to shoulder with formal sector motor assembly companies.

## **1.2 Statement of the problem**

The informal sector plays a major role in its economic contribution to developing countries through the creation of jobs, production and supply of affordable goods and services, and in the reduction of poverty. However, the sector faces many challenges, including limited access to markets and finance, lack of familiarity with new and changing technology, and lack of awareness, skills and understanding of ICTs (Mutula and van Brakel, 2006, p. 404) Opiyo and K'Akumu, 2006, p. 244).

In Kenya, Opiyo and K'Okumu (2006) and Orwa (2007) have observed that informal sector businesses largely operate with hardly any ICTs like fax machines, email or the internet, and the same has been observed in Uganda (Ikoja-Odongo and Ocholla, 2004, p. 54). According to Orwa (2007, p. 3), generally most informal entrepreneurs do not know the law and their rights, which is not conducive to robust business decisions for the proper growth of their enterprises. These challenges are responsible for the lack of sustained growth in the informal sector in Kenya (Migiro, 2006, p. 25; Opiyo and K'Okumu, 2006). The global technological change in ICTs offers the informal sector an opportunity to tap into international markets, but the participants have to first embrace change and new ways of doing things if they are to benefit from this kind of opportunity (Hafkin and Taggart, 2001, p. 1).

Migiro (2006, p. 40) agrees that in order for the sector to expand and reduce income disparities, it has to embrace changes in the global technological environment in order to reach international markets. Moreover, for this to happen, there is a need not only for ICT awareness, but also the acquisition of skills for ICT use, and putting the necessary infrastructure in place (Migiro, 2006, p. 40; Hafkin and Taggart, 2001, p. 1). However, one cannot help asking the question as to whether the micro and small enterprises in Kenya, which operate under very difficult conditions and which function more as survival outfits than profit-making organizations, will experience the paradigm-shift that is being experienced in the developed countries.

Many research studies have been carried out in Kenya on the informal sector by, Lundvall, Ochoro and Hjalmarsson (2001), Bigsten and Duverall (2004), Kimuyu (1997), and Ongile and McCormick (1996), to name a few, but little has been covered on the diffusion and potential of ICTs in the informal sector. Opiyo and K'Okumu (2006) have researched ICT application in one market centre in Nairobi and their focus was on the spatial design of buildings which would enable

businesses to share ICT infrastructure. Migiro (2006) carried out research on the diffusion of ICTs and e-commerce adoption, but specifically in the manufacturing sector. The two research studies have focused on specific and specialised areas of ICT and the informal sector in Kenya and may not be applicable to a wide range of informal sector enterprises that exist in Kenya.

The proposed study will explore various sub-sectors in the informal sector with the purpose of investigating the use and potential of ICTs, examining the impact and problems in the sector, and making appropriate recommendations. Considering the economic potential of ICT adoption, the research is believed to be very important in the preparation for possible intervention by the government and other organisations in the attempt to improve performance in the sector, which supports a very large proportion of the Kenyan population.

The fact that a substantial amount of research has been done on the informal sector without focusing on the use and potential of ICT adoption shows a general lack of awareness on the part of informal sector stakeholders about the importance of ICT adoption for information provision and its potential benefits. Considering that, ICTs have been found to bring about positive changes in business elsewhere, the continued lack of awareness and interest keeps the productivity of the MSEs low, as well as the incomes and profits, they have therefore not been able to grow beyond survival outfits and cannot be as competitive as those which have access to the required business information. They are also not able to generate robust employment opportunities, and have therefore remained small with hand-to-mouth existence and are not able to afford new technology, which would help to change their low productivity for the better.

This study attempts to address this research and awareness gap, as well as explore and make suggestions and recommendations for improvement.



### **1.3 Motivation of the study**

The principal motivation of this study was the need to promote the use of ICTs in the informal sector in Kenya. ICTs have been shown to make a difference in the way business is being conducted in other parts of the world. Ramsey et al. (2003, p. 250) have described the phenomenon of using ICTs to create dynamic business strategies as 'paradigm-shifting'. The informal sector is a significant reality in the Kenyan economy and ICTs, through internet communication, have made the world a global village by instilling faster methods of business communication. Having brought success to other parts of the world, these methods should be examined with the aim of applying them in other business environments like the Kenyan informal sector.

The informal sector is a major contributor to the Kenyan economy because it generates incomes and creates employment for a significant proportion of the population. It also provides affordable goods and services to Kenyans which are suited to local needs. The sector has shown a great deal of resilience against many difficulties and has therefore proven its ability to survive in challenging conditions. To use King's description (1996, p. 25), also referred to in (section 1.1.1), informal sector in Kenya represents the Kenyan African version of capital accumulation, which is fully locally-owned in contrast to the foreign-owned multinationals and Asian-owned businesses.

The informal sector is associated with Kenyan technological capacity and a variety of products that are suitable to the local market. It also communicates the feeling that it (the informal sector) is the ordinary economy in which the bulk of Kenyans currently earn their livelihoods, since the formal sector has only managed to absorb a small proportion of the economically active population (King, 1996, p. 25; GOK, 1989, p. 166).

However, the sector continues to face many constraints, and these include: poor access to markets (as a result of poor access to market information), lack of marketing skills, lack of access to modern technology, and poor infrastructure.

Needless to say, the informal sector needs a great deal of encouragement in order to improve both the production and the marketing of its goods and services to the people and the overall standard of living of those who depend on it for their livelihoods. Given the number of Kenyans engaged in informal sector enterprises to earn their living, this study was motivated by the need to explore the informal sector environment in Kenya with respect to the use (or lack thereof) of ICTs, with a view of exploring the possibility of increased ICT use. This will lead to improved business benefits and improve the lives of a large proportion of the population who earn their livelihood from the sector.

#### **1.4 Aim of the study**

The overall aim of the study was to investigate the diffusion of ICTs in the informal sector in Kenya.

#### **1.5 Specific objectives**

The specific objectives of the study were as follows:

- a) To determine the status of the informal sector and ICT access and use in Kenya;
- b) To identify the type of ICTs being used in the informal sector in Kenya;
- c) To identify which sub-sectors are using ICTs in the informal sector in Kenya and their impact and what their impact is;
- d) To determine the challenges facing the use of ICTs in the informal sector in Kenya;
- e) To establish government involvement in putting in place or creating the necessary infrastructure for ICT use in the informal sector in Kenya;
- f) To offer strategies, suggestions and recommendations towards the use of ICTs in the informal sector in Kenya.

#### **1.6 Research questions**

Specifically, the research questions of this study were as follows:

- a) What is the status of the informal sector in Kenya, and its access and use of ICTs?
- b) What types of ICTs are being used in the informal sector in Kenya?
- c) Which subsectors are using ICTs in the informal sector in Kenya and what is their impact?
- d) Are there any problems or challenges that block the awareness and use of ICTs in the informal sector in Kenya?
- e) Has the government put in place or created the required infrastructure for the use of ICTs in the informal sector in Kenya?
- f) What strategies, suggestions and recommendations can be made towards the use of ICTs in the informal sector in Kenya?

### **1.7 Assumptions of the study**

This study was based on the following assumptions:

- The informal sector in Kenya continues to operate under difficult conditions with poor infrastructure due to the lack of properly coordinated government policies;
- Properly coordinated government policies would include an integrated information and communication technology policy that would help to create an enabling environment for the increased use and diffusion of ICTs;
- The increased use of ICTs in the country would facilitate faster diffusion of ICTs in the informal sector. This would help it to realize its potential and thus improve the income of a considerable proportion of the population who earn their living through the informal sector. This would contribute towards the alleviation of poverty in Kenya.

### **1.8 Scope and limitations of the study**

Geographically, the study was limited to Nairobi Province and Central Province in Kenya. Most informal sector activities are concentrated in urban centers, and as Kenya's capital, Nairobi is the largest of them all. Central Province has both urban

and rural based informal sector activities and therefore covers a broader spectrum of the sector. The study explored the use and impact of ICTs as well the problems encountered in order to understand the use and non-use of ICTs in the informal sector in Kenya.

The study was limited to the two provinces because there were not enough resources to extend the investigation to all the parts of Kenya where informal sector enterprises can be found. Efforts were, however, made in the selection of the sample by making it as representative as possible to allow generalization onto the rest of the country.

### **1.9 Significance of the study**

This study seeks to enlighten policy makers and informal sector stakeholders on the potential socio-economic benefits of ICT diffusion and use. It is hoped that the study will provide valuable information to stakeholders, in particular the Kenyan government, donor agencies and other researchers in the informal sector. This would help them make informed decisions on the improvement of the sector. It is also envisaged that the information will be useful to the government and other stakeholders when making appropriate and relevant policies that will guide the provision of ICT infrastructure and help informal sector entrepreneurs learn how to use them.

#### **1.9.1 Increased understanding of ICTs in the context of informal sector**

The importance of ICTs in economic development and of MSEs in the Kenyan economy cannot be stressed enough. This study seeks to improve the understanding of ICTs and their significance to the economy. Barbra-Sanchez, Martinez-Ruiz, and Jimenez-Zarco (2007, p. 103) have observed that the success of any country in the 21<sup>st</sup> century lies in entrepreneurs adjusting to the fact that the world in which we live is changing, and recognizing that ICTs and the information revolution are at

the center of economic activity and are transforming the economy into one global process.

#### **1.10 Contribution towards further research**

It is hoped that the information gathered from this study will add to the body of knowledge on ICTs and MSE research and be used together with other research information to generate relevant policies that will guide further research and practice in this area.

#### **1.11 Contribution to policy and decision making**

Although the government of Kenya recognizes the importance of ICTs in economic development and has initiated major steps to promote its use, the study seeks to further sensitize policy and decision makers on the need to enact integrated national policies that will articulate the implementation of relevant policies that are capable of realizing the benefits of ICT use in economic activities, especially in the informal sector.

#### **1.12. Literature review**

Literature on informal sectors and ICT use and adoption was reviewed from books, journals, conference papers and research publications. The literature review also included primary sources such as the research carried out in Kenya by Opiyo and K'Akumu (2006) on ICT applications in the informal sector in Kenya (2006). The literature was obtained from the library and internet sources. Literature on ICTs was sought from the latest publications because literature on the topic is more recent.

#### **1.13. Structure of the thesis**

Chapter 1: Introduction and background

Chapter 2: The status and development of the informal sector and ICT access in the informal sector in Kenya

Chapter 3: Literature Review  
Chapter 4: Theoretical framework  
Chapter 5: Research Methodology and Fieldwork  
Chapter 6: Data presentation and analysis  
Chapter 7: Discussions  
Chapter 8: Summary, conclusion and recommendations  
List of references  
Appendices

## **1.2 Summary**

This chapter has looked at the research concepts and contextual setting of ICTs and the informal sector in Kenya. ICTs have the potential to increase production not only through faster communication, but also by facilitating access to a wide range of information sources. Like other developing countries, the informal sector in Kenya provides significant proportion of jobs and income for the majority of the people since the formal and public sectors have only been able to absorb a small number of the population. The informal sector also provides affordable goods and services that are suited to the local market and has helped to improve the distribution of income.

Despite providing jobs, affordable goods and services for the local market and income for survival, the informal sector faces many challenges and has not been able to develop and maximize the production and earnings of the MSE owners. The informal sector continues to merely survive against many odds under difficult conditions. While the government has realized the importance of the sector, it is yet to make a significant move to increase the production value of the sector. It is with this in mind that the study explored the benefits that the sector stands to gain from using ICTs which have revolutionized the way business is done in other parts of the world, especially in developed countries.

The chapter also discussed the statement of the problem and the motivation, aim, objectives, limitations and scope of the study.

## **CHAPTER TWO**

### **THE STATUS AND DEVELOPMENT OF INFORMAL SECTOR AND ICT ACCESS IN KENYA**

#### **2.1. Introduction and background information**

This chapter examines and discusses the status, development and growth of the informal sector, ICT access in the informal sector, and the information needs and seeking behaviour of informal sector workers in Kenya.

#### **2.2 The status of the informal sector in Kenya**

Despite their low profile status, MSEs in Kenya have played and continue to play a vital role in the economy by providing employment opportunities to a significant number of the population. Over seventy percent of the total number of people employed in Kenya were employed in this sector in 2008 and contributed eighteen percent (18%) to the country's GDP (GOK, 2008a,p. 39). According to the 2009 Economic Survey, the informal sector created 433,500 jobs in 2008, which is 93% of the total 466,200 jobs created in the economy in that year, compared to the formal sector which created only 33,700 jobs. MSEs are therefore a major source of livelihood for a significantly large proportion of the population in Kenya.

In other African economies, MSEs' contribution to the GDP ranges from 15% to as high as seventy percent (70%), but despite this contribution, most MSEs remain undercapitalised and suffer from poor infrastructure, low use of technology, extremely competitive markets, and an unfavourable institutional environment (McCormick, 2008, p. 8).

The informal sector in Kenya covers small scale activities that are semi-organised and use low and simple technologies. The activities carried out include manufacturing, building and construction, transport and communication, community and personal services, and retail and distribution (GOK, 2010, p. 78).



The people working in the MSEs are mainly young school-leavers who have not been able to secure jobs in the formal sector (GOK, 2010, p. 78). The ease of entry into the informal sector has made it a practical option for those who have left schooling and training institutions and found no alternative employment as well as those exiting from the formal sector due to layoffs and restructuring. Figures for 2009 reveal that Nairobi Province commanded the largest share in informal sector employment at 24.3%, followed by Rift Valley Province at 18.9% and Central Province at 15.8% (GOK, 2010, p. 78).

According to the 1993 National Baseline Survey, 98.6% of all micro, small and medium enterprises fall within the micro enterprises category, defined as those businesses employing one to ten workers (Parker and Torres, 1994). Further information from the second national baseline survey 1999 (GOK et al., 1999) indicate that at least one third of the MSE start-ups do not survive the third year.

### **2.2.1 Development of the informal sector in Kenya**

The report of the Director General of the 78<sup>th</sup> session of the ILO Conference (1991, p. 9) provides a fitting summary of the prevalence of informal sector activities in urban centres all over the world:

Since the very beginning of urban civilization, towns and cities, in different parts of the world, have attracted people from rural areas who have attempted with more or less success, and often in a hostile environment, to carve out a niche for themselves in urban societies as craftsmen, tradesmen, hired labour or providers of petty services. The difference in today's informal sector activities, prevalent in developing countries, is its magnitude due to the phenomenal increase in population growth and the consequent growth of the urban labour force.

The prevailing situation is therefore not unique to developing countries; when the formal sector anywhere fails to absorb all the labour in the market it

accelerates the emergence of informal sector activities. The difference between developed and developing countries lies in the number and size of MSEs, support by individual governments, and the success of the MSEs. Restructuring and adjustment programmes that were mainly introduced by international aid agencies in the 90s and beginning of the 21<sup>st</sup> century also increased the number of people moving to the informal sector in developing countries like Kenya. The sector has therefore become a sponge that constantly mops up ever-increasing excess labour.

Kenya seems to have more than its share of informal sector activities. The informal sector phenomenon is so common in the country that even those people who are in formal employment usually have something to do on the side, just in case they get retrenched or decide to resign from employment and do some business on their own. Others want something that they can retire to since pension money may not be enough to survive on and feed the family (Ndege, 1990, p.23).

In the 1960s and early 70s, the informal sector mopped up the spill over of primary school graduates who could not be absorbed into the formal sector job market. Over the years, the situation gradually changed to include secondary school leavers and university graduates who increasingly failed to get jobs in the formal job market. The earlier expectations that formal education graduates would automatically find jobs in public or private formal sector organizations have proven to be unrealistic as employment opportunities have gradually shrunk.

Retrenchment in the 1990s and the 2000 decades has led many middle class people who were formally employed in the formal sector to invade the informal sector, resulting in the opening up of new specialized investments that are different from the simple survival outfits that are characteristic of hawkers and small traders. (Ndege, 1990, p. 23). Working in the sector has therefore become an alternative

occupation for some participants who have voluntarily ventured into the sector either to supplement their formal employment incomes, or to invest in new ventures having resigned or been retrenched from formal employment (Alila and Pedersen, 2001; Ndege, 1990, p. 23). According to the 1999 National Baseline Survey on informal sector enterprises, (GOK, 1999, p. vii), there were about 1.3 million MSEs in Kenya that employed 2.4 million people in 1999. Their contribution to the Gross Domestic Product (GNP) was estimated at 18.4% and 97% of the enterprises were found to have less than ten employees, which confirms the small-size of the operations.

It is only following independence that the existence of informal sector activities appears to have been noticed. Informal sector activities could not find much expression in colonial Kenyan urban centres prior to the 1960s due to strict regulations that only allowed the colonialist-dominated economy to thrive (Ndege, 1990, p. 14). There is some evidence, however, to suggest that informal sector activities were going on, albeit not very visibly. King (1996, p. 4) refers to the East African Royal Commission of 1953-1955, which addressed issues of restrictions and regulations on marketing and the provision of credit and licences that affected many aspects of colonial African life. The commission noted the clusters of settlements just outside the boundaries of all the main towns which formed important centres of African trade, albeit on a very small scale and without much feasible potential, but which represented the only development of African commercial enterprise.

While informal sector activities grew faster with the attainment of Kenya's political independence, the economy continued to be dominated by foreign interests through multinational corporations (Ndege, 1990, p. 14). It was not until 1972 that informal sector activities were brought into the open by the International Labour Organization's (ILO's) Employment Strategy Mission research report, which identified a sizeable potential for the sector and large numbers of people who were

working outside formal sector jobs in this unregulated and highly competitive sector. This marked the beginning of the recognition of the informal sector ((Bangasser, 2000, p. 8; Alila and Pedersen, 2001, p. 1; King, 1996, p. 5; Abuodha, 1989, p. 4).

The ILO report popularized and brought into the open the term 'informal sector', but was not its originator. According to King (1996, p. 7), the term 'informal sector' originated in Keith Hart's work among Frafra migrants from Northern Ghana who were working in Accra. The term was first used in a paper presented in a conference on "Urban unemployment in Africa" in Sussex in 1971, which viewed informal sector activities in a positive light and as a source of informal income opportunities rather than as an unemployment crisis.

The ILO Mission report on Kenya amplified this point when they viewed the informal sector as an innovative and productive, emerging and hitherto unrealized sector. This was followed by many academic papers written on informal sector activities in Kenya in the 1970s and 1980s, principally by the University of Nairobi's Institute for Development Studies (King, 1996, pp. 7-8).

The informal sector was by then also seen as conveying the spirit of self-reliance that was emboldened in the Kenyan motto and self-help movement of 'Harambee' ('pulling together' in Kiswahili) as the social and economic driving force (ILO, 1972, p. 225; King, 1996, p. 11). 'Harambee' means collective effort and embodies ideas of mutual assistance and joint effort in community activities that are geared towards self-help projects for self-reliance. In the context of informal sector activities, it is similar in its emphasis and bias towards self reliance and a bottom-up approach rather than the dependence on the top-down approach in economic sustenance.

Although small in scale, the informal sector has gradually come to be viewed as an important part of the private sector of the economy, it has shown some

independence and does not suffer from a bloated workforce like the public sector, and it has survived without any subsidies or protection, nor any assistance from the government, training in the sector is done according to an enterprise's requirements through apprenticeships, with the apprentices contributing to the costs of their training through their labour it also functions as a training platform for future entrepreneurs and has displayed a remarkable capacity to absorb labour (King, 1996, p. 11).

The informal sector suffers from a poor public image and neglect, and has also survived harassment from government agents (King, 1996, p. xiii; GOK, 1986, p. 54). The situation has not changed much; the government's efforts to help the informal sector remain largely uncoordinated and are yet to be felt by the sector's participants (see section 6.8). The activities of the sector are highly vulnerable due to reliance on self-support and informal arrangements that operate independently of the institutions of modern economy (ILO, 1991, p. 5).

It was not until the mid-80s more than a decade after the ILO (1972) study that recognized and popularized the informal sector that the Kenyan government and donor agencies began to give attention to the sector. This was due to the failure of the formal sector economy, consisting of the formal private sector, the civil service and parastatals, to expand and keep up with the increasing number of entrants into the job market in spite of having received a great deal of government support, protection and subsidies. The informal sector, on the other hand, showed potential for job creation (GOK, 1997, p. 50; King, 1996, p. 15; Abuodha, 1989, p. 5).

McCormick, Mitullah and Kinyanjui (2003, p. 1), King (1996, p. 25) and GOK (1992, p. 1&40; 1989, p. 162, p. 164) have observed that the Kenyan government demonstrated its interest in the informal sector by:

- Restructuring the education system with an emphasis on vocational, scientific and technological development

- Publishing the Sessional Paper No. 1 of 1986 on “Economic management for renewed growth” (GOK, 1986).
- Publishing the Sessional Paper No. 2 on “Small enterprise and jua kali development in Kenya” in 1992.
- Encouraging the creation of flexible credit schemes.
- Encouraging informal sector enterprises to form cooperatives, through which they could obtain information and assistance on new technologies, get access to credit, purchase inputs, and market their products.
- Developing the sixth Kenyan Five Year National Development Plan (1989-1993) which devoted a sizeable section to the development of small scale and jua kali enterprises as a primary means of strengthening Kenya’s economy. It also recognized that there has been neglect in exploiting the full potential of the informal sector, and committed to bringing out this potential in order to meet the targets of employment and income generation for the country’s youth and school leavers.
- Encouraging associations of small enterprise entrepreneurs to promote the interests of its members through activities such as lobbying on behalf of members, training, promoting professional and social relationships among members, and conducting studies and surveys.

However, the above emphasizes that the role of the government should be facilitative rather than interventionist. Experiences in Kenya and other developing countries have shown that sponsorship and protection of private enterprises through direct government intervention not only prove to be costly, but can also only involve a few enterprises. Very few government programmes that had enjoyed government support and protection had managed to stand on their own without continued and regular infusions of large sums of money from the government (King, 1996, p. 15, GOK 1989, p. 10). In contrast, the informal sector developed independently, despite government neglect and sometimes active discouragement

and harassment, and in doing so demonstrated that it was highly resilient (King, 1996, p. 12; Ikiara, 1991, p. 315).

Informal sector enterprises in Kenya have persisted as survival outfits against many odds because government efforts have not been properly coordinated to bring about positive change. According to the Sessional Paper No. 2 of 1992 on "Small enterprise and jua kali development in Kenya" (GOK 1992), after Kenya attained independence in 1963, the colonial rules which strictly discouraged informal sector activities were relaxed and substantial funds were spent on implementing government policies and programmes to build institutions aimed at promoting the informal sector. In spite of this, as Ikiara (1991, p. 309) observes, it was not until the 1980s that the Kenyan government and donor agencies started showing some real enthusiasm in the sector and went on to laud it as crucial for renewed growth, and especially for job creation.

The support for the sector was still not consistent as evidenced by poor coordination among implementing agencies, and the fact that despite the enthusiasm shown in the Development Plan of 1989-1993, the following Five-Year Development Plan, which should have built on the previous one, did not make any mention of the informal sector or the jua kali (Ikiara, 1991, p. 315). Ikiara further observes that it was also difficult to reconcile the earlier enthusiasm with the brutal demolitions of informal sector settlements in the Nairobi city in 1990, which made a mockery of the declared government policy of making the informal sector play an enhanced role in the Kenyan economy.

The Sessional Paper No. 2 of 1992 also observed that many programmes were not based on adequate needs assessment surveys and that much of the growth of the informal sector remained spontaneous rather than as a result of coordinated and effective government support. Moyi, Otieno, Mumo and Ronge (2006, p. 3), McCormick (1992, p. 1) and Ikiara (1991, p. 312&318) agree that despite the

importance of the informal sector in Kenya in job creation and its contribution to the GDP, its role can only be complementary rather than alternative to formal manufacturing and comprehensive industrialisation, because firms that remain very small can only slightly contribute to the development of technology and industry. They use the simplest technology available and even if they have innovative ideas, lack the capital and managerial skills to push them further.

Formal sector workers, as Ikiara (1991, p. 312) has observed, are the main customers of informal sector goods and services and therefore the latter cannot operate in isolation from the formal sector. Furthermore, without a significant increase in the demand for informal sector goods and services, other forms of assistance (such as credit and infrastructure) may not ensure the sustainability of the sector. Generally, low incomes and poor economic conditions keep the demand for goods low, resulting in informal sector enterprises competing for a very limited market. There is also the need to widen the marketing of informal sector goods beyond their immediate surroundings (McCormick, 1992, p. 19; Ikiara, 1991, p. 312; ILO, 1991, p. 6; Yambo, 1988, p. iii & 3).

Informal sector enterprises in Kenya have therefore continued to remain small, both in their operations and productivity, and have not graduated to medium scale enterprises, with over 90% of them employing 1-5 employees (GOK et al., 1999, p. vii). The lack of role models, particularly among indigenous Kenyan enterprises, has also been pointed out as one of the reasons for their continued small status. The enterprises continue to remain the survival outfits for which they were originally created instead of growing and graduating to medium level enterprises. The development of effective and facilitative infrastructure by the government is required to make informal sector enterprises grow so that they would be able to provide more and better paying jobs as well as optimize on technology and the adoption of ICTs (GOK, 1992, p. 5).



### **2.3 ICT access and use in the informal sector in Kenya**

ICTs are tools that facilitate the production, processing and transmission of information, and through their use, information gaps in the business sector can be eliminated. ICT adoption has therefore been suggested as one of the ways to meet the various challenges that are faced by informal sector enterprises to boost their efficiency and competitiveness, for example by enabling them to sell products like crafts, decorations, carvings, jewellery and leather products to international markets. Globalization also compels businesses, including small ones, to adopt ICTs so that they can survive and compete in the global environment (Ongori and Migiro, 2010, p. 93; Moyi, 2003, p. 221).

ICTs also include the mass media, which are public means of communication characterized by their mass-reaching capacity (Olming and MacFarquhar, 2007, p. 4), these are the radio and television sets which have been widely adopted in both the developed and developing countries and have a big potential to reach the low income business traders and workers. In most sub-saharan African countries, the deregulation of the media has catalyzed a boom of private radio stations to accommodate the needs of information exchange for MSEs on policy issues concerning entrepreneurial operations and investigative reports, and implementation of government policies (Deng, 2009, p. 17). The ILO also considers the use of the mass media as a promise for reaching out to many small businesses workers for the improvement of the MSes (Seeley, 2004, p. Iii).

The wide diffusion and use of the radio and television is however limited by lack of widespread reach of electricity in developing countries. The radio unlike the television however can use lead batteries which are widely used in developing countries in places where there is no electricity.

The computer-based ICTs like the internet, further offer easy and instant interactivity and multimedia features (Olming and MacFarquhar, 2007, P. 4). The

telephone (both fixed and the mobile) also offer instant interactivity and money transfer services by the mobile phone.

The radio and television, which are mass media means of communication offer channels through which small enterprises can be provided with information on the services and products available to them as well as general business and market information, they can also provide platforms through which small businesses can exchange ideas, experiences and opinions for improved awareness and feedback mechanism to services and input providers, and policy and legislative issues (Olming and MacFarquhar , 2007, p. 9). Olming and MacFarquhar go on to add that, the radio is the most important source of information in Uganda with broadcasts in all the major languages of the country.

Despite the business potential attributed to ICT adoption, micro, small and medium scale enterprises which dominate the economies of developing countries, do not have ICTs readily available to them especially the computer-based ones, and the majority of those involved in informal sector enterprises lack awareness of their potential (Al-Gharbi and Ashrafi, 2010, p. 1; Chiware and Dick, 2008, p. 147). ICTs seem like a far off and out of reach dream; many participants in the informal sector think the internet is not relevant to them, possibly stemming from the general lack of awareness of its benefits. As Moyi (2003, p. 221) observes, more critical constraints, such as illiteracy and poor information and telecommunications infrastructure among informal sector traders, deserve more priority. Small business enterprises continue to use simple tools and technology in their operations and thus remain small (Migiro, 2006, p. 35; Macdade and Springs, 2005, p. 18; GOK et al., 1999, p. 47; McCormick, 1992, p. 1).

Technology is an important factor in the provision of information for the increased sustainability, productivity and competitiveness of MSEs. As Moyi and Njiraini (2005:8) have observed, without access to technology, MSEs lack the capacity to

increase their productivity and to be competitive in the local and global market. Literature on ICT adoption (Oletokun and Kebonye, 2010, p. 43; Al-Gharbi and Ashrafi, 2010, p. 1; Ongori, 2009; Ashrafi and Murtaza, 2008, p. 125; Kaynak, Tatoglu and Kula, 2005, p. 628) shows that ICTs have the potential to transform business operations by enabling the rapid, reliable and efficient exchange of large amounts of information; reducing transaction costs; improving information gathering and dissemination, inventory and quality control; and improving the efficiency and customer services of organizations and businesses. The literature also shows that the internet has brought about easier and cheaper ways of conducting businesses of all types and therefore offers equal opportunities to all users.

Kuuya (2010, p. 8) has observed that the lack of culture and infrastructure for imported technology is more pronounced in Kenya's informal sector than in the formal sector. It has further been observed that, informal sector enterprises also operate in an environment that hampers coordination and the transfer of technology (Moyi and Njiraini, 2005, p. 4, Moyi, 2003, p. 221; Jutla, Bodorik and Dhaliwal 2002, p. 155; McCormick, 1992, p. 9).

There is also a lack of local content and orientation, which the traders can identify with since most of the ICTs have been developed by and for use in Western countries. However, Kaynak et al. (2005, p. 638) contend that small enterprises need to perceive that the benefits resulting from the effective use of ICTs will outweigh the costs. The authors call upon the government and the private sector in developing countries to provide various incentives to help small enterprises acquire and use ICTs with minimal investment and costs. They further state that in order for informal sector enterprises to develop beyond their small scale status, there is a need for better coordinated and effective government facilitative involvement. This can be done through the development of infrastructural facilities and an economic environment in which entrepreneurs can emerge, develop and grow.

In contrast, Lal and Pecdily (2006, p. 32), in their research on ICT adoption by SMEs in Mauritius, recommend a complete overhaul of the small enterprise's entrepreneur mindset and more investment in capacity-building rather than just providing financial facilities or incentives to acquire or reduce the costs associated with ICT use. Duncombe and Molla (2009, p. 22) view the issue of ICT adoption for small business enterprises as a transitional process where an enterprise eventually reaches a point at which there is a greater formalisation of processes and organisation. The transition may also be accompanied by a move from a manual paper-based system to the use of ICTs for the processing of information, and telephony and computers for external communication.

According to the government's planning documents, i.e. Kenya's National Development Plan for 2002-2008 and Vision 2030 Medium Term Plan for 2008-2012, the government of Kenya recognizes that ICTs are the foundation of modern economic development and has made efforts to expand, modernize and improve the country's information sector through development and the implementation of policy and regulations aimed at attracting investment within the sector. The liberalisation of the telecommunications sector and the mobile cellular market is a case in point, as this has resulted in the widespread diffusion and use of mobile phones by Kenyans, including those working in the informal sector. Mobile phone operators have continued to expand their networks and have extended to offer highly successful and innovative mobile money transfer services.

In an attempt to reduce the cost of internet access, the government has also invested in terrestrial and undersea fibre optic cables (2007-2008), as well as rolling out broadband wireless connectivity in rural areas (GOK, 2008, p. 25). Taxes on ICT hardware have been largely zero-rated to facilitate the stated government policy objective of universal access to affordable ICT services. Furthermore, in collaboration with ICT incubators with local institutions of higher learning at Jomo Kenyatta University of Agriculture and Technology, University of Nairobi, Kenya

College of Communications Technology and Strathmore University, the government has implemented a project to assemble low cost personal computers for the local market, which also includes the informal sector. However, informal sector participants are too busy trying to make ends meet and need special attention for these efforts to trickle down to them.

The fact that most micro enterprises are started for survival purposes does not preclude them from growth and the entrepreneurial activity that is associated with ICTs. Concerted efforts are necessary to increase awareness and knowledge of the benefits of ICT adoption among all people in Kenya, including MSE traders, in order to increase productivity.

Small businesses should be encouraged to grow beyond the micro level towards medium scale enterprises in order to provide more jobs, improve the use of scarce resources, and open the way for technological development, including information and communication technologies. The failure of existing firms to grow large as new small ones continue to enter the market, results in the proliferation of many stagnant small enterprises. This is the situation in Kenya and other developing countries where competition among the MSEs is stiff and the net income is too low to sustain them. If growth will benefit the economy, policy makers should ease the way by creating an enabling environment and providing information and the required infrastructure (McCormick, 1992, p. 9 &19). As it currently stands, there are many Kenyans who do not have access to electricity because the government is yet to make electricity provision a reality to all, and also because they are too poor to make that reality happen on their own by moving to urban areas or connecting to electricity from the nearest point where it can be found.

The twin conditions of government ineffectiveness and poverty therefore continue to keep the informal sector in an almost stagnant state, where small enterprises remain small for lack of capital, infrastructure and managerial know-how, and fail

to move to the next level of small and medium enterprises or even to the bigger formal enterprises.

The Sessional Paper No. 2 (GOK, 1992, p. 8) observed that many informal sector entrepreneurs are either unfamiliar with or unaware of available technologies. The government, through the appropriate institutions of research, industry and higher learning, can play a useful role by facilitating the provision of more information on technology options (King, 1996; GOK, 1992, p. 8). Just like other businesses, informal sector enterprises need to develop contacts, check prices, display goods, enter into contracts, and use available information to start and sustain new business ventures. Information technology has the potential to link informal sector enterprises to local and international daily market prices for their products. This would change their negotiating powers for the better, but a lack of resources, know-how and awareness preclude them from seizing these opportunities. It has been observed that, East Asian countries like Taiwan have demonstrated that small scale enterprises can make a significant contribution to exports in for example in curios, carvings, horticultural products etc, given the appropriate environment (Moyi, 2003, p. 221; GOK, 1997, p. 53).

In the Sessional Paper No. 2 of 1997 (GOK1997, p. 71) on "Industrial transformation to the year 2020", the Kenyan government recognizes that the provision of infrastructure, such as electricity and information facilities, falls within its major functions and responsibilities. The Kenyan government is committed to increasing public investment in the informal sector, but public resources are limited and infrastructure for the informal sector can only be as good as facilities in the rest of the country. The situation in the informal sector is a reflection of the poor infrastructural situation in the rest of the country, the difference being the divide between the elite and the poor (as in every society); the informal sector, as a survival outfit for the poor, lags behind the relatively more modern formal sector.

In order for informal sector enterprises to attain sustainable growth, they need to embrace changes in the global technological environment which would enable them to reach international markets through electronic commerce (e-commerce). However, e-commerce is facilitated by ICT tools such as the internet, fax machines, mobile phones and computers. ICTs facilitate the production, processing and transmission of information, but since most of the MSEs are not able to afford ICTs and lack awareness, skills and understanding, they may not appreciate the value and benefits of e-commerce and may have no way of gauging these benefits. They may also not strive to connect to the internet due to lack of awareness about its existence and the connection to their businesses.

According to Adam (1996, p. 1), seizing ICT opportunities of global networking would allow the African region to fight poverty and ignorance from all directions since they would be able to make use of the opportunities to trade beyond the local reach thus expanding their markets and realizing more income. The region would also benefit by leapfrogging costly intermediate stages of development (World Bank, 2000:153). Unfortunately, the existing infrastructure and socio-economic, cultural and political situations, pose major obstacles to introducing, implementing, and diffusing new technologies. The World Bank (2000) further observes that politics and institutions are the greatest hindrances to the development of Africa's infrastructure and socioeconomic status.

Political leaders therefore need to understand the benefits of ICTs in order to lobby for an enabling environment for ICT growth. Furthermore, the knowledge to apply technology to local settings needs to be developed and relevant infrastructural needs must to be prioritized while equitable access to resources is promoted (World Bank, 2000, p. 153). Lack of umbrella institutions and formal information centres in Kenya have also been observed to constitute a major handicap in the collection and exchange of relevant information by informal sector enterprises (Powell, 2003, p. 31; Beyene, 2002, p. 145).

ICTs have not been viewed as crucial tools by informal sector workers, mostly because of the inability to afford them and unawareness of the possibilities of information through the various forms of technology. While most informal sector workers do not have access to computer-based ICTs in Kenya and other developing countries, they have had access to the relatively affordable mobile phones which they have extensively adopted and are using to facilitate business activities, and which have brought them significant benefits, such as savings in travelling and time. Mobile phone technology has also brought about a good deal of convenience and improved work efficiency in the MSE sector.

#### **2.4 Information needs and seeking behaviour in the informal sector in Kenya**

Information is a requirement for enterprise creation, growth and survival, especially in today's global business environment where information provision in general and business information in particular provides a good beginning for competitive advantage in business. Sharma and Bhagwat (2006, p. 199) contend that information flow is the bloodline of any business unit, irrespective of its size and operations, and that an organization's competency in information systems is key to its survival in today's business environment.

Research findings from an information needs assessment survey of a small business community in Zambia underline the importance of information as an empowering tool (Banda, Mutula, and Grand 2004, p. 99). Banda et al. (2004, p. 99) found that the ability of small enterprises to survive in an increasingly global environment is largely predicated upon their capacity to access and use information resources, and yet one of the most notable obstacles limiting the capacity of small enterprises is the lack of access to timely, relevant and adequate information for informed decision making. The study found that the struggle to access information was mainly due to lack of understanding and knowledge on how to obtain it efficiently.



Access to business information services has been identified as an area that needs attention from governments and business service providers if small enterprises in developing countries are to achieve sustainable levels of growth and development (Chiwere and Dick, 2008, p. 145). The availability of vital and relevant information and knowledge is critical for effective decision-making, especially knowledge of sourcing raw materials and markets for finished products) (GOK, 1989, p. 167). Small enterprise operators also need information on available bank loans, sources of business finance, and small enterprise loan schemes, among others.

Many firms in developing countries, however, operate in an information poor environment due to lack of business-support services and poor information technological structures (Oshikoya and Hussain,, in Chiwere and Dick, 2008, p. 145; Okello-Obura, Minishi-Majanja, Cloete, and Ikoja-Odongo (2007, p. 2). Small enterprises also suffer from lack of credit-related information because they are discriminated as high risk and may not be included in the mailing list of potential credit units by banking organizations (Migiro, 2006, p. 2). Government bureaucracy and poor information structures have also been observed to constrain access to information. There is also a lack of awareness of ICTs which leads to the view that they (ICTs) are not necessary in the running of MSEs (GOK, 1989, p. 167).

In spite of central role played by the informal sector in Kenya in employment creation, the production of goods and services, and in poverty reduction they have scanty access to information. Moyi and Njiraini (2005, p. 8), have posed the question: How much information is available to the sector? Moyi (2003, p. 224) had observed in an earlier study that, formal organizations and institutions that provide information in Kenya are very few and inadequately funded, with a limited capacity to address the problems facing the sector, with 75% of the people in the sector lacking access to such organizations and mainly relying on informal networks.

The situation in Botswana is similar; information seeking practices were found to be overwhelmingly informal and were characterized by a high degree of reliance on information obtained through the knowledge and experience of the business owner (Duncombe and Heeks, 1999, p. 5). In their research in Northern Uganda, Okello-Obura et al. (2007) likewise observed that economic agents operate in a business environment characterised by fragmented and incomplete information where an awareness of markets, technology, policy regulations and finance options is limited, with no proper information system in place for the efficient and effective access to business information by business enterprises.

Moyi (2003, p. 227) and McCormick (1992, p. 6) have also observed that the structure of production of small enterprises in Kenya is a crucial factor since the producers are fully occupied in the production process and are therefore reluctant to leave their workstations in search of information. It was found that the majority of manufacturing SMEs lacked awareness of the various sources of finance. Migiro and Wallis (2006, p. 9) observed that small enterprises also lacked information and understanding of what was available due to fragmented financial information and lack of targeted awareness and educational schemes, and therefore ended up using family and friends to obtain information on sources of finance. Migiro and Wallis (2006, p. 9) also found that modern ICTs were the least used channels to access different sources of finance, which they attributed to a low level of education and training, lack of computer skills, and a lack of awareness of the benefits and returns on investment.

Moyi (2003, p. 227) and Ronge, Ndirangu and Nyangito (2002, p. 41) contend that financial and market information is the most critical constraint to the development of the informal sector in Kenya. MSEs in Kenya are characterised by restricted access to technology and inadequate institutional capacity to support the adaptation and absorption of modern technological skills. The MSEs also suffer from lack of information on existing technologies and their potential for increased trade; low

levels of education and technical training for the majority of MSE operators; and inadequate financial capacity to acquire available technology and information. All these combine to lead to continued low productivity, poor quality and a limited range of products (GOK, 2005, p. 12; Moyi, 2003, p. 221).

Since resources and skills' constraints prevent small enterprises from seizing the opportunities offered by new technologies, supportive mechanisms are required to mobilize them. However, currently there are limited efforts by the government, non-governmental and community-based organizations to offer business advisory services or other support mechanisms (Moyi, 2003, p. 221).

The Government of Kenya Sessional Paper No 2 of 2005 on "Micro and small enterprises for wealth and employment creation for poverty eradication" notes that the major constraint facing small enterprises in relation to information acquisition is their capacity to interpret and effectively utilize the received information. The Sessional Paper has also noted that the dissemination of information on legal and regulatory issues to the public and MSEs is poor, and that they have been inadequately sensitised about their obligations and rights. This makes it difficult for the MSE participants to factor in guidelines on policy and legal issues into their decision-making processes, resulting in their continuous harassment by law enforcement agencies. It also notes that without access to timely, simplified, reliable and relevant information on market opportunities, technology and government regulations, the MSEs are not able to survive and grow in the fast-changing, increasingly globalized, and highly competitive market environment.

In the absence of proper and effective structures for information dissemination, the informal sector traders operate in a pervasive environment of informality. This, as Moyi (2003, p. 226) has observed, may make them feel that they have markets within their social networks of family, friends and other members of the social group, and therefore not consider it important to go out in search of information for

marketing and production processes. According to Moyi (2003, p. 226), ignorance about where to get the relevant information may also make them settle for the most-readily available information sources in informal networks which they have always used, where trust and norms of reciprocity within close knit groups are entrenched, but which result in perpetuating low profits and their small sizes.

However, Gould, Gomez, and Camacho (2010, p. 1), in their research on information needs in developing countries, observed that user information needs are satisfied in a variety of ways, and not always through public access avenues or using ICTs. They enquired how a community's needs could best be satisfied and whether ICTs can serve a community's needs better. In their research findings, they found that locally relevant content was essential to serve individual and community needs. Gould et al. (2010) recommended that information produced in local languages, and the knowledge of literacy levels, skills, user awareness, and available technology and training, including that of ICT use, should also be considered if new innovations are to be adopted and utilized fully.

Duncombe and Molla (2009, p. 23), in their research in Botswana, found a large and unmet demand for formal information and the desire to move away from informal information systems and called for a formalisation of information systems in sub Saharan Africa.

Sharma and Bhagwat (2006, p. 216) have also observed the traditional mindset that does not encourage small enterprises to invest in alternative information systems, but continue to use knowledge systems that are embodied in social networks at local level institutions. These coalesce into solidarity networks where information is shared about members' activities. Adam (1996, p. 1) views it as ironic that in their struggle for survival, the informal sector entrepreneurs may have overlooked the need for information that could potentially provide more than mere survival. Ocholla (2006, p. 2) has also observed that the prevailing lack of information is

reminiscent of economically-disadvantaged populations in developing countries where semi-illiterate people, lacking higher educational qualifications, were also politically disadvantaged. Most informal sector workers in developing countries belong to the information-poor, which translates to a double disadvantage of absolute poverty and information poverty.

Tan, Chong, Lin, and Eze (2010, p. 24) have observed that since small enterprises represent an important segment of any economy, it would be timely for them to enhance their competitiveness not only locally, but also on the global arena. This can be achieved by embracing internet-based technologies in their businesses and by first understanding the benefits of ICTs. Small enterprises stand to gain through reduced transactions costs, information gathering and dissemination, and inventory and quality control from ICTs. When small enterprises are in a position to serve a large pool of customers, the rewards that they could accrue are huge and include increased earnings and economic returns, which are not only good for the enterprise, but for the country as well (Tan et al., 2010, p. 24, Oletokun and Kabonye, 2010, p. 43).

In a study carried out in Nairobi among informal food sellers, Macharia (1998, p. 9) found that timely information is a very crucial element in the informal sector because it is on the basis of such information that a potential operator could go to the city council to apply for available premises. He disagrees with what has been described as 'ease of entry' by the ILO study, as a business premises may not be open to those who are not members of a social network. He found that ethnic networks play a substantial role in the allocation of business premises, transfer of skills and technology, entry into this sub-sector, and in establishing markets. The ethnic networks were a barrier to the free flow of information and those without access or who were not members of such networks could not enter or start their businesses because they lacked the necessary information.

Macharia (1998, p. 9) also observed that the concept of trust plays an important role in the worldview of informal sector operators and forms the basis of communication. Getting a licence for premises in the informal food sector (popularly known as food kiosks) was more important than having the capital to operate it, and if one did not come from the group that had the information on the available premises, the chances of getting the kiosk were remote (Macharia 1998:9). This further stresses the informality of the informal sector's information networks, and suggests that information in the informal sector may not be open to all who would be interested in going into business.

Macharia (1998, p. 9) found that in the majority of cases, co-ethnics told each other about available spaces where a new entrant could start operating her/his business and also went on to help the new entrant in settling down. In the absence of formal training institutions, this informality extends to skills acquisition which is done through apprenticeships; apprentices get their sponsors through social networks, friends, and kinship members who are mainly co-ethnics and relatives.

Cross-ethnic and cross-family sharing of such information may occasionally or rarely occur between members of the same religious groups or churches. Ethnic networks can therefore be both facilitators and barriers to information flow as long as they serve the above roles, since information is not freely exchanged and available to all. The social networks are spun by knowledge creators, who capture and circulate information within particular business communities, such as informal food sellers and metal workers. The local knowledge, therefore, belongs to and is controlled by the community (Moyi, 2003, p. 223, Macharia, 1998, p. 9).

Any intervention from outside the community (like the introduction of ICTs) would therefore depend on how well it interfaces with the local traditional communication channels and how it incorporates locally generated information. The adoption of an innovation can be greatly facilitated by properly identifying traditional

communication systems through which members of the community acquire and diffuse their existing knowledge, and how the knowledge is shaped by their attitudes and practices (Moyi, 2003, p. 223). It is important to note that even while informal sector entrepreneurs may not have adopted ICTs in their practices, the entrepreneurs should be recognised as the producers of existing knowledge and information within their community, and this should be understood and blended with any incoming information to avoid alienation (Moyi, 2003, p. 223; Koanantakool, 2004, p. 127).

The rapid adoption of mobile technology in African communities has occurred because the technology interfaces readily with informal oral African traditional channels of creating and circulating knowledge and information. Most traditional communities prefer information to be communicated orally to them by people closest to them like neighbours, colleagues, relatives and friends (Ocholla, 2006, p. 3). Therefore in terms of adoption and integration into local needs, the mobile phone technology has been integrated better than other forms of technology, like the computer which have been around for longer.

To surmise, information that is frequently used by informal sector entrepreneurs originates from informal sources such as customer and competitor reactions, employee personal experiences, friends and relatives, which are all informal sources (Moyi, 2003, p. 223). Any intervention would need to take into account these local networks and build on them. Information originating from outside would need to be accommodated into the local matrix, relevant to the community's needs, and clearly understood by the community.

## **2.5 Summary**

This chapter has looked at the development and status of the informal sector in Kenya in relation to the sector's information needs and the ways in which these needs are satisfied. It has also looked at the diffusion and use of ICTs in the sector

and the extent to which they are used to meet the needs of informal sector enterprises.

Since independence, the informal sector in Kenya has spontaneously grown over the years in response to the need for a significant proportion of Kenya's citizenry to earn their living in the absence of formal employment. In spite of lack of encouragement and support from the government, it has outgrown the formal sector in terms of job creation and as a source of livelihood for the majority of Kenyans. The government also came to recognize that the informal sector cannot be ignored and has made efforts to encourage its growth in the last two decades.

In spite of these efforts, the sector lags behind in terms of the provision of facilities and infrastructure, and especially ICT support. Most informal sector enterprises and operators continue to use simple technologies and are yet to embrace ICT technology, with the exemption of the mobile phone which has been extensively adopted and widely used by Kenyans from all walks of life. Access to computer-based technologies remains low among informal sector operators, the majority of whom do not have the necessary skills, they also lack awareness of ICT benefits, and are not able to afford them (ICTs).

They also continue to use informal methods in their search for information and are unable to access the necessary information, on such things as sources of finance and credit for businesses, and the right prices and markets for their goods. They rely on informal networks of information, especially friends and relatives, as well as customer reactions and their own experiences to start and run their businesses.

The chapter has therefore revealed that informal sector enterprises have continued to remain small as survival outfits and have not embraced modern channels of computer-based technologies for information access.



Literature reviewed from official and other sources in this chapter has covered the development of the informal sector and its importance to the people and the economy of Kenya. There are gaps in the literature on the part that can be played by ICTs in the improvement and growth of informal sector. This is despite the fact that ICTs have been found to play an important part in the growth of small enterprises elsewhere by opening up and expanding their markets and information flow not just locally but also beyond the national boundaries. This study attempts to contribute towards filling the gap in literature on the importance and contribution of ICTs to the informal sector in Kenya.

The next chapter explores the theoretical frameworks that guided the study.

## **CHAPTER THREE**

### **THEORETICAL FRAMEWORK**

#### **3.1 Introduction**

Superior technology does not always steam roll inferior technology as the determinists believe. Nor does superior technology explode onto the scene in a glorious, perfect form; it creeps along in fits and starts. Technology's advance may be inevitable, but it is gradual ...technologists should, therefore, look to the potential adopters to show them ways to gradually introduce their innovations into their societies. (Surry, 1997).

As the quote above suggests, the adoption of new innovations is not an easy and predictable process; on the contrary, it can be long and unpredictable. The eventual adoption of a particular technology not only depends on the superiority of the technology, but also on the adopters' attitudes and the norms, practices and priorities of the adopting community or society. Fedex and Umali, in Kuuya, 2010 p. 16) confirm that adoption behaviour is complex and often requires a blend of income and utility. What this means is that the adoption of a particular innovation is not just a matter of its availability and superiority; it is dependent on other factors as well, such as ability to afford the acquisition and implementation, the practicality of the particular technology, and satisfaction with the product, etc.

The chapter therefore examines and discusses the theories that are related to the diffusion of innovations and the adoption of information and communication technologies.

#### **3.2 The Diffusion of Innovations (DoI) Theory**

The Diffusion of Innovations theory was conceived by Everret Rogers as a general diffusion model in 1962. Research on the diffusion of innovations was actually

initiated earlier in the 1940s and 50s and conducted by different diffusion researchers from different disciplines.

### **Definition**

The diffusion of innovation is the process by which an innovation is adopted and gains acceptance among members of a certain community. The innovation could be a technological idea, artefact or technique that is communicated through certain channels over time among members of a social system. It is a special type of communication where the messages are concerned with new ideas and the newness implies many possibilities as well as uncertainties (Rogers, 2003, p. 5; Surry, 1997, para. 2). An innovation is therefore approached with caution, and may not be so readily taken up.

According to Rogers (2003, p. 16), there are five important characteristics of an innovation that influence its adoption and diffusion:

- Relative advantage or the degree to which it is perceived to be better than what it supersedes;
- Compatibility or consistency with existing values, past experiences and needs;
- Complexity or difficulty of understanding and use;
- Trialability or the degree to which it can be experimented with on a limited basis; and
- Observability or the visibility of its results.

(Rogers, 2003, p. 16; Clarke 1999, para. 8)

Quick adoption also depends on the number of benefits and ease with which innovations can be adopted, but Rogers also contends that getting a new idea adopted, even when it meets the requirements for diffusion spelt out above, is often difficult; many innovations end up taking a period of many years from the time when they first become available to the time when they are widely adopted (Rogers, 2003, p. 7).

This seems to hold true even in societies in which and for whom the technology is developed.

Rogers (2003, p. 219) demonstrates adoption resistance using the example of Captain Lancaster's discovery and use of lemon juice for scurvy prevention in sailing ships in 1601. Despite the Captain's discovery that lemon juice lowered the mortality rate of sailors, it was not until 1747, almost one hundred and fifty years later, that the British navy finally adopted the practice.

However, not all innovations in all communities take long periods of time to be adopted. Some innovations diffuse from first introduction and are widely used in a few years, at least in some societies. This depends on how compatible the innovation is with existing societal norms and the benefits and ease with which it can be adopted.

A fitting example is the fast adoption of the internet by Americans; Rogers (2003, p. 219) found that 71% of adult Americans had adopted the internet in just a dozen years (1989-2002). Mobile phones and their associated technologies, like money transfer technology, have also diffused very rapidly in developing countries where they have overtaken many older technologies (like the computer, fax, television and even the fixed line telephone). This has occurred only in the last decade (2000 - 2011), with over fifty percent (50%) of the Kenyan population having adopted mobile phones in the last ten years (2002 - 2011). Communication Commission of Kenya (2010/2011) subscription figures show that over twenty five million of the forty million Kenyans use the mobile phone.

In addition to the five characteristics that influence the adoption of an innovation referred to above, Rogers (1995) and Surry (1997:para. 2) have identified four factors that may influence a technology's diffusion:

- The innovation itself

- How the information about the innovation is communicated
- Time
- The nature of the social system into which the innovation is being communicated

Clarke (1999, para 5) identifies five stages through which a technological innovation must pass:

- Knowledge about its existence
- Persuasion or forming a favourable attitude towards the innovation
- Decision on commitment to its adoption/decision to adopt
- Actual implementation or putting it to use
- Confirmation or reinforcement based on positive outcomes

According to Clarke, important role players in the innovation process include opinion leaders, change agents, and change aides who complement the change agents by having more intensive contact with the clients (Clarke, 1999, para. 11).

Rogers (2003, pp. 282-287) identifies five different adopter categories, namely:

- Innovators : Venturesome
- Early adopters: Respect
- Early majority: Deliberate
- Late majority: Sceptical
- Laggards: Traditional

On the characteristics of adopter categories, those who get exposed to an innovation earlier are generally more educated, have higher social status, are more open to mass media and interpersonal channels of communication, and have more contact with change agents (Rogers, 2003, p. 288). Innovation decisions may be optional and can be made individually, collectively by organisations, or may be authority-based. Early adopters are not different from later adopters in age, but have:

- More years of education, higher social status, upward mobility, or work in larger organisations
- Greater empathy and are less dogmatic, as well as a greater ability to deal with abstractions
- Greater rationality and intelligence
- Greater ability to cope with uncertainty and risk
- Higher aspirations and more contact with other people
- Greater access to mass media and interpersonal communication channels and engage in more active information seeking

(Rogers, 2003, p.288; Clarke, 1997, para. 10)

### **3.2.1 Relevance of the DOI theory to the study**

The theory provides a broad framework for the study of organisational factors affecting the adoption of business tools, including e-business and e-technologies, because it processes the basic components of technological innovation, adoption, diffusion and communication (Minishi-Majanja and Kiplang'at, 2005, p. 211; Migiro and Ocholla, 2005, p. 284). It has also been applied in a wide variety of situations that involve the uptake of innovations, including the use of ICTs (Harris, 2002, p. 7).

Unlike what many technologists believe, i.e. that useful innovations will sell themselves and the obvious benefits of a new idea will be widely realized by potential adopters, the reality is that most innovations diffuse at a disappointingly slow rate (Rogers, 2003, p. 7). This is especially true with respect to the adoption of computer-based technologies in most developing countries.

This aspect of the DOI theory which acknowledges the very slow rate of diffusion of technology in some circumstances makes it quite relevant to this study, as it is consistent with the fact that new technologies do not just get adopted because they are superior or have great potential, as exemplified by computer technologies. Many

factors need to be taken into consideration before a new innovation is successively adopted in a community. The case of mobile phone technology is different as it has been adopted very quickly in developing countries and meets three of the five criteria of the Diffusion of Innovations theory, namely relative advantage, compatibility and complexity.

With respect to relative advantage, which refers to the advantage that the technology has over its competitors (Kuuya, 2010, p. 160), the use of the mobile phone and mobile transfer services by MSE traders has delivered more advantages than other methods of communication in receiving and sending information from and to suppliers, customers, and friends and relatives. Mobile phones help by saving the money that would have been spent on travelling to communicate or get things done. The mobile money service has replaced other methods of sending money through friends, relatives, bus conductors and drivers to relatives living in the rural areas. The technology has also come in handy in saving time for small business traders as they usually operate with scarce labour and the majority of them have less than five workers.

On complexity or relative ease of use, mobile phones, in comparison to computers, do not require high literacy levels and are also readily available due to their relative affordability. The mobile phone is small and flexible, and therefore compatible with small business settings which are usually simple outfits occupying little space, and as Kuuya (2010, p. 28) found in his research in the informal sector in Kenya, cost, societal norms and the environment are major considerations when adopting technology in the informal sector. The compatibility of the mobile phone, has also helped it to diffuse rapidly in Kenyan society. Moreover, the gadget has fitted well in Africa's oral culture.

To surmise, the mobile phone is affordable, flexible, and convenient to carry around, since they are small enough to fit in the pocket, they are also in consonance with

Africa's oral culture, they facilitates conversation with relatives, friends and workmates, provides entertainment and information, and can be used for monetary transactions, and do not require high educational level to use. It is essentially the perfect tool for MSEs.

### **3.2.2. Limitations of the DOI theory to the study**

In spite of the observation by Rogers that innovations diffuse at a disappointingly slow rate, the DOI theory seems to be more concerned with the rate of diffusion of innovation and the decision-making processes of the adopters rather than with the conditions that bring about the slow/fast rate of adoption. It seems to take no interest in other factors or the social context of the adopting community, which might affect the slow/fast rate of diffusion. The innovator's agenda seems to be its central concern, and yet this may not be the agenda or priority for those who are expected to adopt the innovation. Their needs and value systems may be different from those for whom the innovation was developed, especially those whose culture, social-political and economic conditions are different, meaning that it may not be as easy as deciding whether and when to adopt.

The DOI's technology-centred approach is overly concerned and preoccupied with the superiority of technology and seems to take it as the primary force for change; and that by virtue of the technology's superiority, it will be adopted and bring about the desired change in the receiving community. Roger's DOI theory seems to emphasize the supply side or the innovator's point of view more than the demand side of an innovation and does not appear to understand or to be concerned with the reasons of why an some innovation may take a long time to be adopted in spite of its superiority and great potential. The DOI theory is therefore technologically driven rather than socially-driven as it does not consider why some communities or members of a community do not adopt a new technology.



Pacey (1983) contends that there is no such a thing as technological determinism, and that the society is not pulled along by the power of technology. He places emphasis on social organisation as highly important in determining how technological advances are adopted and used and the impact that they have on the lives of people.

The DOI theory also seems to have had only one community in mind: the community in which the technology was created. It does not seem to have room for other communities adopting and benefiting from a particular technology, because it only mentions different categories of adopters of the one community that it is familiar with. These are the shortcomings of the DOI theory in its application to the diffusion of ICTs in the informal sector in Kenya. ICTs were developed in Western countries for communities whose socio-economic and political conditions are vastly different to those in most developing countries.

The needs and the different conditions that exist in different communities need to be taken into consideration because they may not provide the same impetus required for the successful diffusion of the innovation. This may be the case in most developing countries where the different socio-economic and political conditions dictate that their priorities are different. The level of education and the available resources necessary for effective ICT adoption are also different. While ICTs might be compatible with the needs of people in developing countries, the different contexts (between developing and developed countries) first need to be taken into consideration as diffusion may not simply be a question of early or late adopters, but have more to do with whether it is the right time for the new technology to be adopted as the priorities might be completely different.

Other limitations of the DOI theory, as pointed out by Chiware and Dick (2008,p. 146), Minishi-Majanja and Kiplang'at (2005, p. 211) and Mugodi and Fleming (2003, p. 508), are that it seeks to explain individual decisions or intentions to adopt rather

than collective adoption behaviour, which is more likely to be the case in business settings. Adopters' categories in the DOI theory also seem to be specific to the community and period in which the theory was derived: the 1950s and 60s in North America. The categories also take for granted the availability and continuous supply of the innovation and the necessary infrastructure, equipment, skills and know-how, with the only limitation to the adoption process emanating from the adopters' decisions. This is not the case with would-be adopters in developing countries where the infrastructure and availability of ICT equipment and the necessary skills are limiting factors.

Mugodi and Fleming's study (2003, p. 508) of South Africa's platinum mining sector, for example, found that those who had not adopted ICT technology in their work were not necessarily laggards. But the miners realised the technology was not fully usable in the mining areas due to lack of the necessary infrastructure. The theory is also limited in predicting outcomes and providing guidance on how to accelerate the rate of adoption (Lyytinen and Damsgaard, 2001, p. 13; Clarke, 1999, para. 13).

High expectations concerning the diffusion and adoption of technology in different communities, including developing countries, might be driven by the technological determinism perspective which looks at technology as the driver for change without taking into account the different contexts and conditions in which adoption and diffusion takes place.

### **3.3 Technological determinism**

Technological determinism is a technology-led perspective of social change that looks at technology as the primary catalyst in history, one that is independent of human actions. The opposite perspective is the social constructivism approach which posits that technology is not neutral and is not designed and developed separately from politics, economics and power (Oostveen, 2007, p. 2).

According to technological determinism, ICTs can easily be adopted by all communities. Technological determinism gives rise to the speculation that the adoption of ICTs would enable developing countries to leapfrog many stages of development, assist in the eradication of poverty, and catapult them into the global economy (Shamim, 2007, p. 365; Hinson, 2006, p. 126; Koanantakool, 2004, p. 127; Fillis and Johnson, 2004, p. 350; Campaigne, 2002, p. 1; Barbra-Sanchez, Martinez-Ruiz and Jimenez-Zarco 2007). For example, Franklin (2006, p. 88) emphasized the superiority of ICTs and their dynamic characteristics – global, cross-cutting nature, faster dissemination of information – as the factors that would enable them to revolutionize economies in developing countries, leading to the leapfrogging of intermediate stages of development.

Campaigne (2002, p. 1) views ICT diffusion as a challenge or the means, that can be used to build effective bridges, to integrate the three economies, namely the formal, informal, and the global. He also recommends, as the first important step, the opening of easy and affordable digital and communication links. For such optimistic views, he cites the recent explosive growth of cellular telephony which has opened up local, regional and global communications on an unprecedented scale (Campaigne, 2002, p.1). Part of the reason for this is that cell phone technology, unlike computer-based technology, is more affordable and easier to use.

In spite of such speculations and the very high expectations of faster development and realisation of more wealth as evidenced in some industrialised countries, empirical evidence would suggest that this is not the case in developing countries. Cullen (2003, p. 248) cites the case of India as an example of a country which has experienced massive growth in ICTs access without this making much of an impact on poverty alleviation, and points out that technology adoption on its own, even when it is successful, cannot solve social and economic discrepancies in developing countries.

As Rogers' (2003, p. 7) five adopter categories demonstrate, the adoption and diffusion of technology is not a simple and straightforward process, even within the society for which an innovation has been developed. Harris (2002, p. 11) suggests that the use of ICTs for development should always begin with a development strategy or an internally-derived agenda rather than reliance on externally derived technology to drive development in another community and without considering the different context of the receiving community. Kling (2000:218) and Oostveen (2007, p. 1) have also cautioned that high expectations of technology adoption should be backed by empirical research.

In cautioning against the simplification of the possible effects of new technologies, Oostveen (2007, p. 1) provides the example of e-voting and the expectation of increased voter turnout, or the use of ICTs to bring about faster development in developing countries. She points out that increased voter turnout may result from other factors other than the introduction of e-voting, while the case of expected faster development has not been evidenced in developing countries despite the introduction of ICTs. She argues that such supposedly linear trajectories resulting from technology adoption may not be so simple, and that social changes that might occur because of the implementation of new and complex information and communication technologies need to be analytically and empirically researched as other non-technological social forces might also be at work (Oostveen, 2007).

### **3.4 Social constructivism**

Social constructivism is a broad framework of theories that encompasses several progressive approaches. Its general position is that technology does not determine human action, but rather human action shapes technology and that development of technology is a social process which does not take place in isolation from society (Oostveen, 2007, p. 50). According to Oostveen, it is not possible to separate values, biases and politics from technology; the social position and perspective of its creators are written into a technology and it is these parameters that affect how

questions and problems are defined and then shape how technologies are designed as a solution. Oudshoorn (2001, p. 2) adds that actors involved in the design process configure the user and the context of use as an integral part of the entire process of technological development.

Social constructivism has been suggested as an alternative theory to overcome technological determinism. It takes into consideration the social context of technology and views technology as a social phenomenon that is shaped by the society that either produces or adopts it. Technological adoption in any society forms part of the socio-economic, political and cultural fibre of that society. The innovation is seen as a tool that can be used by the adopting society to perform existing tasks more efficiently or to perform new tasks. Technology is seen as playing a catalytic role, rather than the central role in the society (Saffu and Walker, 2008, p. 396). According to the social constructivism approach, speculation and high expectations of ICT adoption by communities (including developing countries) and the resultant benefits that can come about based on technology-led assumptions are misplaced.

Moreover, studies on diffusion of technology, including ICTs, also need to take into account indigenous knowledge and the prevailing structures of power in individual countries as well as their development strategies. Institutions or social networks that manage indigenous knowledge and the power structures are the source of power whose interventions would be necessary in order to bring social change (Silva and Figueroa, 2002, p. 10). The authors add that an innovation is not an end in itself, but a means to an end that has to be appended into the existing order, and that when an innovation or a new technology is presented, social and operational structures have to be developed or adjusted in order to make successful use of that innovation.

Another perspective views both technical and social aspects as mutually constructive, where neither should substitute one form of determinism with another (Oostveen, 2007, p. 2; Ashraf, Swatman and Hanisch, 2007, para 14; Davenport and Horton, 2005; Mugodi and Fleming, 2003, p. 505-506).

King, Gurbaxani, Kraemer, McFarlan, Raman, and Yap (1994, p. 144) have observed that once adopted, technology is modified or reshaped (according to its use) from the original innovation depending on what the users need to solve their problems. There is therefore nothing like a 'one-size-fits-all' type of technological artefact since it can be used in different ways and by different social groups according to the way they fashion it to meet their needs. It is therefore difficult, if not impossible, to predict what the effects of a certain technology will be until it is adopted to meet an individual community's needs. King et al. (1994, p. 144) further add that progress towards widespread innovation takes place in the broader context of other complementary and substituting factors in a set of integrated activities of which diffusion of innovation is only a part. They maintain that there is no such thing as a purely linear causal-action relationship between technological innovation and social change.

Musa, P., Mbarika, V. and Meso (2005, p. 115) concur that the sustainable application of technology that can improve a community's standard of living evolves from progressive, systematic and universal access over time, as this allows the acquisition of mental models within the correct socio-cultural contexts.

#### **3.4.1. The relevance of social constructivism approach to the study**

Social constructivism can be used to explain why the uptake of ICTs in developing countries, especially in the informal sector, has been very low despite the superiority of ICTs and especially computer-based technologies such as the internet and email, it explains that much more needs to be taken into account beyond the superiority of a technology for ICTs to be successfully adopted. On the diffusion of

mobile phones, ANT can be used to explain how all the actors, beginning with the technology itself, mobile telephone providers, government policy makers, MSE traders and other users, have come together to perform the appropriate actions for the successful adoption of the technology in both the formal and informal sectors in Kenya since 2001.

The diffusion of ICTs in the informal sector or SMEs in developing countries cannot, therefore, be predicted or assumed to follow a particular trajectory or to have some particular impact like bringing about faster development, as this will depend on other factors such as the socio-economic, political and cultural conditions as well as the needs of the adopting community.

Moodley (2005, p. 5) and Mutula (2004, p. 125) have observed that too much emphasis on ICT projects without first examining and analysing the broader economic, social, and political issues that interact to improve the lives of individuals, is likely to result in failure and wasted resources. Technology also needs to be integrated into local cultural practices and to fit into the existing level of development. It is therefore not surprising to find that there is no electricity for ICT connection in some parts of developing countries there is also no power for other activities like home lighting, cooking, and starting and powering industries. As long as the factors that will improve all aspects of people's lives remain unaddressed, ICTs, in particular computer-based technologies, will take an equally long time to be fully adopted and integrated into people's lives, especially among MSE traders. The diffusion of innovation therefore cannot be simply reduced to an individual's decision to adopt or not to adopt as the DOI theory suggests.

Taylor and Murphy (2004, p. 280) confirm that it is simplistic and naive to view ICTs as the keys to the knowledge economy, or that they will assure competitive advantage for all economies, and argue that the technical fixes and the 'one-size-

fits-all' technology prescription could be missing the point. They cite several barriers to SMEs' entry into the digital economy:

- Lack of awareness of the potential of ICTs to enhance SME operations.
- Lack of the necessary ICT skills' base to engage with the digital economy because a small enterprise may not afford to hire people with the necessary technical expertise.
- The initial cost may be considered to be too high, and it might not be cost effective in the long run.
- Most small firms do not have the luxury of resources for experimentation with ICTs.
- Some SMEs occupy small and defined niche markets which are entirely local and do not need global connectivity through the internet.

### **3.5. The Social Construction of Technology (SCOT) theory**

The SCOT is an approach of social constructivism that was formulated by Pinch and Bijker in the mid-80s as a model for analysing the history of technologies. According to Pinch and Bijker (1987), technology and its constituents are products of the social, political, economic and cultural environment in which they are found. They identify four related components of the framework of the social construction of technology, namely relevant social groups, interpretive flexibility, closure mechanism or stabilization, and technological frame.

- The relevant social groups interpret the artefact as they adapt it to their use.
- Interpretive flexibility is the way in which different social groups understand the technology depending on the circumstances that they are in. Technology design is therefore an open process that can produce different outcomes depending on the social circumstances.
- The closure mechanism occurs when one meaning of the specific social group becomes dominant and interpretive flexibility diminishes as the use stabilizes.



- The technological frame concept refers to the way the socio-cultural and political context of a social group influences the meaning of an artefact.

(Pinch and Bijker, 1987, p. 26; Oostveen, 2007, p. 9)

The SCOT theory has been criticized by Miles in Williams and Edge (1996, p. 31) who contend that, the social shaping of technology should reconsider its critique of technological determinism in order to retain some concepts about technology's determinate effects. Miles acknowledges that technology does not cause any particular social change since it can be used in a variety of ways within different social contexts with a variety of outcomes, but maintains that particular technologies can change the parameters of human interaction.

This study agrees with the critiques on SCOT theory that seems to lay too much emphasis on the social determinants of technology, while hardly acknowledging the technological impact. Just as technological determinism on its own may not bring about the diffusion of innovation, social conditions on their own may not determine the success or failure of diffusion of innovation.

### **3.5.1. The relevance of SCOT theory to the study**

SCOT theory is quite relevant to this study as it lays emphasis on the societal conditions as influencing the diffusion of innovations. The availability of technology however superior or powerful is not a prerequisite for its adoption and diffusion. An innovative technology will be successfully diffused if it fits the prevailing innovation system (Egmond-deWilde de Ligng, 2008, p. 44). The SCOT theory can therefore explain the situation in Kenya and other developing countries where ICTs like the computer and the internet have not diffused widely, especially among the low income informal sector workers, despite their perceived superiority in the western countries. This is because the prevailing societal conditions are not conducive to the diffusion of ICT technology. The mobile phone technology has however not only

diffused fast and widely but has been flexibly fashioned to provide mobile money services.

According to SCOT theory, technologies do not succeed or fail because of any inherent essence of the technology but on the meanings given to it by competing social groups. Groups can contest the meanings of technology because there is flexibility in how people think of or interpret or fashion the innovation according to their needs. The mobile phone technology for example has been fashioned to become a useful gadget for money delivery services, first by the urban Kenyans, who needed to send money to their relatives as per their needs at the time. This particular use of the mobile technology has not been taken up with the same enthusiasm by the Tanzanians for example where the introduction of mobile money service has not been taken up as fast as it was done in Kenya. This shows that interpretive flexibility of artefacts and experiences can be understood and used in a variety of ways.

Other social groups have since taken up the mobile money service and used it to pay for goods and services, while employers and other service providers are gradually catching up, and using the service to pay wages and salaries, and to settle bills.

### **3.6.The Actor-Network Theory (ANT)**

The Actor-Network Theory was developed as a critique to the SCOT approach due to SCOT's neglect of the influence of technology on social relations. It was developed by Latour, Callon, and Law (Callon, 2001), and its main tenet is the concept of heterogeneous elements all working together in a network to maintain social order. The actor-network approach places emphasis on both the social and technical actors who are involved in the development of technological systems and who are treated as inseparable for the maintenance of social order. The approach rejects the primacy of the human element in a socio-technical scenario and sees development of technology in terms of relationships formed between human and non-human

elements in 'actor-networks'. It also does not view technical knowledge as privileged, but rather as part of a configuration of relationships (Mackay and Gillespie, 1992, p. 687).

ANT is therefore a theory of diffusion of innovation translation by actors and not just an innovation transmission where the innovation is transmitted, in other words, the actors translate the innovation to fit their own circumstances rather than simply taking the innovation as it is. It offers an approach to explaining innovations and their diffusion that does not rely on any supposedly innate nature of the innovation (technical determinism) or specific characteristics of the change agents or society (social determinism), but rather on the process of network formation where actors seek to persuade others to become their allies in promoting the acceptance of their own view on how a problem can best be solved (Tatnall and Gilding, 1999, p. 962).

Translation looks more at the use that people might make of the innovation and how the innovation might be translated for use in the needs to be achieved (Tatnall and Lepa, 2003, p. 61). ANT thus follows a socio-technical account in which neither social nor technical positions are primary; rather it concentrates on issues of network formation by the actors and the alliances that they build up and how the enrolment of human and technological elements allow the network to be adapted (Tatnall and Davey, 2005, p. 773).

Latour in Tatnall and Gilding (1999, p. 960) maintains that the temporal and spatial adoption of an innovation is in the hands of people, and each individual may react to it in different ways. They may modify it, deflect it, betray it, add to it, appropriate it, or reject it. The adoption of an innovation thus comes as a consequence of the actions of everyone in the chain of actors who has something to do with it, each of whom shapes the innovation to their own ends. This is true of mobile phone technology, which was adopted and adapted to provide mobile money

transfer services to fulfil the need of urban Kenyans to send money to their relatives and friends in the rural areas.

The rapid diffusion of mobile money transfer technology in Kenya was made possible by the combined efforts of the pioneering mobile phone provider, Safaricom, a financial regulator, the Central Bank of Kenya, which relaxed certain financial controls and allowed the mobile phone provider to undertake money transfer services even though it was not a banking institution. The combination of needs, investment and innovation by the mobile phone provider and the relaxing of financial controls by the financial regulator, can thus be seen as a network of actors who worked together and motivated the rapid adoption and diffusion of mobile money transfer technology. Part of the success of mobile phone adoption is also due to the translation of the originally high denomination calling cards to low denominations. This made them affordable to low income users who normally do their purchases in small quantities, referred to as the 'kadogo' (used locally to refer to something which is 'very small' in Kiswahili) economy.

On a more general level, Russel and Williams in Mackay and Gillespie (1992) and MacKenzie and Wajcman (1979) agree that the development of a particular technology requires a coherent model of the society in which the technology is embedded, and this has to include the political ideological context. The political context of the development and adoption of technology should be reflected in policies and regulations because this sets the tone and direction the particular technology will take. The political and socio-economic contexts in most developing countries, for example, have a great deal to do with the diffusion (or lack thereof) of ICTs, especially computer-based technologies, because politics and social organisation are responsible for direction. The right policies and their implementation, which include infrastructure, level of education, skills and understanding of technology, and the per capita income, have a great deal to do with the prevailing socio-political and economic environment.

Allen (2004, p. 171), while acknowledging that ANT is one of the most popular and influential approaches to socio-technical change in information technology research, has nonetheless criticised ANT for focusing too much on the local (micro level) and contingent aspects of socio-technical change (micro level) at the expense of broader social and cultural processes (macro level). Rhodes (2009, p. 67), in his research on the integration of ICTs, e-commerce and marketing using ANT, concurs that successful ICT adoption must be in conjunction with changes in organisational structure, culture, and work processes in a contextually appropriate way. This should include a sufficient assessment of local socio-political risks.

The same author has also observed that ANT's major attraction in information technology research is also its most controversial element, namely the symmetric treatment of people and technologies as members of actor-networks (Rhodes, 2009, p. 67). He observes that The concept of a non-human 'actor' influencing a network on the basis of interests and assumptions inscribed within it, is one that has undeniable appeal for understanding the information technology world of today, where pre-packaged systems and global standards are routinely transplanted between very different use contexts."

The ANT approach has likewise been criticized by Hassard, Law and Lee (1999) for treating the human and the non-human, and the social and the technical, in the same analytical way; in other words the failure to attribute the difference between the actors and the artefacts. It has also been criticized because it is believed that there should be a differential, albeit simultaneous focus on the human and the technical in the effort to explain the pattern of technology's social outcome (Dutta, 2008, p. 60). Mackay and Gillespie (1992, p. 687) further refer to the neo-Marxist approach and argue that technological change cannot be fully understood by referring to individual inventions; one has to look at wider macro socio-economic

forces that lead to the broad decisions that affect the nature of technological problems and solutions.

An ANT analysis seeks to explain how sets of actors (human and non-human) with diverse interests come together to create relatively stable technological arrangements. This is done through the translation approach, which involves strategies through which an actor identifies other actors and arranges them in relation to each other. The mere possession of power by an actor does not, however, automatically confer the ability to bring about change unless other actors can be persuaded to perform the appropriate actions for this to occur (Tatnall and Gilding, 1999, p. 960).

### **3.7 How the theories relate to, or enhance each other**

The three theories considered namely the Diffusion of Innovations theory and social constructivism SCOT and ANT, have attempted to progressively improve on each other. The DOI theory is a theory of innovation adoption which although relevant to the study, can only be used at a general level as it represents a new innovation or idea and how it gets adopted. But, as already discussed, it does not explain why new innovations or ideas are not adopted as expected. It also does not explain why ICTs have not been adopted in developing countries despite their superiority and successful adoption in western communities. It assumes that new technologies should be adopted because of their assumed superiority. It is therefore technocentric or technically deterministic and it is this technical determinism that social constructivism, with SCOT and ANT, attempts to improve on.

The Social Construction of Technology (SCOT) theory attempts to counter the technical determinism that is inherent in the theory of diffusion by placing more emphasis on social aspects and has been criticized for being socially deterministic at the expense of technology. ANT offers a more balanced approach by considering both the technical and the social aspects as equal actors in a network that work

together to make the adoption of an innovation a success. This would not be possible without the contribution of all the actors.

### **3.8 Summary**

This chapter examined the relevant theories that were used to guide the study. It identified three theories, namely the Diffusion of Innovations (DOI) theory, Social Construction of Technology theory, and Actor Network Theory. The three theoretical orientations were discussed in connection with their application to the diffusion of ICTs, especially the diffusion of computer technology and mobile phone technology in the informal sector in Kenya.

The discussion has considered the technological determinism concept that is associated with the DOI theory and how it applies to the diffusion of ICTs in the current study, as well as the opposing concept of social constructivism and the more balanced Actor Network Theory, which has received some criticism for treating both human and technical actors in the same analytical way.

The technical determinism concept, although able to explain the diffusion of technology at a general level, is associated with predictions and high expectations that ICT adoption will not only bring about faster development, but also allow communities to leapfrog some stages of development due to the dynamism that is inherent in ICTs. This, however, has been shown to be a technically-deterministic prediction that views technology as the primary mover of things as opposed to the social constructivist view that technology is also socially developed and cannot be created or adopted without taking the prevailing conditions of a particular community into consideration. Technology adoption has to take into account the social, political, economic and cultural conditions of the community.

The next chapter (four) looks at the literature review used in the study.

## **CHAPTER FOUR**

### **LITERATURE REVIEW**

#### **4.1 Introduction**

The previous chapter examined the relevant theories that provided the foundation used as a guide for the study. This chapter reviews the literature that ties to the diffusion of ICTs in the informal sector in Kenya. The chapter identifies and reviews relevant documents on the current status of the informal sector and ICT access in Kenya; information needs, awareness and access among workers in the informal sector; adoption, use and benefits of ICTs among MSEs; challenges of ICT use among MSEs; use of mobile technology among MSEs in Kenya; and the role of the government in the diffusion of ICTs.

#### **4.2 The status of the informal sector and ICT access in Kenya**

MSEs and SMEs, (which are also referred to as informal sector enterprises in Kenya) play a significant role in most economies of the world and are generally regarded as the cornerstones of both developed and developing countries (Oletokun and Kebonye, 2010, p. 43). Duncombe and Heeks (2002, p. 62) have observed that even if the impact of micro and small enterprises may be limited in terms of wealth creation, growth, or innovation, they are critical to the livelihoods of hundreds of millions of the poor in developing countries as they provide income and employment and enable survival (GOK, 1996, p. 164).

According to Bowen (1998), efforts by African governments to develop formal industries geared at achieving fast economic growth and creating employment did not bear much fruit. The informal sector, on the other hand, has continued to grow as a natural response to fill the gap left by the formal job sector in absorbing an ever increasing number of school leavers searching for employment. These people



require sustenance and in the absence of formal sector employment the informal sector has continued to provide them with some form of income and employment.

The National Baseline Survey (1999) is the more recent of the two baseline surveys, which have carried out a census on informal sector enterprises in Kenya. The earlier baseline survey was carried out in 1993. The National Baseline Survey identified about one point three (1.3) million micro and small enterprises in Kenya employing an estimated two point four (2.4) million people. Their contribution towards the Gross Domestic Product was estimated at over eighteen percent (18%). In job creation, the informal sector in Kenya created 433,500 jobs, which constituted ninety three percent (93%) of the total 466,200 jobs created in the economy in 2008, while the formal sector created only 33,700 jobs (GOK, 2009).

King (1996, p. xiii), another informative source on informal sector enterprises, has observed that despite the micro- and small-scale status of informal sector enterprises in Kenya, the informal sector has come to be viewed as an important part of the economy, especially as it provides employment to a significant population of Kenyans. It has also shown a high level of competitiveness compared to the formal sector's monopolistic enterprises which enjoy government protection. King (1996, p. Xiii) further observes that informal sector enterprises have operated without any subsidies and simply respond to market forces, and have survived in the absence of a reliable and enabling framework from the government which mainly concentrated its efforts on unsuccessful formal sector enterprises. The sector has also defied the constant harassment meted out by the council and municipal authorities, which over-regulate their activities without giving them alternatives. The training that workers in the informal sector receive is also specific and does not suffer wastage; unlike formal education graduates, the informal sector apprentices contribute to the cost of their own training through their labour.

Since the majority of informal sector enterprises are started for survival purposes, their chances of growth beyond survival are minimal as most of them are not able to

afford new technology like the computer-based ICTs, whose adoption would help them grow by increasing the productivity and efficiency of internal business operations and connecting them more easily and cheaply to local and global external markets (Ongori and Migiro, 2010, p. 101). Most of them are not aware of the computer-based ICTs or their potential as they have restricted access to technology, inadequate institutional capacity to support the adaptation of modern ICT technology, and suffer from lack of information, ICT skills, and understanding. They are also exposed to a weak environment that hampers the coordination and transfer of technology (Migiro and Wallis, 2006, p. 9; Moyi and Njiraini, 2005, p. 10).

The use of foreign languages such as English, French and German in spreading ICTs in Africa and other developing countries has also been a hindrance in faster digitalization. The computer technology reaches its users through the language medium, but the situation in most African countries is such that ICTs are spread and used through the foreign languages of the West from where the technology was developed, these languages are not understood by a large percentage of the population (Kamau, 2012, P. 1) especially the low income and the less educated people who comprise the MSE workers, who are consequently shut out of the ICT domain. Kamau rightly suggests that, the use of local African languages like Kiswahili can be used as a vehicle to fast track the spread of ICTs in the continent and thus move the countries towards becoming a part of the global village which is highly dependent on the computer and the internet.

When ICTs are not available in a given local language, the opportunity to produce and disseminate local content on the internet is reduced; such is the case with the MSE workers in Kenya whose main language of communication is Kiswahili (El Zain n.d.). It has however been observed that, efforts have started being made to try and overcome this barrier to ICT spread through the use of African local languages like Kiswahili, with Microsoft and Linux international computer software

developers starting the localization of their software using Kiswahili language in a bid to bring ICT access closer to African countries in the East and Central African region (Kamau, 2012, p.2). Even as these efforts are made it is worth noting that, most of the informal sector goods are meant for local consumption and therefore, apart from the faster communication that the workers may enjoy through the use of ICTs, the products may not necessarily reach a standard where effective use of ICTs is required beyond the improvised and creative use of local innovations.

#### **4.3. Awareness, information needs and access in the informal sector**

According to Migiro (2006, p. 35), although the informal sector is viewed as an important sector in the Kenyan economy it continues to be obstructed by poor access to markets, finance, new technology and information, especially market information. These are some of the most critical constraints to the growth, productivity and competitiveness of informal sector enterprises in Kenya. The MSEs also lack technical knowledge and skills and rely on informal and inadequate planning processes, which result in limited market share both in the sourcing of raw materials and demand for finished products.

The lack of market information in the informal sector leads to overproduction of the goods and services on offer. The markets are also locally saturated as a result of 'dumping' of goods from outside the country. This has led to stiff competition and undifferentiated products, resulting in low incomes. According to Moyi et al. (2006, p. 3), the lack of market information, skills and knowledge to advertise and promote products, and knowledge to explore further markets within and outside the local area, leads to unsustainable production and poor growth in the informal sector. Information is absolutely essential for any business to remain competitive. Okello Obura et al. (2007), in their research in Northern Uganda, found that economic agents operated in a business environment characterised by fragmented and incomplete information where awareness of markets, technology, policies,

regulation and finance was limited because there was no meaningful information system in place to facilitate effective access to information by business enterprises.

Likewise, Kenji (2009, p. 4) noted that micro-businesses in developing countries can be described as suffering from “business information poverty”, which refers to the lack of access to vital business information that is necessary for making potentially successful business decisions, giving rise to information asymmetries and inefficient markets. Various scholars have observed that almost all commercial activities suffer from information failures of various kinds, but such problems are particularly acute in the case of micro-enterprises in developing countries (Albu and Scott, 2001; Muller-Falcke, in Jagum, 2008, p. 49). These information failures, according to Jagum, (2008, p. 49), may include situations where those seeking to trade may not know whom to trade with or the appropriate prices for their goods. This slows down their development and limits business activities to a local area.

Timely and relevant information is a basic requirement in business operations, or for just staying in business in the case of micro and small size businesses. Information about the general business environment is required, as well as information about cheaper sources and suppliers, financing institutions,, tools and equipment, business management and development, production processes, advocacy and lobbying skills, new areas of investment and increased productivity, profits, marketing and marketing techniques, training and skills acquisition, and of course growth or survival. Information is also required to assist in negotiations and decision-making processes and to start and sustain new business ventures (Sharma and Bhagwat, 2006, p. 199; Ikoja-Odongo and Ocholla, 2004, p. 63).

Amha and Ageba (2006, p. 307) have identified business development services as an important factor that affects the business performance of MSEs in Ethiopia. Business development services include but are not limited to, consultancy services, training, advice, transport, information, and networking and communicating in a

sustainable way. They note that the availability of business development services is essential in order for MSE operators to acquire new skills and products, know-how, and technology and market share in an increasingly competitive domestic and global environment.

The delivery of quality information is important for sustainable competitiveness in local and global markets and in creating a viable and sustainable MSE sector. Amha and Ageba (2006, p. 307) found that the information required by MSE operators can be obtained through trade fairs, exhibitions, one-stop information shops, print and non-print media, and through visits by government trade agents. Such information should reflect the needs of SMEs. The results of the Ethiopian survey revealed that in the absence of business development services, customers, suppliers and relatives were used as sources of business information.

Jorosi (2006, p. 97) and Sharma and Bhagwat (2006, p. 199) agree that in the changing business environment that characterises today's world, information is seen as a strategic weapon in business operations. Failure to access timely and relevant information may therefore mean a decline and/or failure in business. In order for the MSEs to effectively expand and reduce their income disparities, they have to embrace changes in the global technological environment that would help them to reach the local markets more effectively and international markets where necessary. These are e-commerce practices which are facilitated by ICT tools such as the internet, computers and mobile phones, and which have been lauded as catalysts for development in modern society (Migiro, 2006, p. 35).

Despite the dire need for information for business activities, there are no established formal mechanisms for information flow due to financial limitations, low educational levels, small sizes, and the informal orientation of the informal sector. Mooko and Aina (2007, p. 30), in their research in Botswana, have documented that most informal sector workers indicated the need for improving

knowledge in their vocations, especially for improved marketing strategies which are limited by lack of information. Their main marketing strategies were limited to physical displays and word-of-mouth. Few of the participants could afford to place advertisements in the newspapers or radio broadcasts or use other effective and broader methods of attracting potential customers. Personal contacts and informal conversations were the main information channels (Mooko and Aina, 2007, p. 30).

Nearly half of the participants, however, reported having looked for information in newspapers, which is a reflection that most of them were literate. Less than one third of the respondents had basic computer skills, but access was also a problem due to high expenses. In terms of communication tools, the respondents used cellular phones, fixed telephone lines and public phones for business purposes, while the internet and libraries (which are contemporary major information providers) were rarely used as sources of information. Banks, which are supposed to be important in the economy, were reportedly rarely used for credits or loans (Mooko and Aina, 2007, p. 42).

The major constraints facing MSEs in relation to information are acquisition and the capacity to interpret and effectively utilize the acquired information. The dissemination of information on legal and regulatory issues to the public is poor, and MSE traders especially have been inadequately sensitized about their obligations and rights. (GOK, 2005, p. 6). The Sessional Paper number 2 (GOK, 2005, p. 6) on the development of micro and small enterprises for wealth and employment creation for poverty reduction has rightly stated that, without access to timely, simplified, reliable and relevant information on market opportunities, production technology and government regulations, MSEs will not be able to grow, and are likely to suffer high mortality in the fast-changing and globalized competitive market environment. Institutions involved in the acquisition and dissemination of information are few and inadequately funded with limited capacity to address the problems facing the sector.

Migiro and Wallis (2006, p. 9) found that the majority of MSE operators in Kenya lacked awareness on alternative sources of finance and their general knowledge of finance options available to them was poor. Moyi (2003, p. 225) also observed that Kenya has a weak (enterprise) finance information system that could not support the information needs of small business enterprises, and that information on available bank loans, sources of business finance, SME loan schemes, and venture capital was also scarce. Market information in particular was found to be scarce and fragmented, with limited formal mechanisms supporting its flow and exchange. Only 8.5% of the respondents in the study by Moyi (2003) were found to have access to formal institutions that provided business-related information.

In the absence of effective formal sources of business information, the informal sector is dominated by informal, oral-based information networks that are founded on a combination of friendship, kinship and ethnicity. Ikoja-Odongo and Ocholla (2004, p. 59) confirm that the most popular means of seeking information by MSEs is through interpersonal relations, an approach that is mainly informal and oral in nature. Similar observations were made in Botswana where information seeking practices were overwhelmingly informal in nature and characterised by a high degree of reliance on information obtained through the knowledge and experience of the business owner, local networking within the business community, family and friends, and information accumulated through enterprise-specific learning (Duncombe and Heeks, 1999, p. 5). They also observed information gaps for financial information due to information barriers erected by lending institutions and the lack of capacity by business owners to effectively search for and access such information. The use of formal channels and modern methods of information transfer was found to play an insignificant role, either due to low literacy levels, lack of access to modern technology, and/or the inappropriateness of information packaging Duncombe and Heeks 1999, p. 5).

Because informal sector activities are mainly family-based, information access also follows family networks. Informal networks play a significant role in information flow on the availability and allocation of premises, entry into business, transfer of skills and technology, and in establishing markets (Macharia, 1987, p. 9). The success of any intervention or innovation would therefore depend on proper identification and penetration of local information and communication informal channels. Those who do not belong to any networks suffer isolation with respect to information access.

According to Mooko and Aina (2007, p. 28), Jorosi (2006, p. 98), Moyi (2003, p. 222) and McCormick (1998, p. 6), there is a dearth of studies addressing the information needs of informal sector workers and little is known about the information search processes or the institutions that govern information flow in the informal sector. The sparse literature that is available is dominated by studies in industrialized countries.

McCormick (1998, p. 5) recommends clustering, which she argues can build industrial capacity by increasing market access, fostering communication and information sharing, enhancing technological spill-over, increasing efficiency, and contributing to the development of supportive institutions. She notes that clustering facilitates the diffusion of technological know-how and ideas by permitting the rapid flow of technical information between producers operating near each other.

Duncombe and Heeks (1999, p. 1), however, decry the techno-centric approach and the predetermined view that new technology is the solution to development problems, and also the fact that any failure to bring about the desired change is attributed to the inability of those involved in appreciating the immense powers of ICT, which has been credited with the potential to bring about development in informal sector enterprises as well. Duncombe and Heeks see the power of technology as overplayed at the expense of the reality of different situations and



contexts. They suggest the identification of existing information and communication practices in the informal sector, as all that ICTs do is provide new mechanisms for handling existing information resources. To understand ICTs, MSE owners need to consider whether and how the technology fits into their world view (Duncombe and Heeks, 1999, p. 1).

According to Heeks (2002, p. 1), "Rather than charging in with the technology, we must understand the context, the true objectives, and the role of information in meeting those objectives before we can understand and plan for ICTs." Duncombe and Heeks (1999, pp. 5-6) had earlier observed that in Botswana's informal sector, information practices are overwhelmingly informal in both the traditional (cloth, wood and leather production processes) and non-traditional (tourism, engineering and IT) sectors.

Those who are displaced, i.e. who are not part of local social networks, are therefore disadvantaged as far as information access is concerned, and formal information sources may hold more promise. Information received from informal sources and channels was rated highly by many of the business owners who held the view that information sourced from formal institutional sources was not targeted at them. Direct contact with customers in face-to-face meetings was regarded as the most effective method of business communication (Duncombe and Heeks, 1999, pp. 5:6).

Further research in Botswana showed large gaps in information needs with respect to sources of finance (e.g. credit and loan facilities) and training personnel (management training opportunities and workforce training) (Duncombe and Heeks, 1999, p. 10). There was also an urgent need expressed for information that would lead to increased sales by obtaining new local customers and expanding into export markets. Of greater importance, however, was the overall informal sector development picture, which demonstrated the need for necessary skills, markets and sources of funding (Heeks, 2002, p. 1; Duncombe and Heeks, 1999, p. 10).

#### **4.4 Adoption, use and benefits of ICTs among MSEs**

Information and communication technologies are significant input factors for both formal and informal businesses as they increase labour productivity and create new opportunities for small players to enter the global arena (Esselaar, Stork, Ndiwalana and Deen-Swarrray, 2007, p. 99; UNDP, 1999, p. 59). The UNDP (1999) reiterates that the telephone, e-mail and the internet could bring about much needed savings in cost and time for the SMEs. Referring to a study in Ghana (UNDP, 1999, p. 59), the report notes that workers in small businesses without telecommunications can spend up to half of their work time travelling from place to place.

The web has given firms, irrespective of their size, the opportunity to trade beyond their geographical and national boundaries, and also helped to reduce the cost of trading among companies (Cohen and Kallirroi, 2006, p. 45; Kaynak et al., 2005:626). ICTs also enhance the competitiveness of business enterprises by contributing to business knowledge management, access to business information, efficient administration, access to markets, and growth of SMEs in both developed and developing economies (Ongori and Migiro, 2010, p. 99). The authors (Ongori and Migiro, 2010, p. 99) add that ICT tools aid in sharing information within and outside the organisation and that ICT adoption by SMEs increases the production efficiency of internal business operations and connects SMEs more easily and cheaply to local and global external contacts.

ICT adoption by MSEs therefore has the potential to transform business operations by enabling the rapid, reliable and efficient exchange of large amounts of information. MSEs stand to gain from reduced transaction costs, information gathering and dissemination, and inventory and quality control. ICT advances have the potential to integrate the world economy by further reducing trade barriers and thus benefiting business enterprises by integrating the market. (Oletokun and Kebonye, 2010, p. 43; Ongori, 2009).

In order for SME to benefit from the advantages of using ICTs, the governments have to realize and understand these benefits so that they remove the barriers that hinder adoption, for when small enterprises are in a position to serve a large pool of customers, the positive aspects that accumulate from this would increase not only the earnings and economic returns of the enterprises, but of the country as a whole (Tan et al., 2010, p. 24).

A sizeable number (33%) of SMEs in a Mauritian study were unaware of appropriate ICTs to use in their businesses and were also unsure of the benefits (Lal and Pecdily, 2006, p. 31). Moyi (2003, p. 151) found that the level of ICT utilization in Kenya is low due to the cost of ICT technologies, lack of internet connectivity, and ignorance about what the internet has to offer. Moyi and Njiraini (2005, p. 10) observed that MSEs in Kenya were constrained by underdeveloped entrepreneurial skills, limited access to appropriate technology and key technological infrastructure like electricity and internet connectivity, and the inability to maintain ICTs.

Kuuya (2010, p. 8) notes that lack of culture and infrastructure for imported technology, with the exemption of the mobile phone in Kenya, is more pronounced in the informal sector than in the formal sector. Mobile phones are seen to be vital across the range of formal and informal businesses, having overtaken computers as tools in supporting the running of MSEs. The obstacles to the adoption of other ICTs by MSEs can generally be summed up as: the inability to afford them, lack of knowledge and awareness of their potential, poor infrastructure, and the absence of local content, which makes MSE owners view the technology as irrelevant (Kapurubandara, 2009, p. 1; GOK, 2005; Moyi, 2003, p. 221).

Lal and Pecdily (2006, p. 32) argue that MSEs require more than financial facilities or incentives to reduce the costs associated with ICT use and that (MSEs) require an overhaul of the small business mindset and more investment in capacity

building. Gould et al. (2010, p. 10) also agree that ICTs can only be meaningfully and fully utilized if literacy levels, user awareness, skills, and cultural and regional variations are taken into consideration.

The reality of most MSE in developing countries seems to support the argument of total overhaul and capacity building as the first step, since MSEs are busy struggling with survival issues and ICTs appear to be not only out of reach to them, but also irrelevant as the majority of the workers do not understand their benefits. However, unlike computer-based ICTs, mobile phone technology is emerging as a business information tool for MSE operations.

#### **4.5 Challenges of ICT utilization among MSEs**

The reviewed literature (Ongori and Migiro, 2010, p. 99; Chiware and Dick, 2008, p. 14; Kaynak et al., 2005, p. 625; Banda et al., 2004, p. 99; UNDP, 1999, p. 59) indicates that the ability of small enterprises to survive in an increasingly competitive global environment is largely predicated upon their capacity to leverage information resources through ICTs which open new opportunities for small players to enter the global marketplace. The reality, however, is that the majority of small business enterprises are not able to afford ICTs and lack the capacity to use them having been created solely for survival purposes rather than as profit making enterprises.

Most of owners and employees of MSEs lack awareness about ICTs and their potential benefits. They are also undercapitalised and suffer from poor infrastructure and highly competitive markets due to the duplication of goods and services, as well as an unfavourable institutional environment (McCormick, 2008, p. 8). Despite the benefits of ICTs, empirical evidence on manufacturing SME operators in Kenya, for instance, revealed that there was a substantially low level of computer literacy among the operators which inhibited their knowledge on available sources of finance (Migiro and Wallis, 2006, p. 9).

In summary, the challenges that make it difficult for SMEs in developing countries to adopt ICTs have been identified as: the high cost of access to telecommunications, lack of government policy towards ICTs, underutilization of existing technologies, digital illiteracy, lack of skills and trained manpower, poor communication infrastructure, ignorance of ICT benefits, high cost of internet connectivity, cost of ICT equipment against limited resources, low levels of education and resistance to change, due to a traditional mindset (Mutula and Brakel, 2006, p. 410; Moodley, 2001, p. 96; Kapurubandara and Lawson, 2006, p. 126; Lal and Pecdily, 2006, p. 32, Sharma and Bhagwat, 2006, p. 216, Esselaar et al., 2007, p. 93).

Moyi (2003, p. 221) contends that, resource constraints are the main barriers that prevent small enterprises from seizing the opportunities offered by ICTs on their own and recommend supportive mechanisms to mobilize them.

#### **4.6. Use of mobile technology among MSEs**

The mobile phone has diffused rapidly and globally in the last decade, from approximately one billion to four billion active subscribers (ITU, in Donner and Escobari, 2010, p. 641). It has great potential to drive economic growth, especially the growth of micro businesses in developing countries, by providing access to affordable and timely communication (Kenji, 2009, p. 1). Aker and Mbiti (2010, p. 9) observe that unlike other technologies introduced in sub-Saharan Africa, such as the computer, fax machine and the fixed line phone, the mobile phone has been adopted at a staggering rate across the continent.

Mobile phones have greatly reduced communication costs and enabled faster and cheaper information flow on economic, social and political issues. They have improved access to and the use of information, reduced search costs, and improved the coordination of business activities and market efficiency. They allow people to obtain information immediately and on a regular basis. Furthermore, rather than being passive recipients of information, mobile phones allow individuals and firms

to take an active role in the search for information, enabling them to ask questions and corroborate them with multiple sources. High literacy rates are also not necessary for the use of mobile phones, and they are therefore accessible to more people than computer technologies in the developing context (Aker and Mbiti, 2010, p. 3& 9).

Since mobile phones are the cheapest and quickest way to communicate, they are very handy to low capitalised small businesses in facilitating income generation without physical travel. This saves money and time and improves efficiency and convenience, particularly when fixed line phones and the internet are underdeveloped and dependent on expensive infrastructure (Etzo and Collender, 2010, p. 659). They are also being used innovatively for mobile banking and transfer services. Collaboration between the Kenya mobile service provider Safaricom and the Equity Bank, for instance has led to the first mobile-centric bank account in the world. This makes it possible to introduce informal sector clients to banking and credit facilities without having to follow stringent banking requirements, thus providing low income, small, business traders with access to affordable money transfer and banking facilities (Kuuya, 2010, p. 9). Given their prevalence and accessibility, mobile phones have easily overtaken computers and other technologies as tools for supporting the running of small businesses (Esselaar et al., 2007, p. 99).

#### **4.7. Role of the government in the diffusion of ICTs among MSEs**

The International Telecommunication Union (ITU) and the World Bank in Aker and Mbiti, (2010, p. 3) have noted the low level of infrastructure in sub-Saharan Africa. They point out that only 29% of the roads in Africa are paved, barely a quarter of the population has access to electricity, and there are less than three landlines per 100 people. In stark contrast, the use of mobile telephony has rapidly increased, with an estimated 60 percent of the population enjoying mobile coverage.

Small businesses on their own may not be able to reduce the barriers or challenges that face them in the process of ICT adoption. They need the government to put in place the necessary infrastructure and formulate policies that promote ICT adoption. The government can also offer subsidies and encourage ICT providers to offer special discounts to small businesses at reduced costs; invest in research and development and facilitate technological transfer, advice and support; and provide tax incentives. Non-governmental organizations (NGOs) can assist the small businesses by sponsoring ICT tools and human capital development (Ongori and Migiro, 2010, p. 97; Kapurubandara, 2009, p. 20; Chiware and Dick, 2008, p. 14), Mutula and van Brakel, 2006, p. 410).

E-readiness is an assessment of how ready a country is to participate in the networked world, and the government plays an important role in creating an environment that can effectively support ICT use. Governments also need to be involved in creating stable environments for the creation and development of businesses, promoting innovations, and nurturing business culture (Chiware and Dick, 2008, p. 149).

The Kenyan government recognizes that ICTs are the foundation of modern economic development and has initiated major steps to promote their use, but although significant progress has been made in the expansion and modernization of the country's information sector, a substantial demand for basic services remains unmet and there is disparity in the distribution of communication facilities between rural and urban areas (GOK, 2008, p. 25; GOK, 2002, p. 107). One of the major initiatives has been to improve ICT infrastructure in order to bridge the digital divide and lower the cost of communications. The government is also leveling the ground through development and the implementation of policy and regulations aimed at attracting investment within the sector (GOK, 2008a, p. 25).

The mobile telephone is an example of a technology that has been rapidly adopted following the liberalization of the telecommunications sector in Kenya. The government has also made efforts to reduce the cost of internet access by investing in terrestrial and undersea fiber optic cables as well as rolling out broadband wireless connectivity in rural areas through various wireless technologies (GOK, 2008, p. 25). However, a lot remains to be done in awareness raising and capacity building and improved income distribution which would result in per capita incomes that can give the MSE operators the confidence to invest in and use ICTs to their advantage.

#### **4.8 Critique of the literature reviewed on the current study**

The literature reviewed, agree that MSEs, SMEs or informal sector enterprises play an important role in their contribution to the economies of developed and developing countries (Oletokun and Kebonye, 2010:43; Duncombe and Heeks, 2002, p. 62; GOK, 1996, p. 164; Bowen, 1998; GOK, 2009,; King, 1996, p. xiii). This holds true in the informal sector's contribution to the Kenyan economy. The studies also agree that there are many challenges facing informal sector enterprises, and that in developing countries in particular, the majority are started for survival purposes and operate at less than optimal level due to the challenges that they face.

These challenges include lack of awareness about ICTs and their potential benefits; undercapitalisation; poor infrastructure; highly competitive markets because of the duplication of goods and services; an unfavourable institutional environment that is not responsive to their needs; poor access to markets, finance, and new technology; lack of information for informed decision making; and lack of market information. These challenges have been identified as some of the most critical constraints to the growth, productivity and competitiveness of informal sector enterprises. This also applies to the Kenyan situation. Other obstacles include lack of technical knowledge and skills and the reliance on informal and inadequate planning processes, which



lead to limited market share. The lack of market information leads to the overproduction of goods and services (McCormick, 2008, p. 8; Migiro, 2006, p. 35).

However, the studies differ on the potential benefits of ICTs in the running of informal sector enterprises, with some studies being upbeat that the adoption and utilisation of ICTs would bring about positive changes in the productivity of small enterprises and thus help to propel them from local to international markets (Ongori and Migiro, 2010, p. 99; Chiware and Dick, 2008, p. 14; Cohen and Kallirroi, 2006, p. 45; Kaynak et al., 2005, p. 625; Banda et al., 2004, p. 99; UNDP, 1999, p. 59).

While the other studies are not against the use and realisation of the potential benefits of ICTs to the small enterprises, they are cautious in taking the view that the introduction and use of ICTs is the panacea to the challenges facing the running and productivity of small enterprises. Migiro and Wallis (2006, p. 9), for example, point out that in spite of the benefits of ICTs, empirical evidence in Kenya reveals that there is a significantly low level of computer literacy among the MSE operators as well as trained manpower to exploit ICTs. Other challenges that stand on the way of realising ICT benefits by the MSEs include but are not limited to the high cost of access to telecommunications in most developing countries, lack of government policy towards ICTs, underutilization of existing technologies, digital illiteracy among majority of MSE workers etc (Mutula and Brakel, 2006, p. 410; Moodley, 2001, p. 96; Kapurubandara and Lawson, 2006, p. 126; Lal and Pecdily, 2006, p. 32).

With the many obstacles that seem to stand between MSEs and their realisation of ICT benefits and despite the dynamism associated with them that has been evidenced in developed countries, the mere adoption of ICTs may not be the solution. A change in the traditional mindset that prevents MSE owners from

investing their resources in ICTs, as observed by Sharma and Bhagwat (2006, p. 216), will not solve the MSEs' problems either.

The current study contends that MSEs need more than the provision of ICTs to turn their low productivity around. MSE participants need skills, knowledge, and better methods of income distribution to gradually propel them towards a mental attitude that gives them the confidence to think in terms of acquiring and using the relatively more expensive computer technologies. The study also agrees with what Duncombe and Molla (2009) describe as a transition point reached by organisations – a point at which they undergo some formalisation processes and organisation - and the idea that the diffusion and adopting ICTs should not be considered in isolation, but as part of a wider process of change and transformation in socioeconomic and political conditions.

Gould et al. (2010, p. 10) agree that ICTs can only be meaningfully and fully utilized if literacy levels, user awareness, skills, and cultural and regional variations are taken into consideration. The reality of MSEs, as Moyi (2003, p. 221) has noted, is that the majority are not able to afford ICTs and also lack the capacity to use them.

In light of this, the study takes note of the rapid adoption of mobile phones and related mobile money-transfer services as no coincidence, but verification of the informal sector workers' ability to identify with what is affordable and at the same time advantageous to their businesses. The current study agrees with Duncombe and Heeks' view (1999, p. 1) that the techno-centric approach and the predetermined view that ICT provision can solve MSE problems is overrated, and that the transformative power of technology has been overplayed. The two authors rightly recommend identifying the conditions that exist in a particular situation - "... rather than charging in with the technology, we must understand the context, (and) the true objectives" - and considering whether and how the new technology fits into the general framework of the situation (Heeks, 2002, p. 1).

#### **4.9 Summary**

This chapter has reviewed related literature on the diffusion of ICTs in the informal sector in Kenya. It has considered the findings in studies on the status of the informal sector and ICT access; information needs and access; the adoption, use and benefits of ICTs among the MSEs; as well as the challenges affecting the diffusion of ICTs among MSEs in Kenya.

Some studies highly recommend the adoption and use of ICTs, and view it as the solution that is required to solve the low productivity and the consequent low incomes of MSEs that has resulted in their continued micro and small status, and lack of growth. Other studies on the other hand are cautious in putting too much trust in the adoption and use of ICTs, and recommend a close examination of individual situations and the problems rather than the one-size-fits-all kind of prescription associated with the dynamism of computer technologies that has been evidenced in the developed countries

Literature on the role of the government in the diffusion of ICTs among the MSEs has also been explored especially its role in the distribution of resources, provision of ICT-friendly infrastructure and providing an enabling environment and the proper policies for ICT implementation.

The chapter has also critiqued the studies that have been reviewed, pointing out the overrated role and transformative power of ICTs by some authors. Some studies caution the emphasis that is placed on ICT adoption, saying that different situations should be looked at differently. The differences found in each situation are bound to influence the uptake and adoption of particular innovations differently.

The next chapter (five) will look at the research methodology that was used for the study.

## **CHAPTER FIVE**

### **RESEARCH METHODOLOGY**

#### **5.1 Introduction**

The preceding chapters laid down the background of the study and conceptualized and contextualized the research concepts.

This chapter describes the research methods and techniques that were used in connection with the diffusion of ICTs in the informal sector in Kenya. The chapter is divided into two main sections. Section one covers the description of the research paradigms and research design, while section two covers the research methods that were used in the field to collect data. This includes the study area and target population, sampling and sample size, data collection methods and procedures, research instruments, and data processing and data analysis.

Research methodology refers to the processes, principles and procedures that are used when conducting a research study or by which we approach problems and seek answers to questions (Nyandemo, 2007, p. 8). Such procedures include document review and observation, defining the population, sample and sampling techniques, the research technique, the instruments or tools used to collect data, the measurement of variables, and the techniques used to analyze data (Mugenda and Mugenda, 1999, p. 149). According to Nachmias and Nachmias (1996, p. 13), research methodology "is a system of explicit rules and procedures upon which research is based and against which claims for knowledge are evaluated. This system is neither unchangeable nor infallible. Rather the rules and procedures are constantly being improved." This means that research methodology is not cast in stone, but is subject to constant change.

#### **5.2 Research paradigms**

Research paradigms refer to the philosophical foundations that provide patterns, frameworks or models on how research should be conducted. The most common of

these are the positivist and naturalist forms of research, also referred to as the quantitative and qualitative research methods respectively (Mugenda, 2008, p. 41). In the positivist paradigm the object of study is independent of researchers; that is knowledge is discovered and verified through direct observations or measurements of phenomena, while the naturalist or constructivist view is that knowledge is established through the meanings attached to the phenomena studied; researchers interact with the object of study to obtain data, and inquiry changes both researcher and subject, and knowledge is context and time dependent (Coll and Chapman 2000 in Krauss, 2005, p. 759).

According to Bryman (2004:19) and Mugenda (2008, p. 41), quantitative research is a research strategy, framework or model that emphasizes quantification in the collection and analysis of data. Bryman (2004, p. 19) explains that quantitative research entails a deductive approach to the relationship between theory and research and places emphasis on the testing of theories. It incorporates the practices and norms of the natural scientific model and of the positive in particular, and embodies a view of social reality as an external, objective reality. This reality, according to Mugenda and Mugenda (1999, p. 2000), is tangible and possible to separate into different components which yield independent and dependent variables that are measurable and can be studied independently to converge into one reality.

Qualitative research, on the other hand, argues for the intangible, which can only be studied holistically (Mugenda and Mugenda, 1999, p. 2000). According to the authors, this means that these realities exist only as constructs in the minds of people and cannot be divided into parts that yield measurable or tangible characteristics or variables. Neither does studying these realities render predictions and controls possible; rather, studies help to gain a deeper understanding that enables the interpretation of these realities.

Qualitative research is also viewed as a strategy that emphasizes words and is referred to as interpretive, rather than quantitative, in the collection and analysis of data (Bryman, 2004, p. 19). It predominantly emphasizes an inductive approach to the relationship between theory and research where emphasis is placed on the generation of theories. Qualitative research rejects the practice and norms of the natural scientific model and of positivism in particular, and emphasizes instead the ways in which individuals interpret their social world, embodying a view of social reality as a constantly shifting emergent property of individuals' creation (Bryman, 2004, p. 19).

Qualitative research believes that studying social systems and problems should include the respondents' points of view as a way of empowering them. The qualitative approach therefore recognizes that the construction of knowledge is not a monopoly of the researcher and that the respondents can also contribute towards knowledge about their own reality. According to Mugenda and Mugenda (1999, p. 201), this not only gives vulnerable groups a chance to be heard, but also the opportunity to participate in processes and decisions that ultimately affect them.

Qualitative researchers believe that the best way to understand phenomenon is to view it in its context and sees quantification as limited in nature, looking only at one small portion of a reality that cannot be split or unitized without losing the importance of the whole phenomenon (Krauss, 2005, p. 759). The positivist assumption of one reality in a particular phenomenon has been challenged to the extent that the researcher's own accounts of the social world are constructions or a specific version of social reality, rather than one that can be regarded as the definitive or true reality (Bryman, 2004, p. 17). Positivists assume that they are separate from the world they study and that their observations are value free.

Qualitative research does not assume that there is a single unitary reality that is separate from perceptions, rather it assumes that all research is biased by the

researchers' individual perceptions, and that there is no single objective reality but multiple realities constructed by human beings' meanings (Krauss, 2005, p. 760). Some researchers have also argued in favour of the qualitative approach for research among African communities because they have traditionally communicated information orally rather than in the written form, and this can give the respondents a chance to state the problems the way they perceive them, and in seeking and effecting solutions (Mugenda and Mugenda, 1999, p. 202).

Bryman (2004, p. 437) opines that the divide between qualitative and quantitative methods should not be regarded as a hard and fast one because while there are many differences between them, there are also many examples that transcend the distinctions. For example, it is not through qualitative research alone that the world can be 'seen' through the eyes of the respondents, as shown by the widespread study of attitudes in social surveys based on interviews and questionnaires that show that the quantitative method is also interested in matters of meaning (Bryman, 2004, p. 441). This is a middle ground position that advocates the combination of both positivism and naturalism according to the phenomena being studied. This middle ground position recognizes that there can be differences between reality and people's perception of reality that can be studied through the positivist approach, which when combined with the subjects' perceptions bring out better understanding of the phenomenon being studied.

The two approaches therefore need not be mutually exclusive, rather, as Mugenda (2008, p. 41) has observed, the paradigms differ more deeply in the assumptions, concepts and values about the phenomena that they are designed to assess rather than being a dichotomy that is based on whether the type of information generated is in the form of numerical figures or text. Mugenda and Mugenda (1999, p. 156) contend that qualitative research permits research to go beyond the statistical results usually reported in quantitative research, while the advantage of using a combination of both methods is that some objectives of a particular study are better



assessed using qualitative methods and others are better assessed using quantitative ones. Both methods therefore supplement one another in that qualitative methods provide in-depth explanations, while quantitative methods provide numerical data required to support some research objectives. Rather than solely using one or the other to determine reality of social phenomena both elements of positivism and constructivism combined can be used to yield better results.

This study used a combination of quantitative and qualitative approaches by using questionnaires with close- and open-ended questions for the field survey in order to investigate and analyse the phenomenon as exhaustively as possible. Some objectives were suited to open ended questions where the subjects of research's views were sought as opposed to purely quantitative data collection. Objectives one to three used both numerical data and qualitative methods while the other objectives were better suited to qualitative gathering of information. The study topic, "The diffusion of information and communication technology in the informal sector in Kenya", does not offer a straightforward cause-and-effect relationship, but is dependent on multiple interacting factors. The study therefore used a combination of both methods to gather numerical data and interpretive information, which were analysed together to bring out the results of the study.

### **5.3 Research design**

The research design refers to the overall scheme of the study, including a description of all concepts, variables and their relationships, and the methods of data collection and analysis. It thus provides a framework for the collection and analysis of data (Mugenda, 2008:66; Bryman, 2004:27). Majumdar (2005, p. 119) cautions that for a research study to provide answers to the basic research objectives, close attention must be paid to the research strategy by planning and structuring it in a way that enables the researcher to obtain answers to the research questions as precisely and accurately as possible, as well as to control variances (i.e. validity, objectivity and accuracy).

The research design is the plan or the blueprint of a research project and includes the structure and strategy of the investigation. Structure refers to the specific details, while strategy involves the method to be used to gather and analyse data (Bryman, 2004, p. 27). It provides a framework for the collection and analysis of data by answering the questions of whom to study, what to observe, and when to observe it (Nachmias and Nachmias, 1996, p. 99).

For the purposes of this study, the concepts, variables and their relationships have been described in Chapter two, while the methods of data collection and analysis are described in this chapter.

#### **5.4 Research methods**

According to Mugenda and Mugenda (1999, p. 41), the research method describes the procedures that have to be followed when conducting the study, where techniques of obtaining data are developed and data is collected. Different types of research include but are not limited to survey research, historical research, observational research, and experimental methods. Kothari (2004, p. 7) explains that research methods can be used to refer to all those methods or techniques that are used to conduct research or to perform research operations while studying one's research problem.

This includes library or internet research where documents are searched and analysed, and if data gathered from the available documents is not sufficient to arrive at the required solution, the researcher proceeds to do field research to collect primary data (Kothari 2004, p. 8). Library and internet research has been conducted in this study. Field research was carried out through survey method, to get field data, which was gathered together through coding and analysed to get the required information.

#### **5.4.1 Survey research**

Survey research is a fact-finding research method that is used to collect data from a sample to determine the status of that particular population with respect to one or more variables. It describes, records, analyses, and interprets existing conditions as they are, based on a sample, as opposed to a census survey where every unit of the population is analysed (Kothari, 2004, p. 120, Mugenda and Mugenda, 1999, p. 165). Data is collected mainly through questionnaires, interviews, focus group discussions, or through observation. The questionnaires can be sent through the post or via email, or hand-delivered by the researcher. Interviews can be face-to-face, over the telephone, or through Skype and email or when conducted by the researcher, it can be face-to-face or through the telephone (Bryman, 2004, p. 544; Kothari, 2004, p. 120).

Survey research seeks to obtain information that describes existing phenomena by asking respondents about their perceptions, attitudes, behaviour or values, which it describes. It can also be used to explain or explore the existing status of two or more variables at a given point in time (Mugenda and Mugenda, 1999, p. 165). The responses are then examined to detect the patterns of relationships between the variables (Bryman, 2004, p. 544). Survey research is used by social scientists to collect primary data because it is feasible in terms of time and resources (Dooley, 2007, p. 119).

In keeping with the purpose and objectives of this study, i.e. the diffusion of ICTs in informal sector enterprises, survey research was appropriate as it would not have been possible to collect data on all the informal sector enterprises in Kenya due to the sheer enormity of the sector and limited time and resources. The use of survey research, which was conducted on a representative sample, allows generalisation from the sample onto the rest of the population.

## **5.5 Data collection methods**

The most commonly used instruments for data collection in social science research are questionnaires, interview schedules, focus group discussions, observation, and standardized tests (Bryman 2004, p. 27, Mugenda and Mugenda, 1999, p. 71). In this study, data was collected using questionnaires (see a copy of the questionnaire in the appendices, page 213). The questionnaire as a standard tool for social science research was used as a tool of data collection due to its appropriateness in the micro-enterprises setting which unlike the small and medium enterprises use very temporary business premises. Researcher-administered questionnaires were therefore found to be quite appropriate.

Items in the questionnaire are developed to address specific objectives, research questions or hypotheses. The questions have to be clearly put to the respondents to convey the intended meaning and to maintain their interest (Mugenda and Mugenda, 1999, p. 71, Kothari, 2004, p. 120). Questions can be structured or unstructured and should be constructed in a logical sequence, such that those that elicit related or similar responses are grouped together (Mugenda and Mugenda, 1999, p. 72).

Data for the current research was collected using questionnaires with structured and unstructured questions as instruments for primary data collection. Items on the questionnaires were carefully developed to address the objectives and research questions of the study. Four hundred and thirty five questionnaires were administered to the sampled units of research. The research objectives and research questions were used to design the questionnaire as follows:

- Section one: Personal data
- Section two: Information about the business enterprises
- Section three: Data on information needs and ICT access in the informal sector enterprises

- Section four: Data on ICT availability and access, skills and current use in informal sector enterprises.

## **5.6 Validity and reliability**

Validity refers to the accuracy and meaningfulness of data obtained in representing the variables of the study. If the data obtained is a true reflection of the variables, then the inferences, based on the data, will be meaningful (Mugenda and Mugenda, 1999, pp. 99-100). According to Mugenda and Mugenda (1999, pp. 99-100), validity is largely determined by the presence or absence of systematic error in data.

Reliability is the measure of the degree to which a research instrument yields consistent results after repeated trials. It is influenced by random error, which is the deviation from true measurement to factors that have not been effectively addressed by the researcher. As random error increases, reliability decreases (Mugenda and Mugenda, 1999, p. 95). Such factors could be inaccurate coding, ambiguous instructions, interviewers' or interviewee's fatigue, as well as interviewer's bias. The research process generally attempts to minimize random error and hence increase the reliability of the collected data (Mugenda and Mugenda, 1999, p. 100).

In order to maximise the validity and reliability of the data collected for the study, a pilot study was carried out before the main study in order to test, verify and refine the research instruments by minimising inaccuracies and inconsistencies. The target sample size for the pilot study was 10% of the sample population. Pre-testing of the research instruments was done to reveal any weaknesses in the research instruments. Questions that were vague were rephrased and clarified, while unclear directions were revealed and corrected accordingly. Improvements were effected on the research questions in order to convey the intended meanings and thereby enhance the validity and reliability of the research instrument before carrying out

the study. Pre-testing enhances the reliability of the instruments as consistent measures of the concept being studied (Mugenda and Mugenda, 1999, p. 79).

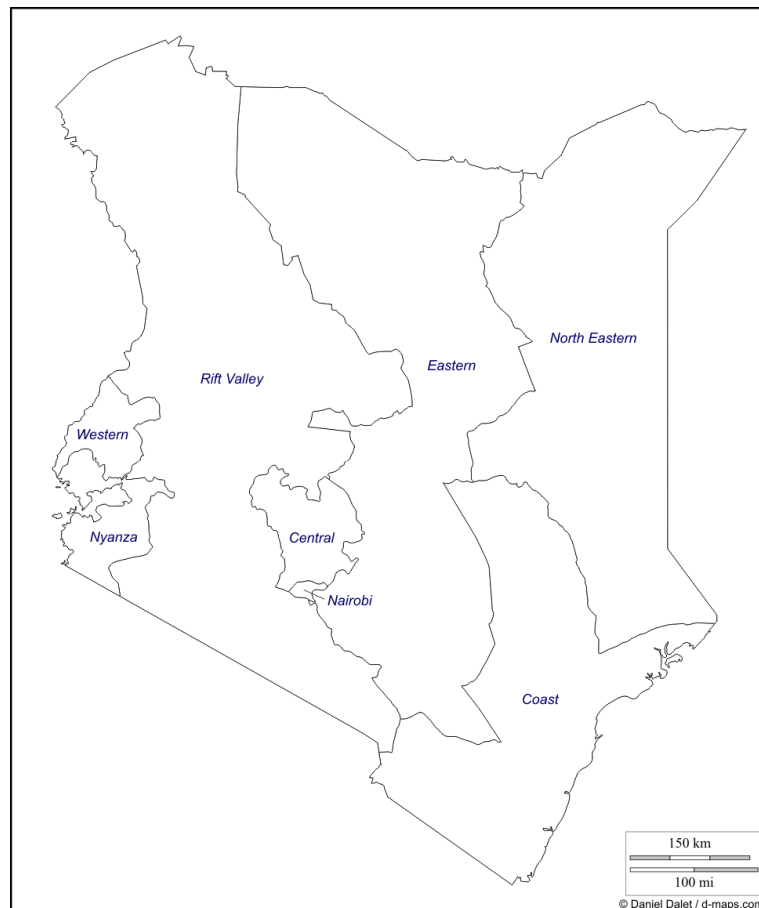
Forty five questionnaires were administered to a selected sample of MSEs comprising retail traders, curio and craft sellers, and auto spare shops in Nairobi province. Data collected was analysed and used to revise and streamline the questions in the other 390 questionnaires which were used for the main study. The pilot study also helped in timing of the questionnaire administration since the MSE workers are time constrained with a significant proportion of those studied being owner managers with one-to-two employees or just the owner alone.

### **5.7 Study area and target population**

The target population refers to all individuals, events, objects or things with common observable characteristics that the researcher can reasonably generalise her/his findings to (Mugenda, 2008, p. 181; Mugenda and Mugenda, 1999, p. 9). The target research population in this study consisted of informal sector enterprises in Kenya. based on the 1999 National Baseline Survey, which shows that there were about 1.3 million informal sector enterprises, with a total employment of 2.4 million people (GOK, 2006).

As many as two thirds of urban employees in Kenya were working in the informal sector in 1999, with a growth rate of 11% per year compared to 1.5% per year in the formal sector (GOK, 2006). A total of 474.7 thousand new jobs were created in 2007. Modern sector employment stood at 1,907.3 thousand jobs and private sector employment increased by 6.0% from 1,209.9 thousand jobs in 2006 to 1,281.9 thousand jobs in 2007. The informal sector engaged 475.6 thousand new jobs in 2007, from 487.7 thousand in 2006, constituting 89.9% of total employment outside small scale agriculture and pastoralist activities. In 2008, 79.8% of all jobs were in the informal sector (GOK, 2009).

Since it was not possible to reach all the units in the target population, the researcher drew the sample from two of the eight provinces in Kenya, namely Nairobi and Central Provinces. The selection of the two provinces was based on the contrast between urban and rural-based enterprises. Nairobi, being the biggest city and the capital of Kenya, has the greatest diversity in the different categories of informal sector enterprises and represents urban informal sector enterprises, while Central Province is used to represent rural-based enterprises. The rural non-farm sector is also an important economic activity in the Kenyan economy, where micro enterprises are scattered throughout the rural market centres and towns.



**Figure 1: Map of Kenya with provinces**

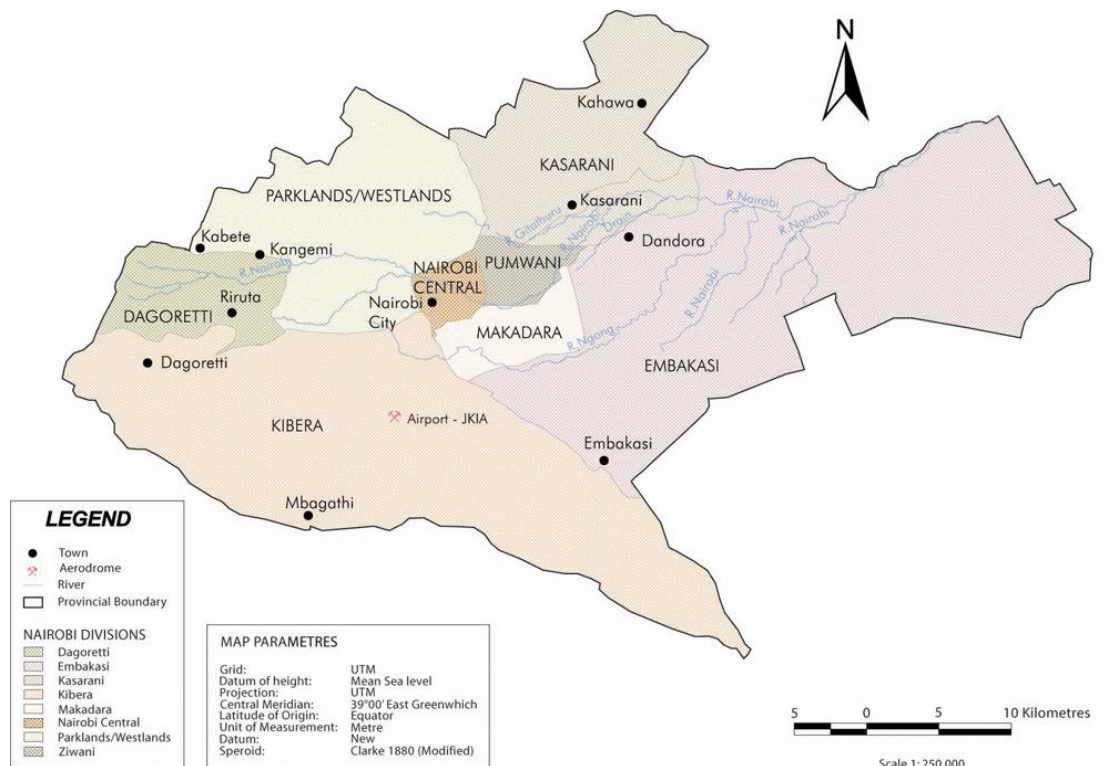
Source: [www.google.co.za](http://www.google.co.za)

### **5.7.1 Background of Nairobi Province**

This is one of eight provinces in Kenya. It shares common boundaries with Nairobi city, the capital of Kenya, also functions as a state unit, Nairobi Province. This capital city/province is the distribution centre and economic, administrative, communications and trade epicentre of not only the country, but also the region, especially the land-locked neighbouring countries of Uganda, Rwanda and Sudan. It is an international, regional, national and local hub of commerce, transport and regional cooperation, and is a major contributor to Kenya's economy. However, the inadequate provision of basic services such as water, electricity, road and rail transport and telecommunications undermines the economic development of most of its citizenry. In 2009, Nairobi population of 3.1 million people (GOK, 2010b).

Nairobi was founded in 1899 on the site of a watering hole for the pastoralist Maasai and as a head camp for the Mombasa-Uganda railway line. The Nairobi area is divided into eight sections for administrative purposes, namely: Central, Kibera, Pumwani, Westlands, Kasarani, Embakasi, Makadara and Dagoretti



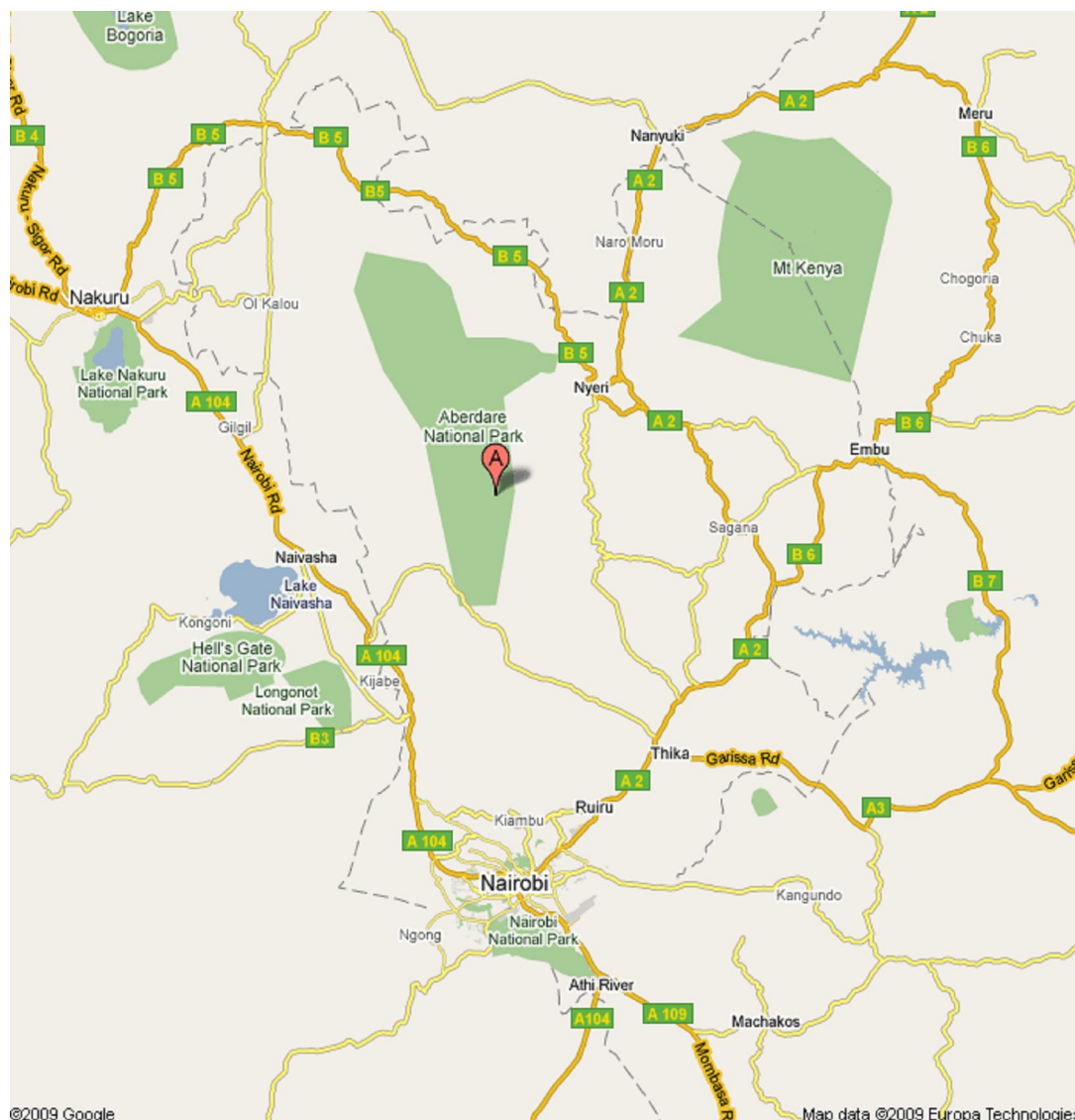


**Fig. 2: Map of Nairobi Province indicating the divisions**

Source: [www.google.co.ke/mapsNairobiAdministrative-map](http://www.google.co.ke/mapsNairobiAdministrative-map)

### 5.7.2. Background of Central Province

Central Province covers the area around Nyeri to the South West of Mount Kenya. The 1999 Census reported its population as 3,724,159 inhabitants. Central Province covers an area of roughly 13,191 square kilometres. The province's headquarters is in Nyeri town. It has twelve districts, namely Gatundu, Kiambu West and East, Kirinyaga, Maragua, Muranga North and South, Nyandarwa North and South, Nyeri North and South, and Thika. The province's main economic activity is subsistence farming, but it also has some non-farming activities in the form of small scale enterprise activities carried out in the towns and market centres.



**Fig. 3: Map of Central Province, Kenya.**

Source: [www.travelblog.org/Africa/Kenya/Central-Province-/map-central-province-html](http://www.travelblog.org/Africa/Kenya/Central-Province-/map-central-province-html)

### 5.8. Sampling theory

Sampling theory is the study of the relationship that exists between a sample and the population that it is drawn from (Nyandemo, 2007, p. 75). A sample is a smaller group that represents the characteristics of the larger group, referred to as the population (Gay, Mills, and Airasian, 2006, p. 99). One of the objectives of sampling

is to enable the researcher to draw inferences about the unknown population's characteristics or behaviour parameters, from the known sample's statistics (Gay et al., 2006:99; Nyandemo, 2007, p. 75). Nyandemo (2007, p. 75) explains that sampling is used as a practical way to collect data when the population is large and when studying all its elements is not possible. There are two main types of sampling, namely probability or random sampling and non-probability sampling (Nyandemo, 2007, p. 75).

Probability sampling means that all the units of analysis in the population stand an equal chance of being included in the sample. In non-probability sampling (which is also called non-random sampling), a sample is selected using a technique which does not permit the researcher to specify the probability or the chance that each unit in the population has of being selected for the sample (Nyandemo, 2007, p. 74; Gay et al., 2006, p. 112). Empirically supported generalizations are usually based on partial information because it is often impossible and impractical to collect all the data from the population of research interest (Nachmias and Nachmias, 1996, pp. 179 & 181). Nachimias and Nachimias (1996, p. 181), however, go on to caution that the sample needs to be representative of the target population.

#### **5.8.1. The purposive sampling technique**

Due to the size and scattered nature of the target population in the study (over a million micro and small enterprises scattered throughout the country), it was not possible to use probability sampling because all the units in the research did not have an equal chance of being included in the sample. Rather, the study used a combination of purposive sampling and multistage cluster sampling techniques. Neuman (1997, p. 206) explains that the purposive sampling technique, also referred to as the judgemental sampling technique, is a non-probability type of sampling which involves the deliberate selection of particular units of the population to create a representative sample. It is an accepted kind of sampling

technique that can be used to enable a researcher to obtain a sample that is manageable and cost effective to work with. The study used the purposive sampling technique to select provinces and districts that provided an accessible population. Decision-making during sampling was guided by knowledge gathered from the reviewed literature on the study topic as well as from personal observation.

The use of simple random sampling, which is one of the probability sampling technique, would have given each unit an equal chance of being included in the sample, but this would have led to a widely dispersed sample and a great deal of travel and expenses for the researcher. This option was curtailed by the limited time and resources available for the study.

Ultimately, two provinces (Nairobi and Central) were purposively selected based on personal observation and reviewed literature as representative of informal sector enterprises in Kenya as a whole.

#### **5.8.2. The multistage cluster sampling technique**

Multistage cluster sampling is a sampling technique where the first stage of sampling does not provide the units of the population to be sampled, but groupings or aggregates of the population units that are known as clusters. The clusters are sampled first, and then the population units are sampled (Bryman, 2004, p. 94). According to Bernard (2000:154), the purpose is to narrow the sampling field down from large heterogeneous chunks to small homogenous ones that are relatively easier to sample directly. Neuman (2006, p. 233) explains that cluster sampling is ideally used when researchers lack a good or complete sampling frame for a dispersed population. Informal sector enterprises are many and widely dispersed in Kenya. They fall into many different categories, including wholesale and retail shops, repair workshops, carpentry, auto garages, metal fabricators, food kiosks, etc., and are therefore too heterogeneous for one-stage sampling to be effective.

The cluster sampling technique was thus used in the first stage of the sampling process to select clusters of various categories of informal enterprises. This was achieved by listing the various categories of clusters of informal sector enterprises in the target provinces. The clusters were then sampled using a table of random numbers to get the total sample from both provinces. Where there were too many enterprises among the sampled clusters, further listing and random sampling was done to get the required number of 225 enterprises in each province. In each sampled enterprise, the study targeted the owner/manager or entrepreneur.

### **5.8.3. Sample size**

Nachimias and Nachimias (1996, p. 201) and Kothari (2004, p. 195) contend that if the sample is too small, it may not achieve its objectives, while a sample that is too large will incur huge costs and waste resources without necessarily improving on precision. The general rule of thumb on sample size is to attain an optimum size, one that is not too small and not excessively large.

Neuman (1997, p. 22) supports this rule as one of two methods (the other being the statistical method) that can be used to get a sample size where a conventional or a commonly accepted number of units is used.

In accordance with the above, this study used a technique generated by Krejcie and Morgan in the early 70s for appropriate sample sizes for different populations (Gay et al., 2006, p. 111). The rule of thumb, according to Gay et al. (2006, p. 110), states that:

- The larger the population size, the smaller the percentage of the population that is required to get a representative sample
- For smaller populations where  $N=100$  or less, there is no need to sample and the entire population should be surveyed
- For a population size  $N=500$ , 50% should be sampled
- For a population size  $N=1500$ , 20% should be sampled

- Beyond a population size of 5000, the population size is almost irrelevant and a sample size of 400 to 500 units would be adequate

Using the above technique for appropriate sample sizes for different populations led to the selection of 435 informal sector enterprises (i.e. a population greater than 5000 units). As already explained, purposive sampling was used to identify the two provinces and then a combination of multistage cluster sampling and random sampling techniques was used to select the sample size from the various clusters of enterprises in the two provinces.

Data was collected from two provinces namely, Nairobi and Central province. Two streets and two markets in Nairobi were purposively selected because they offer a wide variety of microenterprises that provided varied data for the survey. In Central Province, data was collected in two urban centers, i.e. Kiambu (75) and Thika (72), and two market centers, Kabati and Makutano (38). Forty questionnaires were used for the pilot study.

The questionnaires were administered to the respondents to obtain the required data according to the main aim of the study, which was to investigate the diffusion of ICTs in informal sector enterprises in Kenya. Ninety seven percent (377 respondents) of the questionnaires were completed and returned, 1% (4) of the questionnaires were incomplete, while 2% (9) were not returned. Forty three of the questionnaires were used in the pilot study for pretesting and consequent adjustment of the main questionnaires.

### **5.9. The data collection procedures**

The data collection procedure refers to the protocol that must be followed to ensure that data collection tools' logistical processes are applied correctly and efficiently to ensure the correct outcomes. They include pre-fieldwork, fieldwork and post-fieldwork logistics; obtaining the necessary research permit(s); and pre-testing the

data collection instruments (Mugenda, 2008, p. 286). (Please see a copy of the research permit and the research permit application in the appendices, page 211 and 212).

Forty five questionnaires were pre-tested on a sample of MSEs comprising clothes shops, horticultural exporters, curio shops and motor vehicle spare parts in Nairobi province before carrying out the main research. The results were used to adjust the questionnaires. More questions on the use of the mobile telephone for instance were added after the pilot study showed that the mobile technology was being pervasively used by the informal sector workers and that there relatively less use of computer technology in the informal sector and those that were being were used by few MSEs which had become stable.

#### **5.9.1 Administration of questionnaires**

The researcher, with the help of three well-trained research assistants, hand-delivered the questionnaires to the 390 sampled respondents, 45 of the total sampled questionnaires were used in the pilot study for pre-testing and adjustment of the main questionnaires. The questionnaires were hand-delivered because the Kenyan Postal Services does not reach all the people in Kenya. This was also an exploratory study on the diffusion of ICTs in informal sector enterprises in Kenya, so the widespread use of email services would not have been assumed. Respondents were asked what they thought of the questionnaires and if they needed help in completing them. Those who said they could complete the questionnaire on their own were left to do so. The researcher and research assistants assisted those who needed help with the questionnaires. Some questionnaires were therefore self-administered while others were researcher-administered depending on the respondents ability to understand the questions and the language (English) in which the study is conducted. The questionnaires included a cover letter explaining the purpose and importance of the study, as well as instructions on how to complete it and when it would be picked up.

Literature reviewed on the general level of education among informal sector entrepreneurs and their employees in Kenya indicates that the level of formal education ranges from primary school, to secondary school (the majority) and college education (the minority) (GOK 1992). This could perhaps explain why quite a number of the respondents were not able to understand and interpret all the items in the questionnaire, meaning that the option of researcher-assisted questionnaire administration was used in most cases.

Some of the respondents were also not fully conversant with English, the language in which this study was carried out, and therefore the questionnaire had to be orally translated into Kiswahili the commonly used language in Kenya and which all the respondents were conversant with, this was done orally as the researcher administered the questionnaire. In order to manage the questionnaire administration, the research assistants were trained and familiarized with the questionnaire to ensure a uniform implementation. In both the self-administered and researcher-administered questionnaires, efforts were made to establish good rapport with the respondents in order to achieve a high response rate.

#### **5.10 Data presentation and analysis**

Data from the field was organized in order to facilitate analysis by coding quantitative data into numeric data. This was done using the Statistical Package for the Social Sciences (SPSS) to determine frequencies and percentages. Data was then tabulated accordingly using descriptive statistics. Measures of central tendency, the mean and the mode, were used to provide expected summary statistics of the variables being measured. Frequency distributions were also shown in tables, charts and percentages. These were then discussed and explained to show expected relationships.

For qualitative data, the information gathered was studied to establish patterns and trends. This data was described, discussed and interpreted. Relationships between the variables were compared to spot and bring out the patterns and



correlations. Any other alternative explanations were noted and the research report and findings were compiled and written, ready for dissemination.

### **5.11 Dissemination of the research findings**

The findings of the study will be disseminated through the thesis, conference papers, and seminars and workshop presentations, and peer-reviewed journals.

### **5.12 Summary**

This chapter presented the research method that was used to collect the primary data by reviewing the research paradigms from existing literature. The overall research design and the research methods that were used to collect data according to the stated research objectives were described in readiness for the field research.

Survey research was used to collect quantitative and qualitative data using Structured and unstructured questionnaires from a selected sample of informal sector enterprises in two provinces, Nairobi and Central. The data was organised through coding, analysed and tabulated using descriptive statistics and tables. It was then described, interpreted and explained. Qualitative data was studied and interpreted according to the patterns and trends.

Both quantitative and qualitative data was interpreted and explained and used to draw conclusion and recommendations.

A table of the summary on the overall research design is presented in Table 14 appendix A.

The next chapter (six) will present the findings of the survey research

## **CHAPTER SIX**

### **DATA PRESENTATION AND ANALYSIS**

#### **6.1 Introduction**

This chapter deals with the analysis and presentation of the research data. The objectives that were addressed in the study were: to determine the status of the informal sector and its ICT access and use in Kenya, to identify the type of ICTs being used in the sector and what their impact is, to identify which subsectors are using ICTs in the informal sector and their impact, to determine the challenges facing the use of ICTs in the informal sector, to establish the government's involvement in developing the necessary infrastructure for access and use of ICTs in the informal sector, and to offer strategies, suggestions and recommendations towards access and use of ICTs in the informal sector. This was done through the review and analysis of literature as well as through primary data collection in a survey research.

Based on the objectives, the research questions were as follows:

- What is the status of informal sector in Kenya, and its access and use of ICTs?
- What types of ICTs are used in the informal sector in Kenya?
- Which subsectors are using ICTs in the informal sector in Kenya and what is their impact?
- What are the problems/challenges that hinder the awareness and use of ICTs in the informal sector in Kenya?
- Is the government putting in place or creating the required infrastructure for the use of ICTs in the informal sector in Kenya?
- What strategies, suggestions and recommendations can be made towards the use of ICTs in the informal sector in Kenya?

Data was collected using structured and unstructured questionnaires. The questionnaires were administered to a sample of 390 MSE participants, consisting

of owner/managers and selected employees. The sample was selected using a combination of non-probability cluster sampling and probability random sampling methods.

Data was obtained from different clusters of MSEs consisting of retail clothing stalls and footwear, electronics, curio and crafts, horticultural export stalls, automobile shops, carpentry workshops, tailoring shops, agrichemical shops, grocery shops and hardware shops in Nairobi and Central Provinces. In Nairobi Province, data was collected from clusters of MSEs along three main streets of the central business district, namely Tom Mboya (44) Kirinyaga and River Road (59), and two markets on the outskirts of the city, namely Gikomba market (70) and Kenyatta market (32).

In Central Province, data was collected in two urban centers, i.e. Kiambu (75) and Thika (72), and two market centers, Kabati and Makutano (38) (60) questionnaires were used for the pilot study. The two streets and the two markets in Nairobi were selected because they offer a wide variety of microenterprises that provided varied data for the survey, while the two rural urban centers and two market centers in Central Province represented rural-based MSEs.

The questionnaires were administered to the respondents to obtain the required data according to the main aim of the study, which was to investigate the diffusion of ICTs in informal sector enterprises in Kenya. Ninety seven percent (377 respondents) of the questionnaires were completed and returned, 1% (4) of the questionnaires were incomplete, while 2% (9) were not returned.

## **6.2 Demographic profile of the respondents**

The respondents were asked questions that elicited their personal information/bio-data, such as their age, sex, marital status and level of education. This was done to determine the relationship between the characteristics of the respondents and the

status of diffusion of ICTs in the MSE sector in Kenya. It was assumed that the level of education and age, for instance, may influence the way MSE workers view new technology like computers and mobile phones and the time they take to adopt such innovations. The younger and the more educated might be the first to adopt new technology, while the older and/or less educated might hold back due to suspicion and/or lack of understanding.

### **6.2.1 Age of the respondents**

Data obtained from the 377 respondents, as shown in Table 1 below, indicates that most respondents were between 25 and 35 years of age (47.7%; 180). This was followed by those below 25 years (26.5%; 100 respondents), and the 36-45 age category were (24.7%; 93). The majority of the MSE traders in the study were therefore between the ages of 25 and 45 (over 72%: 273), followed by those below twenty five years (26.5%; 100 respondents). Less than 1% of the respondents were over 45 years old.

**Table 1: Age of the respondents**

**[n=377]**

Category	Frequency	Percent
Below 25 years	100	26.5
25-35 years	180	47.7
36-45 years	93	24.7
Over 45 years	1	.3
No answer	3	.8
Total	377	100

### **6.2.2 The gender of the respondents**

The gender composition of the respondents was fairly even with 184 male (48.8%) and 193 female respondents (51.2%).

This is consistent with common observations in MSE studies, which show that there are more women in the informal sector than men. For example, Singh and Belwal (2008, p. 124) study in Ethiopia found that 65% of the informal sector enterprises were owned and run by women. In the same country, Amha and Ageba (2006, p. 306) found even higher figures, with 94% of the females being active owners of MSEs. In five of the nine countries studied by Liedholm and Mead (1999) in Ndemo and Maina (2007, p. 119), women outnumbered men as owners and operators of micro and small enterprises as follows, Botswana (75%), Lesotho (73%), Swaziland (84%), Zimbabwe (66%) and South Africa (62%). The difference between men and women in the current study however is minimal, with a 3 percent difference between female and male participants. This suggests relatively more involvement of men in the informal sector in Kenya compared to other related studies.

### **6.2.3 The educational level of the respondents**

Only 7.8% (34) of the respondents were primary school leavers, forty eight percent (182 respondents) had attained secondary education and 27.6% (104) were degree or diploma holders. Slightly less than sixteen percent (15.9%, 60 respondents) of the respondents had acquired post-secondary school training in various disciplines or courses in computer studies, secretarial courses, tailoring, etc. However, most of these respondents were not working in their areas of expertise. The results therefore indicate that a large number of the MSE traders had acquired education up to and above secondary school level and only a small proportion were primary school leavers. The responses are shown in Table 2.

**Table 2: Educational level of the respondents****[n=377]**

	Frequency	Percent
Secondary level	182	48.3
Diploma/degree/Masters level	104	27.6
Post secondary training	60	15.9
Primary level	25	6.6
No answer	6	1.6
Total	377	100

Further analysis of data using Pearson's Chi-square, (see appendix A2) testing at 95% level of confidence (0.05) shows that the educational level of the respondent has a bearing on the use of ICTs at a statistical significance of 0.037. This shows that the level of education of the MSE workers has an effect on the use of ICTs for business activities. Since those traders with higher educational levels have the know-how and the skills to use ICTs including computers and the internet, they were using ICTs more than those with lower levels of education.

### **6.3 Types of MSEs in the study**

Almost all of the MSEs (over 99%) studied fell within the study's quantitative definition of MSEs based on the number of employees (one to nine). However, because of the differences between the microenterprises, the study considered other qualitative aspects of differentiation based on the types of premises and related infrastructural facilities and the number of years of operation.

Only 5.6% (21) of the MSEs had more than five employees, while only 0.8% percent (3 MSEs) had over ten employees. Almost all of the MSEs were therefore microenterprises by definition. This is consistent with the 1993 National Baseline Survey which found that over 98% of all the enterprises in Kenya were micro enterprises in that year (Parker and Torres, 1994).

The MSEs in the study were divided into three categories based on a qualitative assessment of the types of premises that informal sector enterprises occupy and the infrastructural facilities at their places of work. The first category of microenterprises is relatively permanent and stable. These MSEs operate from permanent and legitimate premises and enjoy infrastructural amenities such as water, electricity, fixed-line telephones and/or computers and the internet. MSEs in this category pay relatively higher rent and are started with higher capital investment. They enjoy some permanency, most of them having been in existence for more than ten years. Examples in this category are horticultural exporters, electronics shops, auto-spare shops, as well as some grocery shops.

The other microenterprises observed in the research can be divided into two categories: i) Enterprises based on permanent premises but which share very small spaces and are always on the move in case a better, bigger and more affordable space becomes available; and ii) Very small businesses which operate from temporary structures/stalls, and sometimes in the open.

The former category of MSEs operates micro-sized businesses from shared premises. Despite being housed in permanent premises and sheltered from the vagaries of the weather and having access to infrastructural facilities such as electricity and water, their businesses and operations are very small, which makes one wonder whether they are economically viable. These are the micro retail stalls that are common and visible along the main streets of Nairobi on Moi Avenue, Tom Mboya Street, Taveta Road, River Road, Luthuli Avenue, etc. They have been around for about a decade since they started to replace bigger MSEs which used to be owned and operated by Asian shopkeepers.

This does not mean that one particular type of business has been occupying and operating from the same premises for that period. The space could have changed hands between several traders who came and went, depending on the success of

their businesses. These MSEs are mainly survival outfits whose growth is often limited by lack of capital and lack of proper preparation. The traders are forced by circumstances to keep trying different things and moving from one micro space to another, which means that the same micro spaces may have been occupied by several successive owners in the space of a few years. This was confirmed when it was found that over seventy percent (70%) of the enterprises had been in existence for less than five years.

The last category consists of the microenterprises that operate from temporary sheds/ stalls or in the open because they lack proper premises for their business activities. These microenterprises sometimes operate in areas which are not designated as permanent trading areas, meaning that the businesses can be moved out at any time since the space may be required for other uses. Even though the understanding between them and the authorities may be clear that these are temporary premises which can be taken at any time, the traders sometimes resist to be moved from what they have become familiar with, necessitating some violent evictions and confrontations between the traders and local authorities. Such incidents are common in the central business district of Nairobi, where such temporary spaces may have been designated for other use like road construction but which could be temporarily allocated to the needy traders for short term periods.

This was the case with the Maasai market in Nairobi, which was popular with foreign tourists due to its Maasai beads and crafts. The market was formerly situated in a more accessible area between Muranga Road and Kijabe Street, but was moved due to road construction to a more hidden and less accessible area behind Kijabe Street. These microenterprises are mainly one person/owner operated enterprises, as confirmed by the finding that thirty five percent (35%) of the enterprises had only one employee who was also the owner. Such business premises lack infrastructural facilities such as running water and electricity, and are not



properly constructed or purposely designed for business. Some traders have to carry their merchandise home at the close of business.

This makes these MSEs quite different from those occupying permanent and legitimate premises, as the latter enjoy not only stability, but also opportunities for growth. The more established and permanent MSEs can therefore be referred to as stable and permanent micro enterprises. With improved marketing, capital and better management, they have the opportunity to grow into small or even medium-scale enterprises.

The permanent or temporary nature of the premises was observed to make a difference in the MSEs' stability and possibility of growth. The enterprises occupying more permanent premises had been started with more preparation, including more capital (over Kenya shillings 100,000: US\$ 1,220), or had been started with little capital but managed to accumulate more overtime and subsequently expanded. The observation was also made that MSEs in the central business district in the city of Nairobi mainly fell in the subcategory of very small micro enterprises.

The microenterprises in the second (shared premises) and third categories (temporary stalls/ open spaces) hardly owned or used computers or the internet. They had no computer skills and also lacked awareness of ICT developments. Examples of these MSEs are curio shops, micro grocery stalls, food kiosks, and retail trading stalls. However, all three of the observed categories of MSEs used the mobile phone; the ownership and use of mobile phones was found to be over 90 percent.

Most of the enterprises surveyed fell into clusters of retail shops, curio traders, horticultural exporters, market stalls, spare parts shops and grocery stalls. Those operating from permanent premises were housed in the same or adjacent buildings.

In response to the question as to whether there was anything they shared among themselves, the respondents said they shared relevant business information and exchanged goods regularly when there was the need to do so for the benefit of their customers.

Results of the study show that the majority (85.7%; 354) of the MSEs in the study were service-oriented, offering services such as the sale of garments, footwear, groceries, beads, curios, vehicle spare parts and lubricants, photography and printing, stationery, electronics, mobile phones and accessories.

Using Pearson's Chi-square analysis as appendix A3 shows, the type of business had a bearing on the use of ICTs at a statistical significance 0.04. This means that some types of business like those dealing with horticultural goods, and vehicle spare parts, and electronics are more likely to use ICTs especially computers and the internet to contact their customers and suppliers respectively.

The goals of the enterprise as shown on the Chi-square Test analysis on table 17 had an effect on the use of ICTs at the statistical significance level of 0.04. There were those, whose goals were for survival and support the family, others wanted to make profits and create employment or excel in what they set out to do. The latter were more likely to use ICTs including computers than those who simply wanted to survive.

#### **6.3.1 Ownership of MSEs**

As Table 3 below shows, 44.6% (168) of the respondents were the owner managers of the enterprises, 10.1% (38) were part owners and 41.9% (158) were employees. Only 2.1% (8 respondents) said that they were the managers of the businesses that they were running, while the others seemed to associate the term 'manager' with bigger formal enterprises.

**Table 3: Ownership of MSE enterprises****[n=377]**

	Frequency	Percent
Owner managers	168	44.6
Part owner	38	10.1
Manager	8	2.1
Employees	158	41.9
No answer	5	1.3
Total	377	100

**6.3.2 Number of employees in an enterprise**

Thirty five percent (35%) (133) of the MSEs had only one employee and 36.3% (137) had between two and five employees. A total of over 70% (270 responses) of the MSEs therefore had between one and five employees. Only 5.6% (21) of the MSEs had between six and ten employees, while less than one percent (0.8%; 3) had over ten employees. Over fifty percent (55%) were managed by owners or part owners, while the rest (45%) were run by employees.

Twenty two percent (22%) (83) indicated that they had temporary employees whose number depended on the amount of work available at a particular time. The findings are consistent with observations made by Chew et al., (2010, p. 2) and Donner and Escobari (2010, p. 641) that microenterprises are the main sources of income, jobs, manufacturing and services in developing countries, and that the majority of non-agricultural enterprises have ten or fewer employees.

**6.3.3 Capital outlay at the beginning of an enterprise**

As indicated in section 6.3.1.2, the majority of the MSEs had less than five employees and most of them were also survival outfits rather than business enterprises with opportunities for growth.

As shown in Table 4, the MSEs were started with minimum capital, Forty eight percent of the respondents reported starting their businesses with less than 100,000 Kenyan shillings (\$1220), with some having been started with as little as 10,000 Kenyan shillings (US \$120).

A large number of the responses were in the “do not know” and “no answer” categories, as those who knew the history of the starting capital were not present, as shown in Table 5. A big proportion of the MSEs in the study were being run by employees (or employee managers, as Table 4 shows).

**Table 4: Capital investment at the beginning of the business** (Data collection was undertaken from March to June 2010 exchange rate at the time was Kshs.70=US\$.1)

[n=377]

	Frequency	Percent
Less than Kshs 10,000 (143 USD)	7	2
Kshs 10,000-20,000 (USD 143-286)	49	13
Kshs 20,000-40,000 (USD 286-571)	41	11
Kshs 40,000-60,000 (USD 571-857)	41	11
Kshs 60,000-100,000 (USD 857-1429)	40	11
Over Kshs 100,000 (USD 1429)	51	13
Do not know	55	14
No answer	93	25
Total	377	100

### 6.3.4 Number of years the enterprises have been in existence

As indicated in Table 5, over 36% (138) of the enterprises had been in existence for less than two years, 34.7% (131) had been in existence for between two and five years, 13% (49) had been in existence for five to ten years, and only 13.5% had been in existence for more than ten years. The majority of the MSEs (over 70% in the survey) had therefore been in existence for less than five years (71.3%; 269). This confirms that the survival rate of informal sector enterprises is low.

**Table 5: Number of years the enterprise has been in existence**

**[n=377]**

	Frequency	Percent
Less than two years	138	36.6
2-5 years	131	34.7
5-10 years	49	13.0
Over ten years	51	13.5
No answer	8	2.1
Total	377	100

### 6.3.5 Sources of business information for the MSEs

Respondents were asked about their sources of businesses information. The responses show that MSE traders mainly relied on their personal or tacit knowledge (85%; 327 respondents), fellow traders (46%; 174), acquaintances, friends and relatives (34%; 128), mobile phone contacts (30%; 114), mass media (23%; 86) and the internet (15%; 58). The use of government agents and printed sources like books and magazines as sources of information was very low at 2% (8 respondents) and 1% (4 respondents) respectively.

None of the respondents mentioned getting any information from the library. The observations are in line with a survey by Amha and Ageba (2006, p.317) in Ethiopia,

which found that the main sources of business information for MSE traders were customers, suppliers and relatives, which are informal sources. Delivery of quality information, which reflects the needs of MSE traders, is important for sustainable competitiveness in local and global markets and the creation of a viable and sustainable MSE sector.

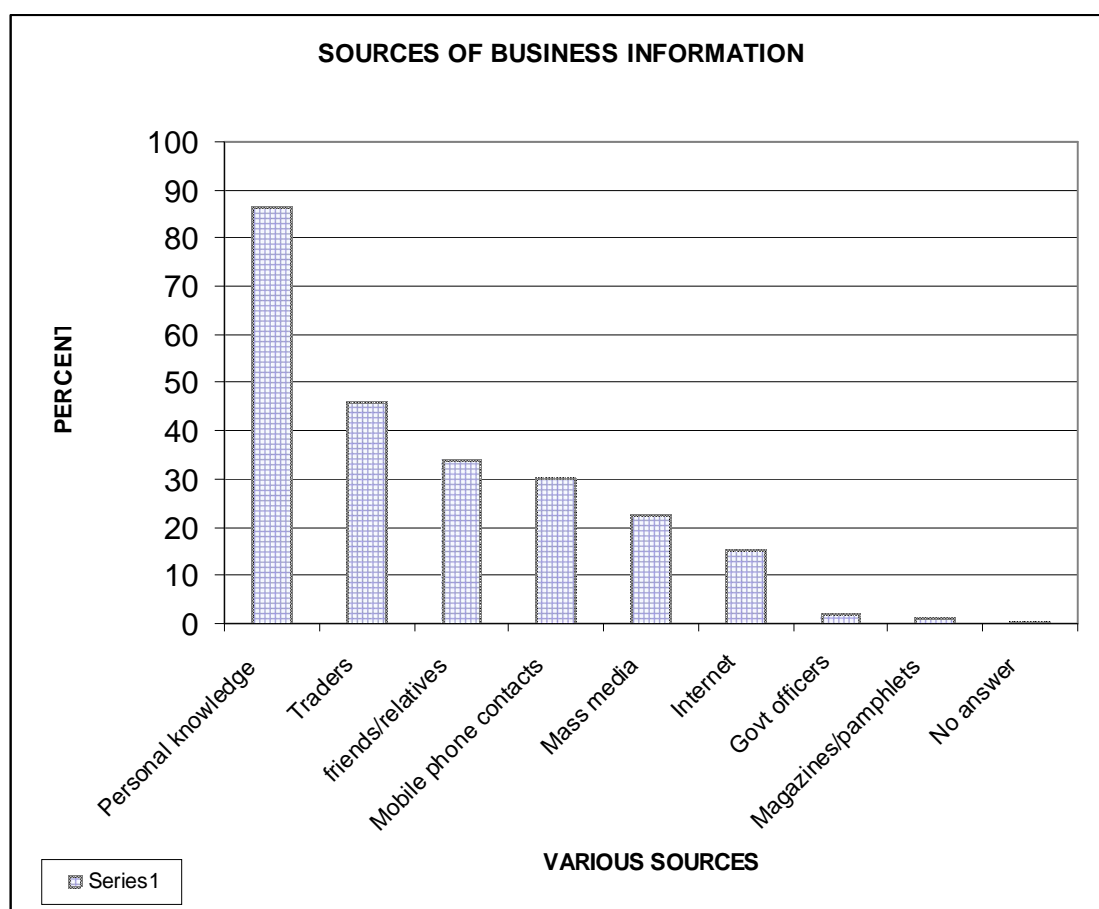
The results reveal that the surveyed MSEs were not using formal sources for information and relied more on informal sources of information, which can only be to their detriment. Their chances of growth are curtailed because they do not enjoy access to information that is likely to inspire growth and expansion. This means that they either continue to remain small (if they survive at all), or exist only for a short period, as indicated in section 6.3.1.4.

The responses on sources of business information are shown in Table 6 and Figure 4. The survey took into account that the respondents used several sources of information at the same time.

**Table 6: Sources of business information for MSEs [n=377]**

SOURCES OF INFORMATION: n=377	Frequency	Percent
Personal knowledge	327	86.7
Fellow traders	174	46.2
Acquaintances, friends & relatives	128	34.0
Mobile phone contacts	114	30.2
Mass media	86	22.8
The internet	58	15.4
Government offices	8	2.1
Books, magazines and pamphlets	4	1.1
No answer	1	0.3

The responses on the sources of information for MSE traders, presented in Table 7 above and the graph below, clearly show that the MSE traders' main sources of information were personal knowledge or experiences, fellow traders, acquaintances, friends and relatives, and mobile phone contacts. These are mainly informal sources, with very little use being made of formal sources such as mass media and the internet, and even less from government agencies and printed sources like books and magazines.



**Fig. 4: Sources of business information for the MSEs**

Sections 6.1 to 6.3 above have presented the findings of the survey research on the demographic characteristics of the MSE traders, as well as the background information on the status and characteristics of the MSEs on ownership, number of

employees, number of years the businesses have been in existence, amount of capital used to start the business and the sources of business information. Sections 6.4 to 6.8 will present the findings on the level and use of ICTs by the MSEs, the types of ICTs that are in use, the challenges that exist, and the government's involvement in improving informal traders' access to ICTs.

#### **6.4 Ownership and use of ICTs by MSE traders**

The research study found that the level of use of ICTs in the informal sector in Kenya was different for the different categories of MSEs. The use of computers and other related equipment like scanners, printers, the internet and email, was found to be quite low (23%; 87 respondents) and limited to those MSEs in the first category which operate from permanent premises. (See section 6.3.1).

As indicated in section 6.3.1, most of the MSEs lacked proper working spaces, and operated from temporary premises which also lacked infrastructural facilities to support ICTs. Their earnings did not enable ownership and use of ICTs like the computer and related technologies like the internet and email.

The majority of the MSE traders, with the exception of a few (referred to as the first category which were relatively stable and permanent), behaved as if computer-based technological developments had nothing to do with them and/or their businesses, and the questions about the ownership and use of computers and the internet seemed irrelevant and out of place to most of them.

However, over 98% (372) of the surveyed MSEs reported ownership and use of ICTs, but mainly ownership of the mobile phone, and only 1.2% (5) did not own a mobile phone. The adoption and use of the mobile phone was almost one hundred percent in the MSEs studied. The results are shown in Table 7.



**Table 7: Types of ICTs being used by the MSE traders****[n=377]**

Type of ICT and use n=377	Frequency	Percent
Mobile phone (communication)	342	90.7
Computer and internet (email)	87	23.1
Computer (typing)	59	15.6
Scanner	53	14.1
Fax	43	11.4
Computer (printing)	1	0.3
Computer (record keeping)	1	0.3

Twenty six percent (26%) (96) of the respondents owned a computer, over fifteen percent (15.1%, 57 respondents) owned or used a land line, 4.8% (18) owned a printer, 4.2% (16) owned a scanner, and 2.7% (10) owned a fax machine. Sixteen percent (16%) (59 respondents) reported using the computer for typing, while 23% used it for email. Less than one percent reported using the computer for printing and record-keeping purposes.

A total of 39.8% (150 respondents) reported that they had employees in their businesses with computer skills. and 23.9% (90) reported that all their employees had computer skills. These were the MSEs that were selling or repairing electronics, printing and typesetting, or working in the M-pesa business. Twelve point two percent (46 respondents) had only one employee with computer skills, 2.7% (10 respondents) had two employees with computer skills, 1.1% (4 respondents) said several employees had computer skills, and the majority (60.2%; 227 respondents) reported that they had no employee with computer skills. The results are shown in Table 8.

**Table 8: Number of employees with computer skills in the MSEs**

**[n=377]**

	Frequency	Percent
One only	46	12.2
All employees	90	23.9
Two only	10	2.7
Several	4	1.1
None	227	60.2
Total	377	100

The use of mobile money transfer services, especially the pioneering M-pesa mobile money service, has been quickly and widely adopted by MSE traders. Ninety four percent (357 respondents) of the MSEs reported being registered mobile money transfer users, and Table 10 shows that they used the service frequently.

Mobile money transfer services have simplified financial transactions by saving the time and money that would have been spent on travelling to make orders and payments. The respondents reported that this had made business more efficient, faster and more convenient.

The money transfer services also made business operations easier by substituting virtual accounts for cash, which is safer and more convenient as the money remains safe even if the phone gets stolen. Those with bank accounts supplemented them with the money transfer services whose outlets are available for more hours and which can also be used to save small amounts of money without having to queue at the bank.

The money transfer services also created business and employment opportunities through their agencies and outlets across the country.

**Table 9: Frequency of use of mobile money transfer services by MSE traders**

**[n=377]**

	Frequency	Percent
Everyday	108	28
Twice a week	20	5
Once a week	91	24
Once a month	17	5
Other	36	10
When the need arises	80	21
No answer	25	7
Total	377	100

### **6.5 Types of ICTs in use in the informal sector in Kenya**

As shown in Table 7, the main ICT being used by the surveyed MSEs was the mobile phone. Computers, scanners and fax machines were used by only a few enterprises. The mobile phone was mainly used (reported by over 90% of the respondents) by the MSE traders for both business and social communication.

The Communication Commission of Kenya Quarterly Sector Statistics Report (April –June 2010/2011) put the total number of mobile phone subscriptions, as of June 2011, at 25.3 million, while mobile phone penetration is 64.2% per 100 inhabitants, with the concentration being in urban areas. The mobile phone is also heavily used for money transfer services, with 17.3 million registered mobile money transfer subscriptions in the country (for the same period).

### **6.6 Sub-sectors that are using ICTs in the informal sector in Kenya**

As shown in Table 10, the majority of the surveyed informal sector enterprises used the mobile phone in the running of their businesses. Over seventy two percent (72.9%; 275 respondents) used the mobile phone to order raw materials and goods

and services, while 299 respondents (79.3%) used mobile phones to contact customers and communicate with employees when they were away on errands.

The respondents also indicated that they used the mobile phone to tell time, as a camera, to surf the internet, as a radio, for mobile money transfer services, and to keep in touch with friends and other family members.

From the responses, it is clear that the mobile phone has made a difference to the operations of MSEs. MSEs are able to get their supplies and raw materials faster and more conveniently. The mobile phone has also made it easier for the MSEs to contact their customers and employees while on the move, and at the same time brought about savings by reducing the need to travel.

Some respondents said that the mobile phone had really helped them improve their business operations by allowing them to accomplish many things without having to leave their business premises. This was especially the case for those who did not have any other employee(s), which meant closing the business if they had to be away on errands. The mobile phone has reduced such concerns and the effort and labour of MSE traders by enabling the payment and ordering of goods and services without them leaving their places of work.

The responses are shown in Table 10 below. The survey took into account that the respondents reported more than one use of the mobile phone.

**Table 10: Different uses of the mobile phone by MSE traders**

[n=377]	Frequency	Percent
Use it for money transfer services	345	91.5
For contacting customers	299	79.3
For telling time	276	73.2
For ordering goods and services	275	72.9
For social communication/networking	271	71.9
Use it as a radio	185	49.1
For improving my business	190	50.4
Use it as a camera	178	47.2
For accessing the internet	173	45.9
For sourcing raw materials	23	6.1

The first category of the MSEs (see 6.3.1), also made use of other ICTs like fixed-line telephones, computers and the internet in addition to mobile phones. The owners and some of their employees had computer skills and reported the use of computers. These MSEs were, however, few compared to those that operated with minimum resources. Those that used computer-based technologies (for email and internet, and for data storage) were the horticultural exporters, automobile spare shops and electronic shops.

### **6.7. Impact of ICTs on the MSEs in Kenya**

As indicated in sections 6.4, 6.5 and 6.6, the mobile phone is the main ICT that was used by the majority of the MSE participants in the survey. Given their generally low income, the mobile phone is affordable and easy to use. The MSE respondents' level of education was also low and most of them lacked the skills and awareness required to use computers and the internet. A small percentage of the respondents used computers, scanners and the internet, as indicated in section 6.5 and Table 8. The respondents described the effects of mobile phone use and mobile money

transfer services as very positive because they facilitated faster transactions and communication with customers and suppliers, and thus increased business efficiency.

The respondents indicated that they were highly impressed with the genuineness, i.e. the ability of the mobile phone to handle money securely without them fearing that they might lose it and its money and time-saving convenience. The respondents reported that mobile phones brought more customers, increased the volume of business, and consequently improved income.

They mentioned that it has become easier to pass information not only to those who are close, but also to those in far off places. This expanded their horizons and business opportunities. The mobile money transfer services had also created business opportunities for the agents as well as jobs for their employees.

Although few in number among the surveyed MSEs, those who used computers reported that they could access more information from the internet for their businesses. They also reported that computers were good for keeping business records and for stock control purposes and therefore improved efficiency. Some of these respondents viewed the internet as a good avenue for the advertising and marketing of goods and therefore saw the potential for more business and bigger markets.

The respondents felt that ICTs are generally good and useful to the MSEs because they simplify work and make it easier to carry out business activities because of their convenience and ability to save time. The responses are shown in Table 12.

The survey took into account that the respondents gave more than one reason as to the effects of ICT use.

**Table 11: Effects of ICT use**

Responses n=377	Frequency	Percent
Faster transactions & communication with customers and suppliers	128	34
Helps get supplies faster	60	15.9
Helps bring more customers leading to more business income	44	11.7
They simplify work and make it much easier to carry out business activities	39	10.3
They bring business opportunities	37	9.8
They are convenient/genuine, save time and money by reducing distances travelled	16	4.2
They are good for business records and stock control	15	4
They facilitate access to more information through telephone contacts and the internet	7	1.9
They are educational, help to increase technical knowledge and advertising space	4	1.1

Some respondents (6%) said it is the best thing that had happened to their businesses. The respondents also said that the mobile phone is good for emergencies, especially medical ones when money is needed urgently by relatives or dependants, especially those who live in the rural areas.

The responses for benefits resulting from the use of money transfer services by the MSE traders are shown in Table 13. The survey took into account that the

respondents reported several benefits resulting from the use of money transfer services.

**Table 12: Benefits of mobile money transfer services to the MSE workers**

Benefits [=377]	Frequency	Percent
Has simplified business and social and financial transactions	131	34.7
It is reliable & genuine, provides stable business opportunities as money transfer outlets	15	4
Saves time & money in travelling/ makes business more efficient, faster and convenient	101	26.8
Can be used to save small amounts of money unlike banks, also available for more hours, no queues	72	19.1
Best thing that has happened to the business, makes it easier, faster, convenient and more profitable	25	6.6
Improved security for business transactions, one need not carry money around	14	3.7
Comes in handy for emergencies, including medical emergencies	10	2.7
Comes in handy when one does not have money for business transactions and can send it later	6	1.6

## **6.8 Challenges facing ICTs use in the informal sector in Kenya**

Survey results indicate that the main obstacle to the use of ICTs in the MSE sector is the small size/scale of the businesses, which does not allow them to focus on much more beyond survival. The respondents basically stated that with the exception of the mobile phone, they were unable to afford ICTs. MSE traders cannot



economically support the ownership of a computer and would need to pool resources together to create shared computer facilities if they were to use them. The businesses were also undercapitalized, as indicated by the amount of capital that was used to start the MSEs (section 6.3.13).

The respondents mentioned that they lacked the capacity in human skills to use more complicated ICTs like the computer and the internet, as shown in section 6.4.1 where only 39.8% reported having any computer skills. Some of the MSEs lacked infrastructural facilities like electricity and internet connectivity, especially the MSEs that were operating from temporary stalls or out in the open.

The majority of those who were operating very small micro enterprises in shared premises were also observed to have too little space to house ICTs like computers, scanners and printers. Even worse, the crafts and curio traders who were operating from temporary premises said that they carried their products home with them at the close of business. Such temporary premises do not have any infrastructural facilities to support ICTs, even for those earning enough money to afford them.

Another challenge was the lack of institutional capacity, where the MSEs could rely on the government to develop basic institutional facilities for telecommunications which individual traders could tap into. This situation was also observed by Moyi (2003:221), who states that resource constraints preclude small enterprises from seizing the opportunities offered by ICTs on their own and that small enterprises need institutional support mechanisms to mobilize them. The lack of formal business information facilities, reported in section 6.3.1.5, also indicates that there was a lack of institutional support for the MSEs.

Ignorance or unawareness of the benefits of using ICTs is also a challenge that was exhibited by the majority of the respondents. This also applies to those who might afford to invest in them, but who had not been exposed to them or lacked

awareness. The experience of operating in survivalist conditions seemed to leave no time for the MSE traders to acquaint themselves with ICTs like computers, and they simply behaved as if they were completely out of reach. Such ignorance inhibited those who might afford to invest their resources in ICTs.

When asked if they were aware about the government's efforts to provide internet services to more people, they showed no awareness or much expectation from the government as far as any improvements to their businesses were concerned.

Although the mobile phone was the main ICT used by the respondents in this study for business and social communication, they are not without problems and shortcomings. Problems associated with the use and availability of mobile phones, as reported by the MSE traders, mainly have to do with congestion experienced in mobile phone networks, which extends to mobile transfer services, especially with the main telephone service provider Safaricom and its M-pesa money transfer service. Buying airtime was also reportedly a challenge. Surprisingly, charging the phone was not cited as a major problem by the respondents, despite the fact that many Kenyans do not have access to electricity at home.

The respondents also pointed out that the mobile phone had become a target for thieves, for those who had the misfortune of falling into their hands the mobile phone was the first to go, especially those who did not carry other items of value. It is to the same people that the loss was more felt as they might not be able to replace it fast enough, yet they had come to rely so much on the phone to carry out their business. The challenges of using the mobile phone are shown in Table 13.

The survey took into account that the respondents reported more than one problem or challenge of using the mobile phone.

**Table 13: Challenges of using the mobile phone**

Problems and challenges [n=377]	Frequency	Percent
Network congestion	207	54.9
Common target for thieves and pickpockets	175	46.4
Buying airtime	140	37.1
Charging the phone	2	0.5

### **6.9 Perceptions on government involvement in improving access to ICTs**

The majority (76.4%; 288) of the respondents did not think access to ICTs was a priority issue for the government. Their principle request was for the government to help them improve their business operations by establishing more stable and permanent premises for informal sector traders, where they could grow unhindered and build a good customer base.

The respondents did not think that having more access to ICTs was a priority in their current status, which was for the most part, temporary. Instead they said that the government should first help them with premises for their business activities. However, they did not seem to expect much from the government, arguing that the government, especially as represented by the city council authorities, was more of a hindrance than help due to the harassment that was occasionally meted out to them by the city council representatives. Sometimes this occurred for no reason at all, even when they had paid their licenses and other necessary dues.

The respondents also expressed the view that the government representatives seemed to be more concerned with the collection of revenue than with providing them with services and opportunities for growth. They felt that there was a great

deal that the government could do for them, but it would all start with settling them in more stable premises. 27% (101 respondents) said that the government could also help by reducing monopolies in the service sector, instituting price controls (like that of petrol) and thus lowering the cost of doing business, and subsidizing internet costs to make it affordable to all.

There were more enthusiastic responses when asked whether the phone companies should be involved in improving access to ICTs compared to the question on whether there should be more government involvement (23%). Thirty eight percent (38%) said that phone companies should be more involved in improving access to mobile phone services.

#### **6.10. Summary**

This chapter presented the findings obtained from survey research through the use of structured and un-structured questionnaires.

Results indicate that the majority of the respondents were between the ages of 25-35 years at 48% (180), followed by those below 25 years at 26.5. Males and females were almost equally distributed at 49% (184) and 51% (193) respectively.

Almost half (48%; 182) of the respondents had attained secondary school education, while 44% (164) had attained a tertiary level of education.

The surveyed MSEs were divided into three categories: MSEs that operate from permanent premises and enjoy all the amenities like electricity, water and even internet connectivity; MSEs that are housed in permanent but shared premises, occupying very little working space; and those that operate from temporary premises or in the open, without amenities like water, electricity or internet connectivity. Although they were all microenterprises based on the quantitatively defined category of one to nine employees, they were further differentiated

qualitatively on the basis of their premises and infrastructural facilities as indicated above (section 6.3.1), as well as their stability based on the number of years they had been in operation.

The majority of the MSEs (55%; 206) were operated by owners and part owners, while 42% (158) were run by an employee or employees. A significant proportion of the MSEs (35%; 133) had only one permanent employee, while 36% (137) had between two and five employees. Twenty two percent (83 respondents) said they had temporary employees whose number depended on the amount of work available at a particular time.

Almost half (48%; 178) of the MSEs were started off with very little capital - less than a hundred thousand Kenyan Shillings, which is equivalent to 1429 US Dollars. Some respondents reported starting off with as little as ten thousand Kenya Shillings, which is equivalent to 143 US Dollars or less. The study found that the majority (71%; 269) of the MSEs had been in existence for less than five years.

The main sources of business information for the MSEs, as reported by the respondents, were personal knowledge and experience (85%; 327), help from fellow traders (46%; 174) and friends and relatives (34%; 128), mobile phone contacts (30%; 114), mass media (23%; 86) and the internet (15%; 58). Very few of the respondents (2%;8) sourced information from government agents and printed sources (1%; 4).

On the acquisition and use of ICTs, apart from the mobile phone whose ownership and use was found to be over 90%, most (77%; 290) of the MSEs in the study did not own or use ICTs like the computer and/or the internet, as they said they were too expensive for their small businesses. Those who used computers and the internet, however, said that they found them useful because they could access more

information from the internet, as well as use them for business records and for stock control.

In contrast, the mobile phone and mobile money transfer services were heavily used in the running of the MSEs, ordering of supplies, raw materials, goods and services, and for communicating with customers and suppliers. The mobile money transfer services were also used for business transactions, sending money to relatives in the rural areas, and for saving money.

The challenges of acquisition and the use of ICTs, as cited by the respondents, were the inability to afford computers and internet connections and the lack of the necessary infrastructure to support such ICTs. For the mobile phones and mobile money transfer services, the main challenge was network congestion and the theft of mobile phones, which disrupts the smooth running of MSEs.

The respondents showed no sign of any expectations from the government to improve ICT access as they were more concerned with first getting permanent or stable business premises, after which they would be in a better position to invest in more complex ICTs like computers and internet connectivity.

Another challenge mentioned by the respondents was the lack of enough capital to set up economic and profitable businesses that are poised for growth and technology adoption, which could possibly bring more development. The microenterprises generally remain small and operate in squeezed conditions that do not encourage the adoption of modern technology.

The fact that the MSE traders did not seem to have expectations from the government means that the government's efforts towards them need to be readdressed. A clear and well-coordinated intervention programme needs to be developed to build on what the MSEs are already doing. Going by the number of

jobs that the informal sector provides for the people, it is clear that the sector cannot be ignored and needs to be encouraged by: facilitating the provision of information for business activities, especially marketing; providing the MSEs with better and permanent premises; improving access to finance and credit; and improving capacity building. This can go very far in improving the business environment and access to the necessary information in the informal sector.

The next chapter (seven) discusses the findings of the study.

## **CHAPTER SEVEN**

### **DISCUSSION OF FINDINGS**

#### **7.1 Introduction**

This chapter discusses the findings of this study on the diffusion of ICTs in the informal sector in Kenya. Data was collected through the survey research method as well as through the review of documents. The discussion covers the characteristics of the respondents, the types and status of MSEs in the informal sector, sources of business information, and the types of ICTs that are used to access business information in the two provinces (Nairobi and Central). The discussion also includes the effects of ICT use, the challenges that exist, as well as the government's involvement in improving access to ICTs. The discussion has attempted to correlate the findings of the research with the objectives of the study.

#### **7.2 Characteristics of the respondents in the informal sector in Kenya**

Survey results indicate that the majority (72%) of the MSE respondents in Kenya were between the ages of 25 and 45 years between 25 and 35 years old, 25 % were between 35 and 45, and 25% were below 25 years. These observations are consistent with data obtained from the literature review (section 2.2.1) which indicates that the informal sector has become an escape route for school leavers especially those who leave after finishing secondary school and move to the urban centres for non-existent jobs in the formal sector.

This has been taking place ever since Kenya attained political independence in 1963, when rural to urban migration regulations were relaxed with the change of governance from colonial rule to self-governance. However, the urban centres that received the influx of migrants were not ready for them in terms of expected employment. The result was the creation and spread of informal sector activities or micro enterprises among those who could not get any other jobs to survive. It



appears to have taken some time before the government came to realize and recognize that they needed to address the problem of the MSE sector.

In terms of gender, the female respondents (51.3%; 193) slightly outnumbered the male respondents (48.8%; 184) in terms of distribution. These figures mirror the figures of the last Kenyan population census, where the ratio of females to males was almost identical (51.2% females and 48.8% males) (GOK 2009). This is a departure from other research findings which tend to have a much bigger proportion of women as MSE entrepreneurs, usually at over 60 % (see 6.2.1.2). The implication here is that more men are going into the MSE sector in Kenya than they were doing earlier, possibly as a result of the rising level of unemployment.

Survey results relating to the level of education indicate that the majority (76%) of the respondents had acquired secondary (48%) and tertiary education (28%) and only a small percentage (8%) were primary school leavers. This suggests that the level of education of the traders working in the informal sector is rising, which could ultimately raise the level of operations and earnings as more creativity and skills are brought into the sector.

### **7.2.1 The status of MSEs in the informal sector in Kenya**

The survey results show that 48% of the MSEs started their businesses with less than one hundred thousand Kenya shillings (1429 US Dollars), and over 70% had been in existence for less than five years. Only 14% had been in existence for more than ten years. This stands to confirm that inadequate preparation and capital at the start of the MSEs limits their opportunity for growth into bigger enterprises, not to mention their chances of survival. Informal sector businesses are therefore easily started and also easily abandoned and tend to remain small if they go on. It was also observed that at least one third of the MSE start-ups do not survive the third year (Parker and Torres, 1994, GOK, 1999).

This is not unique to the Kenyan MSEs, as has been indicated earlier and also confirmed by Donner and Escobari (2010:642) in their review of research on MSEs, their findings were that, most of them remain small or struggle to survive. According to (United Nations Conference on Trade and Development (UNCTAD) (2010, p.9), income developed from MSEs' activities is often insufficient to escape from poverty, as most of those who start them do so because they cannot find a paid job and need to find alternative income-generating activities in order to survive.

### **7.2.2 Business information sources for the MSEs in the informal sector in Kenya**

Survey results indicate that MSE traders rely mostly on informal sources for business information. Most respondents (87%) cited personal knowledge, followed by information from fellow traders (46%), friends and relatives (34%), mobile phone contacts (30%), mass media (23%) and the internet (15%). Very few traders (2%) reported getting information for their businesses from government sources or agents like trade officers or from printed sources like books and magazines (1%). None of the respondents obtained their information from the library. The MSEs' sources of information are therefore largely informal. The limited use of formal sources of information is bound to negatively affect their business' success, survival and growth.

In a study on microenterprises in Nigeria, Jagum (2008, p.49) found that almost all the commercial enterprises suffered from information failures on such things as the availability of markets or the appropriate prices for products and services. Such problems were generally found to be more acute in microenterprises in developing countries. Lack of information not only slows a business down, but also limits business activities to a local area. The importance of information that is timely and of a good quality for sustainable business cannot be overemphasized.

Amha and Ageba (2006, p. 317) have also observed that the delivery of quality and relevant information is important for sustainable competitiveness in both local and global markets for a viable and sustainable MSE sector. Their study in Ethiopia revealed that customers, suppliers and relatives were considered to be more important as sources of business information than formal sources. Many micro-businesses in developing countries can be described as suffering from “business information poverty”, which refers to the lack of access to vital business information necessary for making potentially successful business decisions. This information poverty leads to inefficient markets (Kenji, 2009, p. 4).

Mobile telephone services have been credited with alleviating some of this information poverty (Jensen, Aker in Kenji, 2009, p. 4). Kenji (2009) observes that mobile telephony is the primary support system for access to operational, tactical and strategic information in a timely, cheap and flexible manner for MSEs. This was repeatedly observed in the current study, where information from mobile phone contacts came second only to that of relatives and friends.

### **7.3 Type of ICTs being used in the informal sector in Kenya**

In addition to the mobile phone’s role in Kenya’s informal sector for business communication, the technology is also heavily relied on for social communication and for mobile money services. The surveyed MSEs that were more permanent/established also used fixed line telephones and computers for typing, stock control, email and the internet.

The observation that the use of computers among MSE traders is low is not unique to Kenya. Chew, Ilavarasan and Levy (2010, p. 3) found that proprietors of MSEs in developing countries believe computers to be less important for their operations than telephones, especially the mobile phone. This confirms Rogers’ assertion in the Diffusion of Innovations theory (as discussed in section 3.2.1.0) that some

innovations diffuse very fast (mobile phones) while others take a long time to be adopted (computers).

Another aspect of the Diffusion of Innovations theory, that is relevant to mobile phone adoption in Kenya, is that the innovations that are perceived by individuals to have greater relative advantage, compatibility and trialability and less complexity may be adopted more rapidly than other innovations. Indeed, the mobile phone has been adopted just as quickly by low income earners, such as informal sector traders, as by high income earners in Kenya. Apart from their affordability, which has made them accessible to informal sector traders, they have brought significant convenience to business operations by saving time and money, and are therefore perceived to have greater relative advantage. The use of the mobile phone is also compatible with MSE traders' informal and oral-based practices, varying levels of education, and they are also easy to use.

The same cannot be said for computers and internet/ email technology; for one, they are not easily accessible because they are not affordable to the MSE entrepreneurs. Access to computer-based ICTs by the MSE traders is also hampered by unawareness of the benefits and the fact that they need higher skills to use the technology, which the majority of the MSEs traders do not have. This denies them the chance to try, test, and observe the computer-based technologies for possible adoption.

Results from the study show that mobile money transfer services, especially the pioneering M-pesa service, have been quickly and widely adopted by the MSE traders, with 94% (357) of the respondents having registered for mobile money transfer services. They reported using the services heavily for business transactions as well as for saving small amounts of money or earnings which they felt did not justify queuing at the bank. This further demonstrates the compatibility of the mobile phone and related technology to MSE workers' earnings.

Despite the superiority of computer technology and its rapid adoption in Western countries for use in MSE and SME operations, the survey results (as presented in section 6.4.1) show that computer use in Kenyan MSEs is low, and that the technology has not been adopted as quickly as the mobile phone. The social constructivism approach which does not emphasize the superiority of technology as the driving force in its adoption, is perhaps the best theoretical framework to explain the slow rate of adoption of computer ICTs versus the rapid adoption of mobile phone technology. This approach views technology diffusion as a social process that does not take place in isolation of society, but rather as part and parcel of social and economic processes. This is in contrast to technological determinism which emphasizes the superiority of technology as the driving force in innovation's adoption.

It follows that despite the superiority of computers and their potential benefits to the MSEs, for example in expanding their businesses beyond a local area, their diffusion will be much slower compared to the more compatible and easily integrated mobile phone technology. Computers and other ICTs will continue to be marginalized until they are economically and socially integrated into the MSE community. They simply remain unaffordable in the tough economic environment of the informal trading and business environment

Because of its undeniable speed and convenience in communication and money transactions, mobile phone technology has also disrupted business in other sectors. As observed by Nyabiage (2011), although seen as a panacea to communication problems by collapsing the time spent on travel and postage, the mobile phone is also taking business away from other organizations. Among those affected are the postal service, money transfer firms, internet service providers, banks, etc. It has also easily taken up the tasks of the watch and clock, it is also used as a camera. The mobile phone has therefore become a gadget with multiple uses, with the most

recent extension being mobile money services. It is highly likely that there are still unexploited possibilities for further innovative use.

For those organizations whose tasks have been taken over by mobile phone technology, some of them, like the banks, have reinvented themselves innovatively and are partnering with the phone companies to offer extended services. An example of this in Kenya is the new bank account which was pioneered by the Equity Bank and the telephone service provider, Safaricom, where subscribers of the mobile money service can use the account to withdraw money from the bank through their mobile phone , without going to the bank.

Other local banks have also followed suit and partnered with mobile phone companies, thus not only turning the problem to their advantage, but also extending banking services to the formerly unbanked sector and new bank/mobile phone account holders. As a result, the Central Bank of Kenya's December 2010 statistics showed that mobile banking services had helped to recruit over 700,000 customers and mobilized over 400 hundred million Kenya shillings in deposits (Nyabiage 2011).

Some business organizations, like the watch and clock companies, have been losing business to the mobile phone and may need to think of new ways to reinvent themselves in order to offer the same services differently or to partner with the phone companies to offer combined services. The effect on companies that deal with cameras may not be felt as much, because although mobile phones can be used to take photographs, the quality of the images is still not as good as the quality offered by cameras.

#### **7.4 The impact of ICTs on the MSEs in Kenya**

There is a consensus among various studies that ICTs can be significant enablers of positive change among MSEs (Chew et al., 2010, p. 1, Kenji 2009, p. 2). The few

respondents in this study who were using computers said that they were able to access more information from the internet that they could use in their businesses. They also reported that computers were better for keeping business records as well as for stock control. Some respondents viewed the internet as a good avenue for the advertising and marketing of their goods. Generally, the respondents reported that ICTs were convenient and simplified their work by making it possible to carry out more activities in a short time, especially because the majority of the MSEs in the study had less than five employees.

According to Kenji (2003:2), Donner (2008:14), and ITU in Donner (2008:14), computers and the fixed line phone are credited with increased business activity in Western economies, while in countries where mobile communications constitute the primary form of access, increased exchange of information on trade is contributing to development goals. In developing countries, mobile phones have revolutionized telecommunications and had achieved an estimated average rate of penetration of 64.2% in June 2011 (CCK 2010/2011) from almost zero a decade earlier. The mobile phone is also the single most widespread ICT in use today (ITU, in Aker and Mbiti 2010, p. 3).

Donner and Escobari (2010, p. 652), in their review of the evidence of mobile phone use by MSEs in developing countries, found that mobile phones increase the information available to MSEs, and streamline marketing, sales and procurement. The economic benefits of the mobile phone include improved access to and use of information by reducing search costs; improved coordination of business activities and market efficiency; improved productive efficiency; and job creation in the mobile phone industry (Aker and Mbiti 2010, p. 8-9; Kuuya 2010, p. 2). Etzo and Collender (2010, p. 662) also note that mobile phones allow people to obtain information immediately and on a regular basis rather than waiting for weekly radio broadcasts, newspapers or 'snail mail' letters. Rather than being passive recipients of information, mobile phones allow individuals and firms to take an active role in

the search for information, enabling them to ask questions and collaborate information with multiple sources.

The same authors (Etzo and Collender 2010, p. 667) also make the important observation that the mobile money transfer service, which has been successful in Kenya, is having much less of an impact in neighbouring Tanzania, which shows that introducing the service is not a guarantee for its success. Kenya's M-pesa has demonstrated exceptional growth since its introduction in March 2007, with over sixteen million registered users by 2009 (Kimenyi and Ndungu 2009, p. 2). In comparison, South Africa's Wizzit has managed to attract 250,000 customers in more than four years of operation, while Tanzania's version of M-pesa, which was introduced in 2008, only had 100,000 registered customers by 2009 (Mas and Morawczyuski 2009, p. 77).

According to the Economist in Kimenyi and Ndungu (2009, p. 2), Kenya's M-pesa is probably the most celebrated success story of mobile banking in a developing country. Economic and social conditions in Kenya seem to have been just right when the M-pesa mobile money service was introduced. The success can be explained by the need, prior to the introduction of the service, to send money from urban to rural areas. The generally rapid adoption of mobile phones coupled with this new service made it spread faster than anyone expected. The political conditions were also favorable, with the government having implemented policies to liberalize the telecommunications sector just a few years earlier. These conditions seem to have worked well towards the success and fast uptake of the mobile money transfer service, which has continued to grow, albeit at a much slower rate compared to the initial take off.

In a Nigerian case study on the impact of mobile telephony in a developing country, Jagum (2008, p. 50) found that mobile telephony increases the speed of communication or information flow, leading to better decision making, and



increases the speed of trading activities by reducing the amount of time and money spent travelling and the cost of doing business. He noted that trading becomes less risky as information uncertainties and asymmetries are removed and information-related travel is avoided. Trading also becomes less localized as telephone communication is independent of geography. Some intermediaries can also be removed or avoided, leading to overall economic development.

The MSE traders in the study (Jagum, 2008) reported that the mobile phone brings more customers by increasing the volume of business, and therefore generates more income, since it is easier to pass information not only to those who are close, but also to those in far off places. Mobile phone use has also created more business opportunities and jobs through the sale of mobile handsets and their accessories, as well as employment in mobile money transfer outlets. The growth of mobile phone penetration therefore connects communities, stimulates economies and creates more jobs and businesses.

Aker and Mbiti (2010, p. 1) note that the mobile phone is reducing many divides between the urban and the rural and the rich and poor, and that the impact is particularly dramatic in the rural areas where the mobile phones represent the first modern telecommunication connection. The authors (Aker and Mbiti, 2010) observe that although the rapid adoption of mobile phones worldwide has exceeded expectations, the Kenyan case deserves mention since the projection by the Kenyan-based service provider, Safaricom, was that the mobile phone market in Kenya would reach 3 million subscribers by 2020. This has turned out to be a gross underestimation since the subscription as of September 2010 was over 22 million and growing (CCK, 2010/2011).

The mobile phone is more than just a phone and has also been referred to as the 'bank in your wallet' (Standard Chartered 2009/2010, p. 67). Its technological innovation of money transfer services has made it possible to extend financial

services to millions of people, including low income people, at a relatively low cost (Kimenyi and Ndungu 2009, p. 2).

The informality of mobile money transfer services, which operate from little and informal places next to the MSEs themselves, makes it easier for MSE traders to relate to them. The survey results indicate that the mobile phone and money transfer services have made doing business much easier and faster, and more convenient and profitable.

The value of monthly transactions in money transfer services rose from Kenya shillings 1.07 billion (US \$14.2 million) in July 2007, four months after the introduction of the M-pesa mobile money transfer service in Kenya, to 40.18 billion (Us \$535.6 million) in July 2009. This is an impressive growth rate of 3671% within a period of two years (Kimenyi and Ndungu 2009, p. 3). According to the Central Bank of Kenya Survey, (December 2008), there were 876 conventional bank branches in 2008, with 1424 automatic teller machines (ATMs), and more than 8,000 mobile banking outlets around the country, which are still growing at quite a fast rate. The money transfer outlets have grown to more than three times the number of traditional banking outlets within a period of three years (2008-2011).

Kenji (2009, p. 2), in a study of Afghanistan and Cameroon on the impact of mobile telephony on MSE performance, observed that increased interactions by the MSE traders had brought about substantial cost savings, increased flexibility, reduced information asymmetries, and contributed to better performance and growth. Omwansa's study in Kenya (2009, p. 111) suggests that the service does not only benefit the unbanked, but also the banked since the advantages of convenience, speed, low transaction fees and reduced physical distances to banks attract significant numbers of users.

A mobile banking account which was recently introduced by Equity Bank in conjunction with Safaricom mobile telephone provider helped to add 202,000 new deposit accounts in four months to the banking industry. Kangaru (2010) notes that, the adoption of mobile banking is greatly speeding up access to financial products. Other banks like Family Bank, Post Bank, and Kenya Commercial Bank are also following suit and partnering with mobile phone providers to improve the banking and financial services, which is bound to have a positive effect on the economy as a whole.

The new combination of mobile telephone-bank accounts allow the users to go beyond the limit of the mobile phone accounts and to reach their bank accounts through mobile phone without going to the bank. They can therefore transact business through their mobile phones using as much money as they have in their bank accounts without being limited by the mobile money account limits. The banks also need not lose their deposits to the mobile phone accounts since it is an extension of the account from the mobile phone to the bank.

Before the introduction of the mobile money transfer service in 2007, as noted by Kimenyi and Ndungu (2009, p. 1), over 70 percent of Kenyan households did not have bank accounts and largely relied on informal methods of money transfer. Such methods limit market exchange, increase risk, limit opportunities to save, and have high transaction costs. The introduction of the mobile money transfer services has changed all that for the better and mobile phone users, the majority who also subscribe to mobile money services, can now transfer money far and wide within the country faster, more cheaply, and safely without any risks.

### **7.5 Challenges facing ICTs use in the informal sector in Kenya**

The survey results indicate that the main challenge to the MSE traders with respect to ICTs use, especially computer-based technologies, was the small size of their operations, which could hardly support the acquisition and use of such ICTs.

The scale of their operations is mainly based on survival, meaning that they simply cannot earn enough to buy the relatively expensive ICTs. They also demonstrated a lack of awareness and skills that would enable them to use ICTs like the computers and internet. Those who were operating from temporary stalls or in the open also lacked the necessary space and infrastructure to enable them to use such ICTs.

This is unfortunate because in spite their small size, those who were making/selling crafts, curios and jewelry would benefit greatly by selling their products through the internet to tourist clients. However they lacked the skills and awareness, as well as the money, to acquire and utilize the necessary ICTs. For most MSEs, the main priority is survival, and ICTs like the computer seem far removed from their world and the environment in which they operate.

The problem of the small sizes/scale of Kenyan microenterprises is not peculiar to Kenyan MSEs. Gurmeet and Rakesh (2008, p. 123) observe that African countries' business sectors appear to be strongly segmented on the basis of ownership and size. He further observes that the challenges for private sector development in Africa include the small size and fragmentation of most African economies, their low levels of infrastructure, and lack of institutional support (Gurmeet and Rakesh, 2008).

The inability to use ICTs like the internet and email by the MSEs compounds their lack of business information, which is also a major challenge as they reported relying mainly on informal sources of information. The respondents did not receive much information from formal sources of information like the government and mainly relied on informal sources. Information service is identified as one of the business development services that affect the performance of MSEs. Such services include consultancy, training, advising, informing and communicating in a sustainable way. The availability of and access to efficient and high quality business development services are essential as they allow MSE operators to acquire

new skills and products, know-how, technology, and markets in an increasingly competitive domestic and global environment (Amha and Ageba 2006, p. 307).

Chiwere and Dick (2008, p. 145) have also identified access to business information as an area that requires attention from governments and business services providers alike if the MSE sector in developing countries is to achieve sustainable levels of growth and development. Quoting Oshikoya and Hussain (2007), they noted that many firms in Africa and other developing countries operate in an information-poor environment due to lack of business-support services and poor information technology structures.

A significant percentage of the respondents (39.8%; 150 respondents) reported that they had employees in their businesses who had computer skills, but which the majority were not using because they did not think they were useful in their businesses. On its own, computer literacy by employees may not translate to a convergence between the awareness of the benefits of computers and the needs of the business owner; the business owner needs to be aware of the possible benefits of ICTs so that he/she can prioritize to invest in ICTs that are useful to his/her business. This was the case in the study, as those who reportedly had computer skills were not the owners, nor were they engaged as employees because they had computer skills. They just happened to have attained the skills just in case they might get jobs where they would use them, especially in the formal sector, where the jobs turn out to be non-existent.

Generally, the scale and earnings of the majority of the MSEs in the informal sector also do not put the owners in a position to afford computer ICTs, as most are started with minimal resources and mainly to survive.

Although the affordability of airtime was also reported to be a challenge, the respondents reasoned that spending money on airtime was money well-spent as it ultimately resulted in savings and convenience.

One of the most universal problems of the mobile phone is that it is usually an easy target for thieves and pickpockets. In the case of MSE traders, it is probably their most valuable item, especially for those who do not have much money to carry around. This made the mobile phone an obvious target. The respondents reported this to be a common problem, one that inconvenienced the traders who had come to rely on it and who sometimes were not able to replace it fast enough due to their low earnings. As a way of temporarily circumventing the problem, some MSE traders reported and were also observed sharing handsets, they simply acquired the cheaper SIM cards and then shared handsets with their colleagues.

#### **7.6 Government's involvement in improving ICT access in Kenya**

In spite of the highly publicized efforts by the government to provide affordable internet services to all Kenyans through fiber optic cables and the zero-rating of computers and related accessories, the MSE respondents did not seem to be aware of such efforts and only a small percentage (22.8%; 86) thought the government should be involved in improving access to ICTs.

Their overall response as to whether and how the government can be involved in improving access to ICTs was more indifferent than anything positive or hopeful. They were more interested in discussing how the telephone companies could improve mobile telephone services. The interest on having mobile phone services improved more than discussing other ICTs access was quite in order since they were already using the former as opposed to computer-based technologies which were out of reach for them and therefore nothing to relate with.

They expressed the view that the government should first be concerned with giving them proper and affordable premises where they could establish their businesses first for those who were based in temporary jua kali sheds, and then the other things would naturally follow. Talking about computer-based technologies to people who were not sure about the stability of their business premises seemed like having mixed priorities.

Other concerns were the availability of capital and cheaper and easily-accessible credit facilities, enabled access to better markets for their goods and services, as this would help them escape the hand-to-mouth existence that their businesses afforded them. The MSE entrepreneurs are caught in a vicious cycle of lack of capital, easily-accessible credit and ICTs awareness, leading to small operations and lesser earnings, and therefore the inability to afford ICTs that would allow them to expand.

The respondents did not think that having more access to ICTs was a priority in their current status, which seems to be consistent with their little earnings and inability to afford and a lack of awareness.

There appears to be a lack of convergence between the government's efforts and the people that it is trying to serve. The government's priorities and those of the MSEs need to be more clearly articulated and synchronized to ensure that people can first afford the basics after which they can progressively consider acquiring the more advanced computer-based technology.

In addition to ensuring availability of stable and affordable premises for informal sector workers the government should also prioritize the provision of the necessary infrastructure even as it pursues the universal access of internet for its citizenry. People without permanent premises and engaged in survival activities and who cannot take essential infrastructure like electricity for granted may be hard to

convince that efforts to make ICT more accessible are meant for them. The government therefore needs to coordinate its priorities better in its efforts towards helping the informal sector workers so that MSE entrepreneurs can clearly get the message that such efforts are indeed geared to help them.

## **7.7 Summary**

This chapter discussed the research findings that were presented in Chapter six and according to the objectives of the study. In discussing the findings, comparisons were made to similar studies on ICTs' use by MSEs/SMEs in developing countries.

Attempts were made to correlate the objectives and findings of the study with findings and observations in related studies. The discussion included the characteristics of the respondents, the nature and background of the MSEs, as well as the use of different types of ICTs by the MSEs.

The respondents were generally young, with the majority under 45 years of age, and most (over 76%) had acquired secondary and tertiary education.

Over 70% of the MSEs had between one and five employees and mainly relied on themselves and fellow traders for business information, which is not enough to meet their business needs. The MSEs therefore suffer from information poverty which, when coupled with poor preparation as shown by the little amount of capital used to start the business, has had adverse effects on their business performance and growth.

The chapter also discussed the impact of the different types of ICTs on the MSE businesses, as well as the problems and challenges with respect to the use of ICTs. The poor business performance of the MSEs did not endear them to access and use of the relatively expensive computer technologies. They were happy using the relatively inexpensive mobile phone technology given their low level of operations



and earnings. The use of the mobile phone has been innovatively and extensively used in the MSEs' operations and has had a positive impact on their business activities.

The government involvement in improving access to ICTs in Kenya is yet to be felt by the MSE participants, as shown by their disinterest in the matter and the lack of government support in the provision of business information, as indicated in their responses on sources of information.

The survey results show that with the exception of the mobile phone, there was minimal use of ICTs by the MSEs due to their small size, low earnings and lack of awareness of other ICT potential benefits. They continue to be survival outfits rather than growing business enterprises.

The study notes that, even at its best, the innovative and extensive use of mobile phones has its limitations in improving informal sector businesses. The government needs to do more to promote their activities by addressing the issue of stable business premises as well as to provide infrastructure that can support ICT acquisition and use for better MSE performance. There is also a need for support in business information and awareness-raising, as indicated by the almost total reliance on informal sources by the MSEs and hardly any interest in the government's formal sources.

The next chapter presents the summary, conclusion and recommendations of the study.

## **CHAPTER EIGHT**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **8.1 Introduction**

The purpose of this chapter is to summarize the study's findings in relation to the research objectives, draw conclusions and propose recommendations that can be used in the future, and make suggestions for further research on the adoption of ICTs in the informal sector in Kenya.

The purpose of this study was to investigate the diffusion of ICTs in the informal sector in Kenya. The specific research objectives were to:

1. Determine the status of the informal sector and ICT access and use in Kenya;
2. Identify the type of ICTs being used in the informal sector in Kenya;
3. Identify which sub-sectors are using ICTs and establish their impact in the informal sector in Kenya;
4. Determine the challenges with respect to ICTs use in the informal sector in Kenya.
5. Establish the government's involvement in developing the necessary Infrastructure, for ICT use in the informal sector in Kenya.
6. To offer strategies, suggestions, and recommendations towards access and use of ICT in the informal sector in Kenya;

A total of 390 MSE participants, comprising of owner managers and selected employees in the informal sector, were sampled, questionnaires containing structured and unstructured questions were administered on the sample of respondents for the study. The research participants were from Nairobi and Central provinces. Data was obtained from different clusters of MSEs consisting of retail clothing, footwear, electronics, curios and crafts and hardware shops in Nairobi and Central Provinces. In Nairobi Province, data was collected from clusters of MSEs

along three main streets of the central business district, namely Tom Mboya (44) Kirinyaga and River road (59) and two markets on the outskirts of the city, namely, Gikomba market (70) and Kenyatta market (32).

In Central Province, data was collected in two urban centers, namely Kiambu (75) and Thika (72) towns and two market centers, Kabati and Makutano (38). The two streets and the two markets in Nairobi were selected because they are dominated by MSEs and offer a wide variety of microenterprises, while the two rural urban centers and two market centers in Central Province represented rural-based MSEs.

The survey research method was used to conduct the study. Questionnaires containing structured and unstructured questions were used to collect data, the questionnaires were administered to the owners, managers, or employees of the MSEs. This was supplemented with a literature review and observation. The questionnaires were used to gather information on the respondents' demographic data, the types and sizes of the enterprises they were operating, how long the enterprises had been in operation, whether they were using any ICTs, the types of ICTs that they were using (if any), if they had any ICT skills and if they thought ICTs were useful to their businesses. The questionnaire also included questions on the challenges encountered by the respondents on the use of ICTs for their businesses. The questionnaires also sought to reveal MSEs' information needs and their sources of information. There was a separate section on the use of the mobile phone and mobile payments.

The response rate was 97% (377 questionnaires) of the sampled MSEs; 1% (4) of the questionnaires were incomplete and were therefore discarded, and 2% (9) were not returned.

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) and presented in Chapters six and seven. Data was also analyzed using frequencies and percentages and was presented using descriptive statistics in tables.

## **8.2 Characteristics of the respondents**

The respondents were mainly young secondary school leavers and some tertiary level education graduates who had not been able to secure jobs in the formal sector. Relative ease of entry into the informal sector has made it a fall back for those leaving school and training institutions as well as those exiting from the formal sector due to lay-offs and restructuring. Almost half of the MSE participants (over 48%) were in the age range of 25 to 35 years. They represent the lifeblood of a nation, young adults (men and women) in the most productive age group who need to support themselves having failed to secure jobs in the formal sector.

Twenty seven percent (27%) of the respondents were below 25 years, which means that since this age category were still fresh from school and still dependent on their parents they had not entered informal the sector in big numbers as the 25-35 category and perhaps were still pursuing some additional courses which they hoped would land them formal sector jobs. Those above 45 years were only 1%, which might mean that some in this category may have graduated to bigger enterprises, while others might have given up on informal sector activities.

Contrary to other MSE studies that showed women to be the active majority in the MSE sector, there was no significant female dominance in the current study (51.8% female and 48.8% male respondents). This might be explained by the rising unemployment in Kenya, which affects both men and women and which therefore results in relatively more men seeking work in the informal sector. On the same note of rising unemployment, the level of education for the participants was found to be higher than it had been in the past, with almost half of the respondents (over 48%) having attained secondary school education; 28% were diploma or degree holders and only 7% were primary school leavers. This indicates a rising level of

education in the informal sector in Kenya, from a majority of primary school leavers to a majority of secondary school leavers and even diploma and degree holders.

### **8.3 Summary of the findings according to the research objectives.**

This section summarizes the findings of the research according to the objectives and corresponding research questions that guided the research investigation.

#### **8.3.1 Objective one**

##### **To determine the status of the informal sector and ICT access in Kenya.**

The corresponding research question was:

##### **What is the status of the informal sector in Kenya? What is the level of access and use of ICTs in the informal sector in Kenya?**

Kenya's two National Baseline Surveys (1993 and 1999) reveal that MSEs in Kenya grew from 900,000 enterprises that employed 2.4 million workers in 1993 (Parker and Torres, 1994 ), to 1.3 million enterprises that employed 2.4 million workers in 1999. A more recent study in 2007 found that micro and small enterprises had increased to 1.9 million enterprises employing 4.4 million workers (Pollin et al. in Kuuya 2010:2). The 1993 Baseline Survey further found that 98.6% of all micro, small and medium enterprises fell within the micro-enterprises category, defined as those businesses employing 1 to 10 workers (Parker and Torres, 1994). This means that almost all the business enterprises in the informal sector in Kenya are micro enterprises.

The current study found that the majority of the MSEs were small, with over 70% employing between one and five employees. Only 5.6% of the surveyed MSEs had between six and ten employees, while less than one percent had more than ten employees. Almost all of the MSEs (over 99%) fell within the study's quantitative definition of MSEs based on the number of employees (one to nine). However, because of the differences between the microenterprises, the study considered other qualitative aspects of differentiation based on the type of premises and related infrastructural facilities and the number of years of operation.

The MSEs in the study were divided into three categories based on a qualitative assessment of the types of premises that informal sector businesses occupy and the infrastructural facilities at their places of work. The first category of microenterprises is fairly permanent and stable. In addition to legitimate and permanent premises, these MSEs enjoy infrastructural facilities such as water, electricity, fixed-line telephones, and/or computers and internet. MSEs in this category pay relatively higher rents and are started with higher capital investment. They enjoy some permanency and many of them have been in existence for more than ten years. Examples of these MSEs include horticultural exporters, electronic shops, auto-spare shops, and some grocery shops.

The second category of micro enterprises occupies permanent premises, but share very small spaces with other micro-sized businesses. Despite being housed in permanent premises where they are sheltered from the vagaries of the weather and access to infrastructural facilities such as electricity and water, these traders' businesses and operations are very small. However, they are very common and the most visible type of enterprise along the streets of Nairobi on Moi Avenue, Tom Mboya Street, Taveta Road, River Road and Luthuli Avenue, as well as in other towns in the country. These MSEs are mainly in the retail business, the sale of clothes and footwear, mobile phones and accessories, and repair work.

The third category according to this study, are characterized by microenterprises that operate from temporary sheds/ stalls or in the open because they lack proper premises for their business activities. Due to lack of capital these enterprises sometimes operate in areas which are not designated as permanent trading areas, and can be moved out at any time since the space may be required for the originally intended use.

Over 55% of the surveyed MSEs were managed by owners or part owners with no employees, while the rest (45%) were run by employees.

The study found that the MSEs were mostly started and operated with very little capital. This does not allow such enterprises much room for growth and encourages them to do little more than survive. Despite the business potential attributed to ICTs, most of the ICTs especially the computer-based ones were not accessible to the surveyed MSEs due to their inability to afford. The MSE traders also lacked the necessary skills to exploit the potential of ICTs such as the computer and the internet/email. The majority of the MSE respondents also lacked awareness of ICTs and their economic potential to the extent that they thought that the internet and other computer-based facilities were not relevant to them or their businesses.

The surveyed MSEs had limited access to formal information sources and therefore hardly made use of them, relying mainly on their personal/tacit knowledge, fellow traders, acquaintances, friends and relatives, mobile phone contacts, and customer reactions. These are mainly oral-based informal sources with little information stemming from formal sources such as mass media, the internet, government agencies, or printed sources like books and magazines.

The level of ICT use in the informal sector in Kenya was found to be different for the different categories of MSEs, with the overall use of computers and other related equipment like scanners, printers, the internet and email standing quite low at 23% for the surveyed MSEs. These ICTs were mainly used by the first category of permanent and stable MSEs described in section 8.2.2.1 above, which occupy permanent premises.

The results of the field survey show that most of the surveyed MSEs did not use ICTs like computers, the internet and email. In stark contrast, the use of the mobile phone and the related use of mobile money transfer services was very high, at almost one hundred percent (90%) among the informal sector workers. The mobile money transfer services were used for business transactions, and for saving money.

The majority of the surveyed MSE traders, with the exception of those who fell in the first category (relatively stable and permanent MSEs), carried on as if the ICT developments had nothing to do with their lives and/or their businesses. 26% (96) of the respondents owned a computer, 15.1% (57) owned or used a landline, 4.8% (18) owned a printer, 4.2% (16) owned a scanner, and 2.7% (10) owned a fax machine. 16% (59 respondents) reported using the computer for typing, while 23% used it for email. Less than one percent reported using the computer for printing and record keeping purposes.

### **8.3.2 Objective two**

#### **To identify the type of ICTs being used in the informal sector in Kenya**

The corresponding research question was:

#### **What types of ICTs are being used in the informal sector in Kenya?**

The mobile phone was the most highly used ICT among the surveyed MSEs. Ownership and use was reported to be over ninety percent. Its successful diffusion is primarily due to its affordability, flexibility, and ease of use. The fact that it is oral-based also makes it compatible with the oral and informal nature of African traditions, not just for business transactions, but also for social communication (to keep in touch with friends and relatives).

The rapid adoption and use of the mobile phone and the money transfer services in Kenya since 2001 and 2007 respectively has exceeded all expectations, with a mobile phone subscription of over 25.3 million as of June 2011 (from more than 22 million reported in September 2010), and with a mobile phone penetration of 64.2% per 100 inhabitants. The mobile phone is also heavily used for money transfer services, with 17.3 million registered mobile money transfer subscriptions in the country for the same period (Communication Commission of Kenya 2010/2011).

Computer technologies, on the other hand, are only used by a few enterprises because the earnings, business space and infrastructure do not support these ICTs



in the case of most MSEs. The participants also lacked the skills to exploit the benefits of computers and were also not aware of the potential of computers to improve their businesses.

### **8.3.3 Objective three**

**To identify which sub-sectors are using ICTs in the informal sector and their impact**

The corresponding research question was:

**Which subsectors are using ICTs in the informal sector in Kenya and what is the impact?**

The various subsectors in the surveyed MSEs used different types of ICTs according to their size and their ability to afford the various types of ICTs. Over ninety percent of the surveyed MSEs used the mobile phone to run their businesses. The stable and more permanent MSEs, especially those involved in the export of horticultural products and automobile spare parts and electronic shops, also used computers, fixed line telephones, as well as email and the internet. According to the responses of these MSEs, the traders were able to access more information from the internet for their businesses and reported that computers were good for keeping business records as well as for stock control. Some respondents also viewed the internet as a good avenue for the advertising and marketing of their goods.

From the responses, the mobile phone was put to different uses by the MSE participants and it was clear that it had made a difference in the running of their businesses. For example, the respondents reported that they were able to get their supplies and raw materials faster and more conveniently. The owners or managers were also able to contact their customers and suppliers wherever they were and their employees where ever they happened to be on errands. Some entrepreneurs reported that they were able to deal with business matters even when they were away from their business premises.

The mobile phone has become a very handy tool for running businesses where one or two people have to perform most of the tasks required to run the microenterprise. A large number of the MSEs (over seventy percent) were found to have less than five employees, with 35% of the MSEs running with just one employee. Many in this group reported being able to spend more time at work as they were able to accomplish many things without having to leave their business premises, which would sometimes mean closing for some time until their return, for those who run their businesses single-handedly.

The mobile phone made it possible to make payments, order goods and only leave to collect the goods when they were informed that they are ready for collection. This has introduced a great deal of convenience and savings in money, time and labor through reduced journeys. Mobile money services have also made it possible to make payments for goods and services without having to leave the work premises.

In addition to communication and money transfer services, the mobile phone has been put to other uses and is used for telling time, as a radio, as a camera, and to access the internet and email. There are increased business and employment opportunities created through mobile money transfer outlets, the selling of handsets and accessories, as well as technical jobs dealing with telecommunications infrastructure, connections and repair work.

Overall, mobile phones are useful in the running of MSEs because they facilitate faster and more convenient communication, mobile money transactions, and save time and money. The use of the mobile phones has also made it possible to reach out to more customers, increase the volume of business, and consequently improve income. The mobile phone makes it easier to pass information to people who are near or far away. It is also interactive and not unidirectional like print information or the radio where feedback can only be expected later.

The MSE participants reported being highly impressed with the genuineness of the mobile phone technology, i.e. its ability to handle money transactions instantly and without the fear that it will be lost in the process, its speed and convenience in simplifying work in the course of doing business.

#### **8.3.4 Objective four**

**To determine the challenges with respect to ICT access and use in the informal sector in Kenya.**

The corresponding research question was:

**What are the challenges with respect to ICT access and use in the informal sector in Kenya?**

Informal sector enterprises are generally not able to afford relatively expensive ICTs such as computers and internet connectivity. Entrepreneurs lack the capacity to use ICTs due to a general lack of education, skills and awareness. The majority of the MSEs are started primarily for survival purposes as a result of the participants' failure to get formal sector jobs. Lack of proper preparation and enough capital further affects the survival and growth of these enterprises. Moreover, the size of their operations is too small and the vast majority of them do not have the necessary space or permanent infrastructure to support ICTs like computers.

The increasing level of unemployment as the school leavers in Kenya continue to join the workforce, coupled with a formal sector that has not been able to absorb labour since the 1970s, has resulted in stiff competition among the MSEs. This has led to the duplication of goods and services, resulting in even lower earnings that do not allow the MSE owners to acquire expensive technologies like computers.

Other challenges are the high cost of access to telecommunications, lack of a government policy overseeing ICTs, underutilization of existing technologies, poor communications infrastructure (e.g. internet connectivity), ignorance of ICT

benefits, limited access to appropriate technology and key technological infrastructure (such as electricity), and resistance to change.

#### **8.3.5 Objective five**

**Establish the role of the government in developing the required infrastructure for the use of ICTs in the informal sector in Kenya.**

The corresponding research questions was:

**What is the government's role in developing the required infrastructure for the use ICTs in the informal sector in Kenya?**

E-readiness is an assessment of how ready a country is to participate in the networked world. The government plays an important role by creating an environment that can support the effective use of ICTs. Governments are also involved in creating stable environments for the creation and development of businesses, promoting innovations, and nurturing business culture (Chiwere and Dick, 2008, p. 149).

The Kenya government recognizes that ICTs are the foundation of modern economic development and has initiated major steps to promote their use. One of the government's main initiatives has been to improve ICT infrastructure in order to bridge the digital divide and lower the cost of communications. The government is also leveling the ground through the development and implementation of policy and regulations aimed at attracting investment within the sector (GOK 2008b, p. 25). For example, the liberalization of the telecommunications sector is one of the main reasons behind the success of mobile phone adoption in Kenya. The government has also made efforts to reduce the cost of internet access by investing in terrestrial and undersea fiber optic cables, and rolling out broadband wireless connectivity in rural areas through various wireless technologies (GOK, 2008, p. 25).

While the significant progress and efforts made in the expansion and modernization of the country's information sector and in the attempts by the government to

provide affordable internet services to all Kenyans through the fiber optic cable and the zero-rating of computers are commendable, it appears that they are yet to be felt by the MSEs. Less than a third (23%) of the respondents thought that the government should be involved in improving access to ICTs, while the rest showed indifference to the questions relating to the government's involvement in improving access to ICTs.

The respondents were, however, interested in discussing how the telephone companies could help them access better mobile telephone services. This is understandable given that most of them were already using mobile phones and not really using other ICTs. The MSE traders therefore found it easier to relate to the mobile phone than to other ICTs that they were not familiar with and that they were not able to afford. They also didn't have the awareness and the necessary skills to use them.

The substantial demand for basic services still remain unmet for the majority of the population. There is also disparity in the distribution of communication facilities between rural and urban areas and between high income and low income groups.

#### **8.3.6 Objective six**

##### **Offer strategies, suggestions and recommendations that can be made towards access and use of ICTs in the informal sector in Kenya?**

The corresponding research question was:

##### **What strategies, suggestions and recommendations can be made towards access and use of ICTs in the informal sector in Kenya?**

A great deal remains to be done in awareness raising, capacity building and increased income distribution, which would result in per capita incomes that can give the MSEs operators the ability and confidence to invest in and use ICTs for their benefits. The expectations that were expressed by the MSEs operators as a priority for the government, especially by those who were based in temporary jua

kali sheds, were the acquisition of stable and affordable premises, availability of capital and credit, and access to better markets for their goods.

The government needs to develop better coordinated efforts in its intentions to help informal sector traders improve their businesses, especially with respect to ICT access and use.

The remaining parts of the objective are dealt with in the conclusion and recommendations that follow.

#### **8.4 Conclusion**

Results from the study have shown that informal sector enterprises play a big part in the lives of many Kenyans by providing a source of livelihood and affordable goods and services and making a considerable contribution towards the Gross National Product (GNP). However, most informal sector enterprises are small and are mainly started for survival purposes, with little room for growth or expansion.

The MSEs operate in difficult circumstances; they lack adequate capital, enough preparation, adequate and relevant information for informed decision making, adequate institutional support, and essential infrastructure. They are started small and remain small due to these and other constraints and are unable to afford and access relatively expensive technology, especially computer technologies which have been widely predicted to have high potential for business growth.

They also lack awareness about ICTs and their benefits and potential for business. However, MSEs have been able to access and experience the benefits of mobile phone technology. The rapid adoption of the mobile phone is as a result of immediate benefits, such as saving time and money, and the welcome and relatively cheap and quick way that it allows people communicate and perform business transactions. The mobile phone has come to be heavily relied on in the business

operations of MSEs. This is not only due to its relative affordability, but also its ease of use and the fact that the technology does not require a high level of education and skills. Its oral orientation has also made its awareness, adoption and benefits spread quickly and widely. Seen in light of Roger's Diffusion of Innovations theory, the perceived advantage of the technology has led to its faster adoption and diffusion.

Mobile phone technology alone, however, has its limits. It cannot replace investment in infrastructural facilities such as power, roads and water, without which it would also be ineffective. Aker and Mbiti (2010, p. 24) provide the appropriate example of a trader who might be able to obtain better price information from the market for goods through the mobile phone, but fail to transport them to the market because of bad roads, or a trader who may receive many orders for his goods, but fail to satisfy his/her customers due to the lack of electricity and water. The government therefore needs to develop the necessary infrastructure, like electricity, roads and water, as a matter of priority. Internet connections should also be affordable and a general public awareness campaign and training should be put in place if its efforts are to bear fruit.

The study also notes that access to timely, reliable and relevant information on market opportunities, production, technology and government regulations, is inadequately provided by informal sources of information, which are currently the main information sources of MSEs. Without formal sources of information, adequate and crucial information on sources of credit and finance options for business growth and expansion will continue to elude the MSE entrepreneurs.

The informal sector enterprises have therefore failed to grow and continue to remain small, even as others are added to the market. It has been difficult for them to survive in the fast-changing, global and highly competitive market environment. In order for the MSEs to grow, they need intervention from the government, which

also stands to benefit not only through increased taxes if productivity is increased, but also better employment opportunities and improved purchasing power for its citizens, leading to a more robust economy.

The survey data and the literature review, combined with the interpretation of theoretical perspectives in the study, show that the superiority of a particular technology, like the computer and the internet, does not automatically bring about the successful diffusion of that technology, neither does technology diffusion take place in a vacuum. It is the societal conditions, such as the socioeconomic and political factors that exist in the society to which a particular technology or innovation is introduced, that influence its adoption and diffusion.

The government's efforts to make ICTs (e.g. the internet) accessible to its citizens without addressing other aspects like infrastructure and the ability to afford these tools, might explain why these efforts have not made much of impact on the informal sector. Attempts to advance ICT use need to be accompanied by coordinated changes in other aspects that make it possible to adopt ICTs.

In light of the Actor Network Theory, which belongs to the school of social constructivism, all actors need to work together in a network (coordinated efforts) to render them effective. All actors need to be considered and coordinated in order to make widespread ICT adoption a reality.

The next section suggests and recommends measures that should be taken into account in improving the diffusion of ICTs in the informal sector.

## **8.5 Recommendations**

On their own, the superior nature of ICTs and their potential benefits are not enough to bring about the rapid diffusion of technology, as this study on MSEs in Kenya has shown. There is the issue of affordability, which can be brought about by



improving the distribution of economic resources. The government also needs to be more meaningfully involved in providing infrastructure that can be used by all the people in the country, including informal sector workers. The adoption and use of ICTs by the MSEs in Kenya can only take place when other aspects in the business and within the business environment are addressed in a coordinated way. The study therefore recommends the following;

- Improved business premises and infrastructure
- Enabling policies
- Improved distribution of economic resources
- Improved skills and training to enable the use of ICTs and facilitate awareness
- Provision and dissemination of information
- Change of mental attitudes that will give users the confidence and ability to appreciate the benefits of ICTs

#### **8.5.1 Business premises and infrastructure**

Proper business premises like an industrial park or market stalls and infrastructural facilities like electricity, water and roads, are basic necessities that should be availed or facilitated by the government for business activities to run smoothly. Currently these facilities cannot be taken for granted by the MSEs in Kenya because they are not adequately provided. Even as the government makes efforts to provide internet connectivity to its citizens, it needs to prioritize the order of things because ICTs require electricity to run. The MSEs workers were clear in that they first required affordable and permanent premises from which to run their businesses. Such premises could be industrial parks and/or market stalls where rents can be affordable by the MSE workers.

Such premises would have the basics, like electricity and water, as well as affordable internet connectivity, and can be facilitated by the government in the various urban and market centres where MSEs are found. The study therefore recommends that the government facilitates such basic necessities and affordable premises where MSE workers can apply for allocations and run their businesses in a more stable business environment. The next step towards ICT adoption would then be easier, especially following the provision of internet and computer facilities and information tailored to the various clusters of MSEs.

### **8.5.2 Enabling policies**

A comprehensive policy framework to guide activities that can bring about the successful diffusion of ICTs should not only be in place, but also fully implemented. The National ICT Policy published in 2006 has noble goals as it seeks to facilitate sustained economic growth and poverty reduction; promote social justice and equity; mainstream gender in national development; empower the youth and disadvantaged groups; stimulate investment and innovation in ICT; and achieve universal access. It is based on four guiding principles, namely infrastructure development, human resource development, stakeholder participation, and an appropriate policy and regulatory framework (GOK 2006, p. 2). These are very noble and fitting goals, especially in relation to the improvement of ICTs in the informal sector, but they need to be properly and fully implemented within proper timelines if they are to be realized.

As Ongori and Migiro (2010, p. 97), Kapurubandara (2009, p. 20), Chiware and Dick (2008), and Mutula and van Brakel (2006, P. 410) concur small businesses on their own may not be able to minimize the barriers or challenges that face them in the process of ICT adoption. They need the government to develop the necessary infrastructure and formulate policies that promote ICT adoption. They can also offer subsidies and encourage ICT providers to offer special discounts to small businesses at reduced costs. The government can also invest in research and

development, facilitate technological transfers, provide advice and support, and provide more tax incentives.

### **8.5.3 Better distribution of resources**

In order for the MSEs to grow and be sustainable, the government needs to institute a mechanism for the improved distribution of national economic resources that would enable MSE entrepreneurs to invest more capital in their businesses. This would improve opportunities for the growth of the enterprises to the degree that the traders could afford and have the confidence to acquire and use various types of ICTs. According to Duncombe and Molla (2009), organisations have to reach a transition point at which they undergo some formalisation processes and organisation. This may be accompanied by a move from manual paper-based processes to ICT-based operations and the processing of information. This means that the process of adopting ICTs should not be considered in isolation, but as part of a wider process of growth of enterprises and institutions.

The government's recognition of the power of ICTs to improve MSEs is a step in the right direction, but this should be accompanied by deliberate and planned changes in political and socio economic conditions as well as the improved distribution of resources through the right policies.

The study takes note of the new Kenyan Constitution that came into effect recently August 2010, which promises to decentralise government activities, including the devolution of a proportion of national financial allocation, to the forty seven counties in the country. If properly followed and implemented, this could lead to positive socio economic changes where infrastructural facilities, such as electricity, roads and communication infrastructure, are installed and maintained across the country. Such decentralized and integrated change, coupled with training and skills acquisition, could bring about the sustainable diffusion and use of technology, including ICTs.

#### **8.5.4 Skills and training needs**

There is a need to improve skills and know-how as this makes it possible to raise awareness about ICTs and how to use them. Awareness and the training of MSE workers can be done through their associations and the various clusters. More inclusive and effective ICT training, however, needs to be introduced in the education system, both at the primary and secondary school levels. The study therefore recommends the national introduction of ICT learning in schools so that awareness and skills on ICTs can be fostered as early as possible by all. This will not only ensure awareness about the benefits of ICTs, but also impart the knowledge about ICTs and the skills to use them, which the beneficiaries can apply in the various areas of their work and life.

#### **8.5.5 Information provision and dissemination**

The need for relevant and timely business information cannot be overstated. The study found that the MSE respondents mainly relied on informal sources of information and customer reaction in their decision making processes, which are inadequate as sources of business information. The study recommends that the government introduces structures that would provide the MSEs with the right kind of information required for business decision making. The information can be channelled through the MSEs' and SMEs' various associations, such as the curios and crafts' or the metal workers' associations. The dissemination of information can be coordinated through the national umbrella MSEs' and SMEs' association. It is also possible to channel information to clusters of MSEs and train the participants to access this information within the clusters or government-constructed market stalls which would bring the workers together and help in information sharing.

#### **8.5.6. Changes in attitudes and mental orientation**

Lal and Pecdily (2006, p. 32) argue that MSEs require more than infrastructural and financial facilitation to adopt and use ICTs, that they in fact require an overhaul of the small business mindset and more investment in capacity building.

This is true to an extent, but it can also come about with the consistent and gradual growth of the MSEs, whereupon the changing reality would lead them to a gradual general change in their approach and outlook to business. This would change their way of doing things in response to the way they view their needs in a general changing environment.

#### **8.6 Recommendations for further research**

This study investigated the diffusion of ICTs in the informal sector in Kenya. More research is necessary to gain a deeper understanding of the context and information needs of small business enterprises in order to be able to offer a strategic framework for appropriate intervention in providing the information that would be used to improve the informal sector's productivity and inspire growth.

While this study on the diffusion of ICTs has discussed the diffusion of the mobile phone, it is suggested that further research is necessary in the area of mobile telephony, given the rapid adoption of a technology that has been in use for only the last ten years, during which its adoption and use has been quite fast and innovative, especially among the low income population. Further research is recommended in order to explore the exploitation of its potential and maximisation of its benefits, especially given its relative affordability and ease of use. These and other characteristics have made it a massively unbiased and popular technology of mass adoption. Further use and possibilities of mobile money payments also need to be explored going by the success of the service that has been experienced in Kenya for the relatively short period of time since its first introduction.

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## APPENDICES

### Appendix A1

**Table 14: Summary table on research design**

	Objectives	Research Questions and Chapters	Target Population	Research Method	Research Instruments	Chapter Location
The aim of the study is to investigate the diffusion of ICTs in the informal sector in Kenya by establishing the current access, use and impact, as well as its potential.	<ul style="list-style-type: none"> <li>To determine the current status of the informal sector and ICT access in Kenya;</li> </ul>	<ul style="list-style-type: none"> <li>What is the current status of IS and ICT access in Kenya? (chapter 1,2,4 and 6)</li> </ul>	<ul style="list-style-type: none"> <li>Informal sector enterprises in Kenya</li> </ul>	Content analysis, Survey.	Questionnaire	Chapter 1,2,4 and 6
	<ul style="list-style-type: none"> <li>To establish current level of use of ICTs in the informal sector in Kenya;</li> </ul>	<ul style="list-style-type: none"> <li>What is the current level of ICT's in the informal sector in Kenya? (chapter 1,2,4 and 6)</li> </ul>	<ul style="list-style-type: none"> <li>Informal sector enterprises in Kenya</li> </ul>	Survey	Questionnaire	Chapter 1, 2, 4 and 6
	<ul style="list-style-type: none"> <li>To establish the type of ICTs being used in the informal sector in Kenya</li> </ul>	<ul style="list-style-type: none"> <li>What type</li> </ul>		Survey	Questionnaire	Chapter 4 and 6

	<ul style="list-style-type: none"> <li>• To establish which sub-sectors are using ICTs and their impact;</li> </ul>	<p>of ICTs are being used in the informal sector in Kenya? (chapter 4 and 6)</p>	<ul style="list-style-type: none"> <li>• Informal sector enterprises in Kenya</li> </ul>	Survey	Questionnaire	Chapter 6
	<ul style="list-style-type: none"> <li>• To establish the problems that hinder awareness and use of ICTs in the informal sector in Kenya, with a view to making appropriate suggestions, strategies and recommendations on the potential of ICTs use in the informal sector in Kenya;</li> </ul>	<ul style="list-style-type: none"> <li>• Which sub-sectors are using ICTs in the informal sector in Kenya and what is the impact? (chapter 6)</li> </ul>	<ul style="list-style-type: none"> <li>• Informal sector enterprises in Kenya</li> </ul>	Survey		Chapter 1, 2, 3, 4 and 6
	<ul style="list-style-type: none"> <li>• To establish the government involvement in creating the required</li> </ul>	<ul style="list-style-type: none"> <li>• What are the problems that hinder the awareness and use of ICTs in the informal sector in Kenya? (chapter 1, 2,3,4 and 6)</li> </ul>	<ul style="list-style-type: none"> <li>• Informal sector entrepreneurs in Kenya.</li> </ul>	Survey	Questionnaire	Chapter 1,2,3,4 and 6

	<p>infrastructure for the use of ICTs in the informal sector in Kenya and to suggest a model for ICT access, use and impact assessment in the informal sector in Kenya.</p>	<ul style="list-style-type: none"> <li>• What is the government involvement in creating the required infrastructure for use of ICTs in the informal sector in Kenya? (chapter 1, 2, 3, 4 and 6)</li> <li>• What model can be used for ICT access, use and impact assessment in the IS in Kenya? (chapter 7 and 8)</li> </ul>	<ul style="list-style-type: none"> <li>• Informal sector enterprises entrepreneurs in Kenya.</li> <li>• Informal sector entrepreneurs in Kenya.</li> <li>• Researcher to draw this from the research results.</li> </ul>	<p>Survey</p> <p>Survey</p> <p>Data interpretation and analysis</p>	<p>Questionnaire</p>	<p>Chapter 7 and 8</p> <p>Chapter 8</p>
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		<ul style="list-style-type: none"> <li>• What strategies, suggestions and recommendations can be made towards use of ICTs in the informal sector in Kenya? (chapter 8)</li> </ul>	<ul style="list-style-type: none"> <li>• Researcher to generate these from the information gathered from research results.</li> </ul>			
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## Appendices A2-A4

**Table 15: Chi-square Test on the use of ICT and education level**

Crosstab							
			q5 education level				Total
			1.00 primary level	2.00 secondary level	3.00 post secondary level	4.00 diploma/degree/masters	
q15a does your enterprise use ICT	1.00 yes	Count	24	181	59	103	367
		% within q15a does your enterprise use ICT	6.5%	49.3%	16.1%	28.1%	100.0%
		% within q5 education level	96.0%	100.0%	98.3%	100.0%	99.5%
	2.00 no	Count	1	0	1	0	2
		% within q15a does your enterprise use ICT	50.0%	.0%	50.0%	.0%	100.0%
		% within q5 education level	4.0%	.0%	1.7%	.0%	.5%
Total		Count	25	181	60	103	369
		% within q15a does your enterprise use ICT	6.8%	49.1%	16.3%	27.9%	100.0%
		% within q5 education level	100.0%	100.0%	100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	Df	Asymp. Sig. (2- sided)
Pearson Chi-Square	8.501 <sup>a</sup>	3	.037
Likelihood Ratio	6.291	3	.098
Linear-by-Linear Association	.930	1	.335
N of Valid Cases	369		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .14.



### Appendix A3

**Table 16: Chi-square Test, the type of business and use of ICTs**

12.00 video film/photography,photo printing	Count	4	0	4
	% within q15a does your enterprise use ICT	8.3%	.0%	6.0%
13.00 sell stationery	Count	1	0	1
	% within q15a does your enterprise use ICT	2.1%	.0%	1.5%
14.00 medical services	Count	1	0	1
	% within q15a does your enterprise use ICT	2.1%	.0%	1.5%
15.00 supply & training services	Count	1	0	1
	% within q15a does your enterprise use ICT	2.1%	.0%	1.5%
16.00 salon	Count	0	1	1
	% within q15a does your enterprise use ICT	.0%	5.3%	1.5%
17.00 electronics/phones	Count	7	0	7
	% within q15a does your enterprise use ICT	14.6%	.0%	10.4%
Total	Count	48	19	67
	% within q15a does your enterprise use ICT	100.0%	100.0%	100.0%

#### Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.302 <sup>a</sup>	16	.038
Likelihood Ratio	33.202	16	.007
Linear-by-Linear Association	10.707	1	.001
N of Valid Cases	67		

a. 30 cells (88.2%) have expected count leum expected count is .28.

## Appendix A4

Table 17 Chi-square test on the goals of the enterprise and use of ICTs

Crosstab

			q7 goals of enterprise						Total
			1.00 source of income/profit/survival/support family & self	2.00 better life/excel in life/build the nation	3.00 some said exactly the business they do	4.00 fulfill customers needs	5.00 to be self reliant/create employment	6.00 no answer	
q15a does your enterprise use ICT	1.0 Count	0 % within q15a does your enterprise use ICT	125	22	189	12	3	16	367
		% within q7 goals of enterprise	34.1%	6.0%	51.5%	3.3%	.8%	4.4%	100.0%
		% within q7 goals of enterprise	99.2%	95.7%	100.0%	92.3%	100.0%	100.0%	99.2%
	2.0 Count	0 % within q15a does your enterprise use ICT	1	1	0	1	0	0	3
		% within q7 goals of enterprise	33.3%	33.3%	.0%	33.3%	.0%	.0%	100.0%
		% within q7 goals of enterprise	.8%	4.3%	.0%	7.7%	.0%	.0%	.8%
Total		Count	126	23	189	13	3	16	370

% within q15a does your enterprise use ICT	34.1%	6.2%	51.1%	3.5%	.8%	4.3%	100.0%
% within q7 goals of enterprise	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

#### Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.933 <sup>a</sup>	5	.024
Likelihood Ratio	7.923	5	.161
Linear-by-Linear Association	.021	1	.885
N of Valid Cases	370		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .02.

## **APPENDICES B to C**

## **Appendix B**

### **Questionnaire**

#### **Section A: Personal information**

1. Name: \_\_\_\_\_ (Optional)
2. Age: (1) Below 25 years (2) 25-35 years (3) 36-45 years (3) Over 45
3. Sex: (1) Male (2) Female
4. Marital Status: (1) Single (2) Married (3) Other
5. Educational Level: (1) Primary Education Level (2) Secondary Education Level  
(3)  
Post Secondary Training (specify)\_\_\_\_\_ (4) Diploma/degree Holder.

#### **Section B: Information about the business enterprise**

6. What is the name of your business? \_\_\_\_\_
7. Are you the (1) Owner (2) Part Owner (3) Manager (4) Employee?
8. What are the goals of your business enterprise? \_\_\_\_\_  
\_\_\_\_\_
9. How many permanent employees does the business have? (1) One only (2) 2-5  
(3) 6-10 (4) Over 10, specify how many \_\_\_\_\_
10. Do you have employees that are not permanent? (1) Yes (2) No. If Yes how many?
11. Is the business service-oriented or goods-production enterprise? Service-oriented (1) goods-production enterprise (2)
12. How many years has it been in existence? Less than 2 years (1) 2-5 years  
(2) 5-10 years (3) Over 10 years (4)
13. Are there many other such business enterprises in the neighbourhood? Yes (1)  
No (2)
14. If yes how many? (1) 1-5 (2) 6-10 (3) Over 10.
15. What facilities do they share if any? \_\_\_\_\_

**Section C: Use of ICT (information and communication technologies like the phone, computer and internet) for the business**

16. Does your business use ICTs? (1) Yes (2) No. If Yes, what are the ICTs used for (1) To get information on raw materials/ordering goods (2) To get information on customers, markets for goods/services (3) To contact friends and relatives (4). Any other use, specify \_\_\_\_\_
17. How do you get information for your business? (1) Personal knowledge (2) Fellow Traders/producers (3) Mass media (radio, TV, newspapers) (4) Internet (5) Mobile phone contacts (4) Government officers (5) Acquaintances, friends and relatives, Other sources specify\_\_\_\_\_
18. How do you get information about customers for your work? Customers come on their own (1) Word of mouth (2) Advertising in the mass media (radio, TV, newspapers) (3) Through the internet and email contacts (4) Mobile phone contacts
19. What else needs to be done and who should make your access to information through ICTs better? (1) Government (2) Phone companies (3) Other, specify \_\_\_\_\_

**Section D :Acquisition and use of (ICTs)**

20. Does your business own a computer\mobile phone /or land line? Or other ICT Resource? Specify\_\_\_\_\_
21. How is/are the ICT resource(s) used in the enterprise? (1) Typing (2) Communication (3) Internet use. (4) Scanning (5) Fax services (6) Sending money
22. Do you think ICT resources are useful to the enterprise? Yes (1) No (2) Give Reasons \_\_\_\_\_
23. Are there any people with computer skills in your organisation? (1) Yes (2) No
24. If yes how many? (1) Only one (2) All employees

25. What kind of skills do they possess? (1) Typing skills (2) Skills for email and internet use (3) Technical skills

26. Are these skills used for the organisation? (1) Yes (2) No

27. If yes what are the skills used for? (1) Typing (2) Emails for keeping in touch with friends and relatives (3) Business communication.

28. What benefits does the use of ICTs bring to the business enterprise?

---

29. Do you know what the approximate capital outlay/investment was at the beginning of this business? (1) Kshs 10,000-20, 000 (2) 21,000-40,000 (3) 41,000-60,000 (4) 61,000-100,000 (5) Over 100,000, Specify (6) Do not know.

30. What is your approximate monthly turn-over? (1) Kshs 10,000-20,000 (2) 21,000-40,000 (3) 41,000-60,000 (4) 61,000-100,000 (5) Other specify (6) Do not know

### **Section E: Access, Use and impact of mobile phones**

31. How long have you had your mobile phone? (1) 1-2 years (2) 2-5 years (3) 5-10 years

32. What do you use your mobile phone for? (1) For my work (2) For ordering goods (3) For contacting customers (4) For improving my business (5) For social communication (6) Other, specify \_\_\_\_\_

33. How can you compare the time you did not have a mobile phone to now?

34. What other uses do you use your mobile phone for (1) For telling time (2) As a camera (3) For internet (4) For Mpesa (5) As a radio

35. Has the mobile phone helped you to improve your business? (1) Yes (2) No

36. What are the challenges/problems of using the mobile phone? (1) Expensive to buy (2) Airtime (3) Network congestion (4) Easy target for thieves and pickpockets

37. Do you make/receive more business/ more social calls on you mobile phone? (1) More Business-related calls (2) More social calls

38. How many of the calls that you have made for the past week are (1) Work related (2) For social communication.

39. What were the work-related calls used for? (1) To contact customers  
(2) To order goods/supplies (3) Other, Specify\_\_\_\_\_
40. Are you a registered Mpesa user? (1) Yes (2) No
41. How often do you use Mpesa (1) Everyday (2) Once a week (3) Other  
specify\_\_\_\_\_
42. What do you use Mpesa for? (1) To send\receive money to\from relatives (2) For  
Business transactions
-



## **Appendix C: Research application letter and Research Permit**



**UNIVERSITY OF NAIROBI**  
OFFICE OF THE DEPUTY VICE-CHANCELLOR  
(ADMINISTRATION AND FINANCE)

Telegrams : "Varsity" Nairobi  
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Nairobi, Kenya

CN/4938/II/131

January 7, 2010

The Secretary  
National Council for Science & Technology  
P.O. BOX 30623 - 00100  
NAIROBI.

Dear Sir,

MRS. MARGARET W. GIKENYE

I am writing to certify that Mrs. Gikenye is an employee of the University of Nairobi.

Mrs. Gikenye is pursuing Doctor of Philosophy Studies at the University of Zululand, South Africa on self sponsorship.

Any assistance given to her to obtain a research permit will be greatly appreciated.

Yours faithfully,

P.N. Thairoh  
For: Registrar, Administration

PNT/hak



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PAGE 2

THIS IS TO CERTIFY THAT:

Prof./Dr./Mr./Mrs./Miss.....WAKARI  
.....GIKENYE

of (Address) UNIVERSITY OF ZULULAND  
.....SOUTH AFRICA

has been permitted to conduct research in.....

.....Location,

.....District,

.....NAIROBI AND CENTRAL.....Province, S

on the topic THE DIFFUSION OF INFORMATION AND  
.....COMMUNICATION TECHNOLOGIES IN THE INFORMAL  
.....SECTOR IN KENYA.

for a period ending 31ST MARCH 2010

PAGE 3

Research Permit No.....NCST/INF/02/02/7

Date of issue.....22.01.2010

Fee received.....SHS 1000



.....  
Applicant's  
Signature

.....  
Secretary  
National Council for  
Science and Technology

