

An Overview of the Diffusion of Information and Communication Technologies (ICTs) in the Informal Sector in Kenya

Wakari Gikenye

University of Nairobi and University of Zululand

Dennis N. Ocholla

University of Zululand, South Africa

wagikenye@yahoo.com, Docholla@pan.uzulu.ac.za

Abstract

The informal sector plays a key role in the economic contribution of developing countries through job creation, the supply of affordable goods and services, and the reduction of poverty. However, the sector faces challenges that include limited access to markets and finance, and lack of familiarity and access to new and changing technology. The overall purpose of this paper is to report on the diffusion of ICTs in the informal sector in Kenya by showing the level of use and impact of ICTs and their potential in the sector. Questionnaires were used to collect primary research data. The questionnaires were used to collect data from a sample of 390 MSE workers consisting of owner/ managers and selected employees. Data was obtained from different clusters of MSEs, including retail clothing stalls and footwear, electronics, curios and crafts, and hardware shops in Nairobi and Central Provinces. The study revealed that the small size and poor business performance and premises of MSEs do not endear them to own and use computer-based ICTs. The exception was the mobile phone, which was used by almost all the MSEs due to its affordability, convenience, and ability to save and transfer money. The paper provides useful observations and recommendations for the development of the sector in Kenya.

Keywords: Informal sector, information and communication technologies, ICT diffusion, Kenya

1.1 INTRODUCTION

Information and communication technology (ICT) has been the main catalyst of large and modern businesses around the world, and it is poised to take a leading role in the informal sector as well. This paper reports on a recent study that investigated the diffusion of information and communication technologies (ICTs) in the informal sector in Kenya. While many research studies have been carried out in Kenya on the informal sector (e.g. Lundval et al., 2001; Bigsten and Duverall, 2004, Kimuyu, 1997 and Ongile and McCormick, 1996), there have been few studies that have focused on the diffusion and potential of ICTs in the informal sector in the country. Studies that focus on ICTs include Opiyo and K'Akumu's (2006) study on ICT application in one market centre in Nairobi where the focus was on the spatial design of buildings which would enable businesses to share ICT infrastructure. Migiro (2006) also carried out research on the diffusion of ICTs and e-commerce adoption, specifically in the manufacturing sector. The two research studies focused on specific and specialised areas of ICT and the informal sector in Kenya and the results are therefore not applicable to a wide range of informal sector enterprises that exist in the country.

1.1 Informal sector

The informal sector, otherwise referred to as Micro and Small Enterprises (MSEs) or Small and Medium Enterprises (SMEs) (Ikoja Odongo, 2002:10), is a prevailing reality in many parts of the world. MSEs or SMEs do not have a universal definition. Existing definitions are based on size, personnel, capital, nature and status of employment, activities and skill requirements, in accordance with organizational and operational regulations and locational terminologies (Mutula and van Brakel, 2006:402; Barasa and Kaabwe, 2001:332; Ikiara, 1991:310). 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, 2006:35; Opiyo and K' Akumu, 2006:243). The Kenyan government has defined the informal sector as "enterprises comprising between 1–50 employees and up to Kenya Shillings 5 million in turnover" (GOK, 1989:164).

There are more micro and small enterprises than there are medium-sized enterprises in the Kenyan industrial sector (GOK, 1992:4). Figures for the United Kingdom, as indicated by Ramsey et al. (2003:262), are 1 - 9 employees for micro enterprises, 10 - 99 employees for small enterprises, and 100 - 250 employees for medium-sized enterprises. The European Union has referred to SMEs as enterprises with less than 250 employees, which is also adapted for use in the United Kingdom (Ritchie and Bridley, 2005:206). We use one to nine employees in our definition of MSEs, because 1 - 5 employees would have limited the study to only very small (micro) enterprises and denied the inclusion of other small enterprises that are also part of the sector.

According to Bangasser (2000:8), 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. In the ILO's Director General's report (1991:3-4), 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.

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, 2010:78). 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 (GOK, 2010:69). Despite this contribution, enterprises in the informal sector continue to operate in a difficult and under serviced environment with limited capital and the use of simple technologies.

1.2 Information and communication technology (ICT)

Rao (2004:261) has defined ICTs as the set of artifacts that facilitate the capture, storage, processing, transmission, and display of information by electronic means. ICTs are held to offer remarkable opportunities for the alleviation of poverty

and the creation of employment and 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 more competitive prices, and lowering transaction costs (Rao, 2004:261; Shiel et al., 2003:312). 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 (2003:222) and Shiel et al. (2003:312) 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 ability to improve their negotiating power. Cohen and Kallirroi (2006:45) 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 strengthen their relationships and collaboration.

ICTs can contribute towards economic development by improving transport efficiency and facilitating the distribution of wealth/ economic empowerment. ICTs have become an important feature in the global transformation of social, economic and political life (Migiro, 2006:40; Donner, 2004:4; Hafkin, 2001:1). They have already reduced the cost of conducting business in many parts of the world. The internet is especially liberating because it enables businesses to access global markets (Opiyo and K'Okumu, 2006:243). 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, enabling faster and more efficient service delivery and transactions (Castells, 1999:3; Amoako, 2000; Hafkin, 2001:1). But as Shiel et al. (2003:312) have observed, although MSEs and SMEs form a substantial constituency of the global economy, there is limited knowledge available surrounding their adoption of ICTs.

The lack of familiarity with new and changing technology, and lack of awareness, skills and understanding of ICTs, are some of the challenges faced by informal sector enterprises (Mutula and van Brakel, 2006:404; Opiyo and K'Okumu, 2006:244). In Kenya for example, Opiyo and K'Okumu (2006) and Orwa (2007) have observed that informal sector businesses largely operate without ICTs like fax machines, email or the internet, and the same has been observed in Uganda (Ikoja-Odongo and Ocholla, 2004:54). These challenges are responsible for the lack of sustained growth in the sector in Kenya (Migiro, 2006:25; Opiyo and K'Okumu, 2006). ICTs offer the informal sector an opportunity to tap into international markets, but traders in the informal sector have to first embrace change and new ways of doing things if they are to benefit from the kind of opportunities that ICTs would introduce (Hafkin, 2001:1).

The question is therefore whether the micro and small enterprises in Kenya and other developing countries, which operate under very difficult conditions and which function more as survival outfits than profit-making organizations, will experience the ICT-led paradigm-shift in business that has been experienced in developed countries.

2. Purpose of the Study

The overall aim of the study was to investigate the diffusion of ICTs in the informal sector in Kenya. In this paper, we attempt to answer the following research

questions: i) What is the level of ICT use in the informal sector in Kenya? ii) What types of ICTs are being used in the informal sector in Kenya? iii) Which subsectors are using ICTs in the informal sector in Kenya? iv) What are the problems or challenges that block the awareness and use of ICTs in the informal sector in Kenya? v) What is the role of the government in encouraging the use of ICTs in the informal sector in Kenya? vi) What strategies, suggestions and recommendations can be made towards the use of ICTs in the informal sector in Kenya?

3. Methodology

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 observation. Structured and unstructured questions 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 for Nairobi Province 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. 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 consisting of owner/ managers and selected employees. For each enterprise in the sample, the questionnaire was administered to the owner/ manager or a representative employee. The sample was selected using a combination of non-probability cluster sampling and probability random sampling. The areas selected were dominated by clusters of MSEs that included retail shops dealing with garments and footwear, electronic and repair shops, automobile and hardware stalls, grocery shops, and horticultural exporters. Completed questionnaires were reviewed to determine their usability. 97% (377) of the questionnaires were answered and returned, 1% (4) of the questionnaires were incomplete, and 2% (9) of the questionnaires were not returned.

4. Results

The results are discussed in sections 4.1 to 4.7 below.

4.1. Demographic profile of the respondents

The respondents were asked to state their age, gender, and level of education. A total of 377 respondents were surveyed. Most respondents were between 25 and 35 years of age (47.7%; 180) followed by those below 25 (26.5%; 100 respondents) and those between 36 and 45 (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.

The gender distribution of the respondents was fairly even with 184 male (48.8%) and 193 female respondents (51.2%). This is consistent with findings in other MSE studies that show that there are more women in the informal sector than men. For example, Singh and Belwal's (2008:124) study in neighboring Ethiopia found that 65% of the informal sector enterprises were owned and run by women. In the same

country, Amha and Ageba's (2006:306) figures were even higher; 94% of the females were active owners of MSEs. In five of the nine countries studied by Liedholm and Mead (1999 in Ndemo and Maina, 2007:119), namely Botswana, Lesotho, Swaziland, Zimbabwe and South Africa, women outnumbered men as owners and operators of micro and small enterprises at 75%, 73%, 84%, 66% and 62% respectively. The difference between the number of men and women in the current study, however, is minimal at 3%. This suggests relatively more involvement of men in the informal sector in Kenya compared to other related studies.

With respect to education, only 7.8% (34) of the respondents were primary school leavers. 48% (182) had attained secondary education and 27.6% (104) were degree or diploma holders. 15.9% (60) of the respondents had acquired post-secondary school training in various disciplines or courses, such as 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.

4.2. Level of ownership and use of ICTs by MSE traders

This section is covered in sections 4.2.1 to 4.2.3 below.

4.2.1. Ownership and use of ICTs by MSE traders

The results revealed that the ownership and use of ICTs is generally limited. We found that the level of use of ICTs in the informal sector in Kenya differed according to the types of premises that were occupied by the 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 that were operating from permanent premises. This can be attributed to lack of proper working spaces and operation from temporary premises which also lacked infrastructural facilities to support ICTs. Their earnings did not enable the ownership and use of ICTs like the computer and related technologies like the internet and email. Furthermore, 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 computers and the internet seemed irrelevant to them. While over 98% (372) of the surveyed MSE traders reported owning and using ICTs, in most cases they were referring to the mobile phone. The adoption and use of the mobile phone was almost one hundred percent in the surveyed MSEs as summarized in Table 1.

Table 1: Types of ICTs 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

26% (96) of the respondents owned a computer, 15.1% (57) 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. 16% (59 respondents) reportedly used the computer for typing, while 23% used it for electronic mail (email). Less than one percent reported using the computer for printing and record-keeping purposes.

4.2.2. Computer Skills

A total of 39.8% (150 respondents) reported that they had employees in their businesses with computer skills while 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(Kenya invented money transfer services popular with ordinary people) business. Twelve point two percent(46) 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 (see Table 2).

Table 2: 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

4.2.3. Use of ICTs

The use of mobile money transfer services, especially the pioneering M-pesa, has been quickly and widely adopted by MSE traders. 94% (357) of the MSEs reported being registered mobile money transfer users, and Table 3 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 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 a bank. M-pesa also created business and employment opportunities through its agencies and outlets across the country.

Table 3: 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

4.3. Types of ICTs in use in the informal sector in Kenya

As shown in Table 1, the main ICT that was 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 (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 was 64.2% per 100 inhabitants, with the concentration primarily in urban areas. The mobile phone is also heavily relied on for money transfer services, with 17.3 million registered mobile money transfer subscriptions in the country (for the same period).

4.4. Use of ICTs in the informal sector in Kenya

As shown in Table 4, the majority of the surveyed informal sector enterprises used the mobile phone in the running of their businesses. Over 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 helped them 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 5. The survey took into account that the respondents reported more than one use of the mobile phone.

Table 5: 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 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. The MSEs that reportedly used computer-based technologies (for email, the internet, data storage) were the horticultural exporters, automobile spare shops and electronic shops.

4.4.1. Impact of ICTs on the MSEs in Kenya

As stated earlier, the mobile phone was used by the majority of the MSE participants in the survey. Given the MSE traders' 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 Table 1. 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. They indicated further that they were highly impressed with the mobile phone's convenience, ability to save time and money, and ability to handle money securely without them fearing that they might lose it. 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 they were few in number, the MSE respondents that 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. These 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, as reflected in Table 6.

Table 6: 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 that the mobile phone is the best thing that had happened to their businesses. The respondents also said that the mobile phone is good for emergencies, especially when money is needed urgently by relatives or dependants, and particularly 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 7. The survey took into account that the respondents reported several benefits resulting from the use of money transfer services.

Table 7: 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

4.5. Challenges facing ICT use in the informal sector in Kenya

The survey results revealed that the main obstacle to the use of ICTs in the MSE sector is the small size or scale of the businesses, which does not allow them to focus on much beyond survival. The majority of the respondents stated that with the exception of the mobile phone, they were unable to afford ICTs. MSE traders cannot afford 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. 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 4.3.1 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 from 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.

The lack of institutional capacity was also noted, where the MSEs could rely on the government to develop basic institutional facilities for telecommunications which individual traders could tap into. Moyi (2003:221) observed 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 indicates that there was a lack of institutional support for the MSEs.

Ignorance or unawareness of the benefits of using ICTs is another challenge that was noted among the majority of the respondents. This also applies to those MSEs who might afford to invest in ICTs, but who had not been exposed to them or lacked awareness. The experience of operating in survivalist conditions seems to leave no time for the MSE traders to familiarise themselves with ICTs like computers, and they simply behave as if they are completely out of reach. Such ignorance inhibited those who might afford to invest in ICTs. When asked if they were aware of 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 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 had to do with congestion experienced in mobile phone networks, 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 complained that the mobile phone had become a target for thieves - in cases of theft, the mobile phone was the first to go, especially if the victim wasn't carrying

other items of value. This loss is felt strongly by those who have come to rely on the mobile phone at work, as they might not be able to replace it fast enough. The challenges of using the mobile phone are summarized in Table 7. The survey took into account that the respondents reported more than one problem or challenge of using the mobile phone.

Table 7: 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

4.6. Perceptions of government involvement in improving access to ICTs

The majority of the respondents (76.4%; 288) 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 work 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. However, they did not seem to expect much from the government, arguing that the government was more of a hindrance than a help due to the harassment that was occasionally meted out to them by 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 the price controls on petrol) and thus lowering the cost of doing business, and subsidizing internet costs to make this service affordable to all.

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

5. Discussions, Conclusion and Recommendations

This study has shown that informal sector enterprises play a major role in the lives of many Kenyans by providing them with a source of income and affordable goods and services and making a considerable contribution towards the Gross National Product (GNP). However, most MSEs are mainly started for survival purposes with little room for growth or expansion. It was noted that the MSEs operate

under difficult circumstances, lacking adequate capital, enough preparation, adequate and relevant information for informed decision making, adequate institutional support, and essential infrastructure. They are unable to afford and access relatively expensive technology, especially computer technologies which have been widely predicted to lead to business growth, and also lack awareness about ICTs and their benefits and potential in business.

The MSEs have, however, 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 to 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 widely and quickly. 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 and cannot replace investment in infrastructural facilities such as power, roads and water, without which it would also be ineffective.

Aker and Mbiti (2010:24) provide an 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 with training should be instituted.

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 micro and small enterprises. 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 MSEs.

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 the efforts have not had much of an impact on the informal sector. The adoption and use of ICTs by the MSEs in Kenya can only take place when other aspects in the business environment are addressed in a coordinated way.

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 concerned in the adoption of ICTs therefore need to be considered and coordinated in order to make successful ICT adoption a reality for all. Based on the results of this study, the study recognizes that on their own, the superior nature of ICTs and their potential benefits are not enough to bring about the

rapid diffusion of technology. The survey data and the literature review combined with the interpretation of theoretical perspectives, 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, nor does technology diffusion take place in a vacuum. It is the societal conditions, i.e. the socio-economic and political conditions that exist in the society to which a particular technology or innovation is introduced, that influence its adoption and diffusion.

We recommend six areas of focus: improved business premises and infrastructure; provision of 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; and change of mental attitudes that will give users the confidence and ability to appreciate the benefits of ICTs.

References

- Aker, J. and Mbiti. (2010June). Mobile phones and economic development in Africa, *workingpaper*. Retrieved February 15th, 2011, Centre for Global Development: <http://www.cgdev.org>
- Amoako, K. (2000). About Africa action, Africa: ECA policy lecture 2. *Africa policy e-journal*. [Online] Retrieved on March 21 2007 http://www.africaaction.org/docoo_ea001ob.htm.
- Bangasser, P. (2000). The ILO and the informal sector: an institutional history. *Employment paper 2000/9*. Geneva; ILO Publication Bureau, International Labour Office.
- Barasa, F. and Kaabwe, E. (2001). Fallacies in policy and strategies of skills training for the informal sector: Evidence from the jua kali sector in Kenya. *Journal of education and work*, vol. 14 issue 3 p. 329-353.
- Bigsten, A. Kimuyu, P. and Lundvall, K. (2004). What to do with the informal sector. *The development policy review*, vol. 22 issue 6 p. 701-715.
- Bigsten, A. and Durevall, D. (2004). Kenya's development path and factor prices 1950-2000. Goteborg University.
- Castells, M. (1999). Information technology, globalization and social development. *Discussion paper 114*. Geneva: United Nations Research Institute for Social Development (UNRISD).
- Cohen, S. and Kallirroi, G. (2006). Commerce investments from and SMEperspective: costs, benefits and process. *The electronic journal of information systems*, vol. 9 (2), p.45-56.

- Communication Commission of Kenya (CCK) (2010/2011) [online] Retrieved on April 27 2010. http://www.cck.go.ke/news/2010/news_30_mar10.html.
- Donner, J. (2004). Micro-entrepreneurs and mobiles: An exploration of the use of mobile phones by small business owners in Rwanda. *Information technology and international development* vol. 2 issue 1 p. 1-21.
- GOK (1989). *Kenya National Development Plan 1989-1993*. Ministry of Economic Planning Nairobi: Government printer.
- GOK (1992). *Sessional Paper No. 2 of 1992 on small enterprise and jua kali development in Kenya*. Nairobi: Government printer.
- GOK (2010). *Economic survey*. Central bureau of statistics Nairobi: Government printer.
- Hafkin, N. and Taggart, N. (2001). *Gender, IT and developing countries: An analytic study*. Academy for educational development bureau for global programmes, field support and research. United State Agency for International Development.
- Ikiara, G.K.(1991). Policy changes and the informal sector: A review. In Coughlin, P. and Ikiara, G. 1991 (eds.). *Kenya's industrialization dilemma*. Nairobi: Heineman, Kenya. p. 309-318.
- Ikoja-Odongo, J. (2002). *A study of information needs and use in the informal sector of Uganda*. University of Zululand, South Africa (unpublished) Phd thesis.
- Ikoja-Odongo, J.R. and Ocholla, D. (2004). Information seeking behaviour of the informal sector entrepreneurs: The Uganda experience. *Libri* vol. 54 p54-66.
- ILO (1991). *The Dilemma of the informal sector, report of the Director General (part 1) International labour conference 78th session 1991*. Geneva: ILO.
- I.L.O. (1972). *Employment, incomes and equity: A Strategy for increasing productive employment in Kenya*. Geneva: I.L.O.
- Kimuyu, P. (1997). Enterprise attributes and corporate disputes in Kenya. Discussion paper No. DP 001/97 Nairobi: Institute of Policy Analysis and Research.
- King, K. (1996). *Jua kali Kenya: Change and development in an informal economy 1970-95*. Nairobi: East Africa educational publishers.
- Lundvall, K., Ochoro, W. Hjalmarsson, L. (2001). Productivity and technical

- efficiency. In Bigstein A. and Kimuyu, P. (eds) 2001. *Structure and performances of manufacturing in Kenya*. Basingtoke: Palgrave.
- Migiro, S. (2006). Diffusion of ICTs and E-commerce adoption in manufacturing SMEs in Kenya. *South African journal of library and information science* vol. 72 issue 1 pp.35-44.
- Migiro, S. and Wallis, M. (2006, March). Relating Kenyan manufacturing SMEs' finance needs to information on alternative sources of finance. *South African journal of information Management*, vol. 8 (issue. 1), pp.1-14.
- Migiro S. and Ochollah D. (2005). Information and communication technologies in small and medium scale tourism enterprises in Durban, South Africa. *Information development* 21, pp. 283-294
- Minishi-Majanja, M. and Kiplangat, J. (2005). The diffusion of innovations theory as a theoretical framework in library and information science research. *South Africa journal of library and information science*, vol. 71 (3), pp.211-224.
- Moyi, E. (2003). Networks, information and small enterprises: new technologies and the ambiguity of empowerment. *information technology for development* vol.10, pp. 221-232.
- Mutula, S. and Van Brakel, P. (2006). E-readiness of SMEs in the ICT sector in Botswana with respect to information access. *The electronic library* vol. 24 issue 3 pp.402-417.
- Ndemo, B. and Maina, F.W (2007). *Manangment decision*, vol45 (issue. 1), pp.118-130.
- Ongille, G. and McCormick D. (1996). Barriers to small enterprise growth: Evidence from Nairobi's garment industry, in D. McCormick and P. Pederson (eds.). *Small enterprise: Flexibility and networking in an African context*. Nairobi: Longhorn.
- Opiyo, R. and K' Akumu, O. (2006). ICT application in the informal sector: The case of the Kariokor market MSE cluster in Nairobi. *Urban Forum*, vol. 17 issue 3 pp.241-261.
- Ramsey, E., Ibbotson, P., Bell, J. and Gray, B. (2003). E-opportunities of service sector SMEs: An Irish Cross-Border study. *Journal of small business and enterprise development* vol. 10 issue 3 pp. 250-264.
- Rao S. (2004). Role of ICTs in India's rural community information systems. *Info*.

vol.6 issue 4 pp. 261-269.

Ritchie, B. and Bridley, C. (2005). ICT Adoption by SMEs: Implications for relationships and management. *New technology, work and employment* vol. 20 issue 3 pp.205-217.

Shiel, H. et al. (2003). Understanding the implications of ICT adoption: Insights from SMEs. *Logistics information management*, vol. 16 (5), pp.312-326.

Singh, G. and Belwal, R. (2008). Entrepreneurship and SMEs Ethiopia. *Gender in management: An international journal*, vol. 23 (2) pp.120-136.