

**AN EVALUATION OF  
E-COMMERCE APPLICATION BY MICROFINANCE  
INSTITUTIONS IN KENYA**

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UNIVERSITY OF NAIROBI  
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**A MANAGEMENT RESEARCH PROJECT REPORT SUBMITTED  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR  
THE DEGREE OF MASTERS OF BUSINESS  
ADMINISTRATION (MBA), SCHOOL OF BUSINESS,  
UNIVERSITY OF NAIROBI.**

**OCTOBER 2009**

**DECLARATION**

**This management Research Project is my original work and has not been presented for a degree in any other University.**

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## **ACKNOWLEDGEMENTS**

This research project is a culmination of years of sacrifice that was made possible by the dedicated support and encouragement of several people. I would like to underscore the understanding from my family members, particularly my wife Julia, for she had to endure the long hours of absence as I spent time away from the family researching for the project. I thank my children Hillary, Viola, Hellene and Beatrice for their contributions in giving me the space conducive for the study.

I also want to appreciate the ample time my employer gave me to carry out the study even when they mostly needed my services. Hats off, also go to my colleagues for their important topical discussions that have gone along way in building my project.

This project would probably have remained just a dream without the contribution of Mrs. Kate Litondo. Her advice and guidance throughout the entire MBA course is invaluable. My deepest appreciation goes to my supervisor, Dr. Nixon Muganda for the patience and understanding. Your encouragement, comments and guidance are priceless. I shall forever be indebted to you for the support.

Lastly, but not least, I thank God for the life I live, in good health and fullness. That is where all our strength is drawn from. God, thank you.

# TABLE OF CONTENTS

<b>CHAPTER ONE</b> .....	<b>6</b>
<b>1.1 Background</b> .....	<b>6</b>
<b>1.1.1 e-commerce</b> .....	<b>6</b>
<b>1.1.2 Microfinance Institution in Kenya</b> .....	<b>7</b>
<b>1.2 Statement of the Problem</b> .....	<b>11</b>
<b>1.3 Research Objectives</b> .....	<b>13</b>
<b>1.4 Importance of the Study</b> .....	<b>13</b>
<b>CHAPTER TWO</b> .....	<b>15</b>
<b>2.0 LITERATURE REVIEW</b> .....	<b>15</b>
<b>2.1 Introduction</b> .....	<b>15</b>
<b>2.2 Definition of Electronic Commerce and Electronic Business</b> .....	<b>16</b>
<b>2.3 Electronic Commerce Components</b> .....	<b>19</b>
<b>2.4 Categories of Electronic Commerce</b> .....	<b>20</b>
<b>2.5 e-commerce Benefits</b> .....	<b>21</b>
<b>2.6 Challenges of e-commerce</b> .....	<b>23</b>
<b>2.7 e-commerce Adoption in Developing Countries</b> .....	<b>24</b>
<b>2.8 The Theoretical Framework of Assessing e-commerce</b> .....	<b>28</b>
<b>2.8.1 Delone and Mclean Information System Success Model</b> .....	<b>28</b>
<b>2.8.2 Measuring e-commerce Success</b> .....	<b>30</b>
<b>CHAPTER THREE</b> .....	<b>35</b>
<b>3.0 RESEARCH METHODOLOGY</b> .....	<b>35</b>
<b>3.1 Introduction</b> .....	<b>35</b>
<b>3.2 Research Design</b> .....	<b>35</b>
<b>3.3 The Population</b> .....	<b>35</b>
<b>3.4 Data Collection</b> .....	<b>35</b>
<b>3.5 Data Analysis</b> .....	<b>36</b>

<b>CHAPTER FOUR .....</b>	<b>37</b>
<b>4.1 Introduction .....</b>	<b>37</b>
<b>4.2 Demographic Profile of Respondents .....</b>	<b>37</b>
<b>4.3 Descriptive Data Analysis..... .....</b>	<b>38</b>
<b>4.4 Confirmatory Analysis of determinants of successful application of e-commerce system .....</b>	<b>41</b>
<b>4.5 Confirmatory and Descriptive Analysis of factors that challenge the application of e-commerce system .....</b>	<b>47</b>
<b>CHAPTER FIVE .....</b>	<b>53</b>
<b>5.0 SUMMARY AND CONCLUSIONS .....</b>	<b>53</b>
<b>5.1 Summary and Research Findings .....</b>	<b>53</b>
<b>5.1.1 Factors that affect success in application of e-commerce by MFIs.....</b>	<b>53</b>
<b>5.1.2 Challenges of e-commerce.....</b>	<b>56</b>
<b>5.2 Conclusions .....</b>	<b>58</b>
<b>5.3 Recommendations .....</b>	<b>58</b>
<b>5.4 Limitations of the Study .....</b>	<b>59</b>
<b>5.5 Suggestions for Further Study .....</b>	<b>59</b>
<b>References.....</b>	<b>60</b>
<b>Appendix 1: Questionnaire.....</b>	<b>63</b>
<b>Appendix 2: Letter of Introduction .....</b>	<b>66</b>
<b>Appendix 3: AMFI Members List .....</b>	<b>67</b>

# CHAPTER ONE: INTRODUCTION

## 1.1 Background

The practice of electronic commerce (e-commerce) has been in existence since 1965 when consumers were able to withdraw money from Automatic Teller Machines (ATMs) and make purchases using point of sale terminals and credit cards (Senn, 2000). This was followed by systems that crossed organizational boundaries and enable organizations to exchange information and conduct business electronically. Such systems were commonly known as inter-organizational systems. Until the widespread deployment of Internet-based technologies in the early 1990s, enterprises that conducted e-commerce used almost exclusively a closed and standardized form of computer-to-computer communication known as electronic data interchange (EDI). In fact, the term "electronic commerce" was virtually synonymous with EDI (Fellenstein and Wood, 2000; Senn, 2000). e-commerce, however, has come to attract the interest of many following the commercialization of the Internet and especially the advancement of the World Wide Web and its business applications.

### 1.1.1 e-commerce

There is yet no internationally agreed definition of electronic-commerce. The definition of e-commerce given by Forrester Research (Kessler, 2003), shed more light, thus; Electronic commerce, EC, e-commerce or e-commerce consists primarily of the distributing, buying, selling, marketing, and servicing of products or services over electronic systems such as the Internet and other computer networks. Using e-commerce systems, organizations still deliver information about their products and services, their operation, their history, vision, structure, policy and job opportunities to their employees, members of the value chain, shareholders, regulators, academics, industry pundits or any

interested visitor. But e-commerce systems have revolutionized the way organizations provide such information. Users can now specify what information is to be presented, and in what order or arrangement, using which colors and so on. Zwass (1996), for example, defines e-commerce as the sharing of business information, maintaining business relationships and conducting business transactions by means of telecommunications networks. Various attempts have been made to develop frameworks and to explain the differences in the e-commerce views of existing research. The business models that underlie e-commerce systems determine the nature of the product or service offering, the actors and role players (or parties to the relationship) and the revenue stream. For example, the most common and popularized use of e-commerce is to replace or enhance traditional market channels by opening Web-based storefronts. In this type of e-commerce, also commonly referred to as Business to Consumer e-commerce (B2C), organizations offer their products and services and generate revenue from the actual sale of those products and services to their customers. In another e-commerce (B2B, businesses attract visitors to their Websites by hosting comprehensive information of interest to customers and generate their revenue from other businesses that follow visitor eyeballs and advertise their products and services on such Websites (Wangui, 2007).

### **1.1.2 Microfinance Institution in Kenya**

Microfinance is the provision of convenient financial services and products to the poor, low-income households and micro and small enterprises (Central Bank of Kenya, 2007). A microfinance institution (MFI) is an organization that provides financial services to the poor. This very broad definition includes a wide range of providers that vary in their legal structure, mission, and methodology. However, all share the common characteristic of providing financial services to clients who are poorer and more vulnerable than traditional bank clients. It is widely believed that MFIs evolved out of the vacuum left by the mainstream banks. It is said that about 50% of Kenyans are classified as poor and have low incomes not worth banking. Microfinance

institutions have proven that the poor are “bankable” (PMT Kenya, 2001). Today, formal institutions are rapidly absorbing the lessons learned about how to do small-transaction banking. Many of the newer players in microfinance, such as commercial banks, have large existing branch networks, vast distribution outlets like automatic teller machines, and the ability to make significant investments in technology that could bring financial services closer to poor clients. Increasingly, links among different types of service providers are emerging to offer considerable scope for extending access.

Like the mainstream banks, the MFIs in Kenya have also worked hard to expand their market. The use of ICT as a tool to achieve their objectives cannot therefore be underrated. For MFIs electronic commerce is more than just another way to sustain or enhance existing business practices but rather, is a paradigm shift (Otero and Rhyne, 1994). It is a disruptive innovation that is radically changing the traditional way business is done. The current focus for the Government of Kenya and the private sector is to endeavour to develop policies that recognize the electronic aspects of trade in transformation of the economy into a modern market-oriented one. There is no policy framework developed by Government on e-commerce but it has tried this through various initiatives and government policy statements. e.g. Poverty reduction strategy paper of 1999 (PRSP), Telecommunication and Postal sector policy statement of 1999, Kenya’s approach to New Partnership for Africa Development (NEPAD) and Sector Working Group on Information Technology under the Ministry of Finance and Planning (Kiiru , 2002). More recently is the Kenya Communications (Amendment) Act of January 2nd 2009 (<http://www.e-government.go.ke>).

It is estimated that the microfinance field currently holds well over USD7 billion in assets in more than 8,000 MFIs worldwide. Loan demand in the total microfinance market has been estimated at USD300 billion, over 40 times the current level of assets available (UNCTAD, 2003). In Kenya there are over 3,000 legally constituted entities. This figure excludes 17,305 rotating savings



and credit associations (ROSA), 115,884 registered women groups and 1,342 primary agricultural producers and marketing cooperative societies. There are over 60 percent of the working population operating in the informal sector and have little or no access to credit or other financial services.

The Association of Microfinance Institutions of Kenya (AMFI) is a member Institution that was registered in 1999 under the Societies Act by the leading Microfinance Institutions in Kenya to build capacity of the microfinance industry in Kenya. AMFI presently has 33 member institutions serving more than 2,000,000 poor and middle class families with financial services throughout the country. AMFI is governed by a General Assembly and gets her leadership from a Board of Directors that are experienced practitioners who run some of the leading microfinance institutions in Kenya. An Executive Committee comprised of the Chair, Vice Chair, Treasurer and Secretary and three committee members, provides general policy guidelines and directions to the Association.

The technological revolution in financial institutions began in the 1950s when the first automated bookkeeping machines were installed at a few US banks. This was soon followed by electronic payments technology in 1970s. The first challenge that jolted those institutions then was security. This set the era of encryption technologies to be applied and the banks were the first to embrace. The euphoria that set in later on was unprecedented. Financial institutions were the early adopters of automation for gathering, storing, and processing, analyzing and disseminating information to satisfy their customers, creditors, shareholders and the public.

In Kenya automation of the financial institutions gained importance 15 years ago when they realized that their labour intensive, information handling process could be automated by the use of the computer. The institutions sought to benefit from automation firstly, through operating cost reduction, efficiency in streamlining back-office processing and eliminating error-prone

manual handling of data input. Secondly, by securing market and win new customers through value added products. Thirdly, with powerful electronic power tools to gather, store and analyze data, institutions can develop sophisticated risk management techniques hence reduce risks by making more informed projections. Some MFIs have introduced an electronic gadget called point of sale device (POP) which allows customers to make electronic financial transactions such as opening an account, receive payments and make deposits in the rural areas (Daily Nation, 21st Aug 2008). Once a client has logged on with a fingerprint authenticating their identity on the POP device, they are connected to the central database through the General Packet Radio Service (GPRS) network. This is a cost effective way of doing business because all that is needed is a credit officer and a bike.

It is time to mainstream microfinance into the formal financial market place. What is needed is a better range of services, increased access to capital, sound operating systems run by competent managers, an appropriate regulatory environment coupled with prudential supervision. A tall order, but possible if the stakeholders can continue to work together to build a common vision and the systems to make the linkages happen. In order to mainstream microfinance, the compatibility base has to be built so the players in the financial market place can exchange information and come to understand each other. Technology is seen as a critical component of that base, setting standards for information requirements, database management and communications, while increasing operating efficiency and building the trust that permits very different segments of the market to work together. These barriers can be broken down by opening communications and information flows, setting the stage for E-Finance to take the microfinance industry from a development strategy into a mass marketing operation (UNTAD, 2002).

Nevertheless the information age came with its challenges. The rapid growth of the Internet in the mid-1990s propelled e-commerce to dizzying heights. The number of online marketplaces and retailers skyrocketed, and it seemed

that every second company strove to be the next Amazon.com or eBay. The hype of e-commerce corresponded with that of the Internet. Fueled by vast infusions of venture capital, new Internet-based companies (the “dot-coms”) grew exponentially. Many commentators predicted that e-commerce would end traditional business cycles.

Indeed, e-commerce transformed some sectors. Most notably, the travel and finance sectors developed successful stand-alone, online initiatives and integrated e-commerce applications into traditional business processes. In the e-finance arena, for example, online brokers succeeded despite market downturns, even causing traditional brokerage houses to reduce commissions (Mullaney 2002).

These notable exceptions aside, the e-commerce sector (and telecommunications and the Internet industry more generally) have experienced immense turbulence. Bankruptcies of high profile dot.com companies, e.g. E-Toys, occurred frequently, and many traditional “brick-and-mortar” companies quickly pulled back from developing or integrating e-commerce applications.

## **1.2 Statement of the problem**

It is claimed that developing countries’ firms can increase and improve their performance through e-commerce. The argument is that e-commerce will increase the availability of relevant and timely information and reduce transactions times. This, in turn, is expected to greatly improve developing country firms’ access to markets. Given the availability of an adequate infrastructure, firms are expected to invest in e-commerce applications, especially if they intend to trade with distant customers and suppliers. UNCTAD (2001), for example, argues that the least developed countries (LDCs) can better position themselves to engage in trade as a tool for development if they adopt e-commerce. Firms are expected to benefit for two main reasons. First, the products produced by firms in the LDCs are often uncompetitive because of high transport costs and inefficient trade

procedures, the latter of which can be partially overcome by the use of e-commerce. Second, e-commerce may allow firms in the LDCs to diversify into new sectors where they can benefit from their low labour costs. e-commerce is expected to ease the entry of firms from developing countries into global markets by allowing them better access to information and to overcome inefficiencies, thereby enabling them to make more advantageous decisions about their participation in trade.

These arguments have been met with skepticism in some quarters. The idea of friction-free commerce was that the e-commerce would eliminate the middleman and get the best benefit. These contrasting positions are difficult to reconcile because there has been very little empirical investigation into the operation of e-commerce in developing country settings. Moodley (2000) found that in South Africa, B2B e-commerce has yet to come into its own. Rather businesses see it as an extra investment cost with very uncertain returns. Studies of e-commerce in developing countries have emphasized the influence of contextual impediments related to economic, technological, legal, and financial infrastructure as major determinants of e-commerce adoption. Companies are making large investments on e-commerce applications but they are hard-pressed to evaluate the success of their e-commerce systems.

Other researchers who have delved into e-commerce system adoption, success and challenges in Kenya are not scarce. Nyaanga (2007) studied e-commerce adoption and business process management in commercial banks in Kenya. Wataku (2007) studied on the extent to which the adoption of e-commerce has facilitated business clearing and forwarding firms in Nairobi. Kiyeng (2003) made a survey of the impact and challenges of business e-commerce in Kenya, and focused on e-sokoni. Muganda (2001) investigated the business value of e-commerce on selected firms in Kenya. Kinyanjui and McCormick (2002) made an impact assessment of e-commerce on the garment industry in Kenya and their area of focus was garment and textile firms in the Export Processing Zone. This study contributes to the debate

about the impact of e-commerce on firms in developing countries by examining its application in the microfinance sector in Kenya. The study provides a basis for assessing the perceptions of the impact of e-commerce in Kenya on firms that are mobilizing savings from the poor sector of the economy. Focus is on the microfinance sector that is expanding rapidly (Mulei and Bokea, 1999). It is a sector that has significantly gained prominence in the welfare of the poor. Its strength has been proven by the drastic reduction of dependence on donor funding (Central Bank of Kenya, 2000). Instead it has invented itself by engaging its competition with formal financial institutions. Technology, and in particular, e-commerce has found its way into MFIs. In this exploratory empirical study, in this exploratory study, informants' views are analyzed with respect to the following questions: Firstly, how successful is e-commerce in MFIs in Kenya? Secondly, what are the challenges MFIs face in the application of e-commerce?

### **1.3 Research objectives**

The research objectives are:

1. To evaluate the success of e-commerce by MFIs.
2. To determine the challenges MFIs face in the application of e-commerce.

### **1.4 Importance of the study**

**Policy makers.** The Kenyan government may use the study findings to develop appropriate policy framework for the sector. This may help in developing solutions that may bridge the "digital divide" between the technologically proficient and the technologically deficient (Ng'inja, 2006).

**Practitioners.** Bodies like AMFI can use the study to develop support programmes to enhance e-commerce in the sector. Investors can also get enlightened more about Microfinance in Kenya

**Academicians.** The findings will be resourceful to academicians. Researchers may use the study findings to inform other studies that may be undertaken in the same area.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

Electronic communication using computer networks began to gain ground in Kenya in the 1990s and have expanded rapidly (Kane, 2001). Internet was first availed in Kenya to a small group of technical enthusiasts in 1993. The only means of accessing the net was through a service known as Gopher, which offered access to text-based information. The African Regional Centre for Computing (ARCC), an NGO based in Nairobi, Kenya, became the first provider of web-based service. This, they did by providing their subscribers with the first-ever web browser software-Mosaic (Mweu, 2002).

As the number of ISPs grew so did the pressure for bandwidth. At this point the Kenya Posts & Telecommunications Corporation (KPTC) realized that there was a need for an access backbone in the country. This would also bring down the cost of access to the Internet for ISPs, since the backbone would be accessed locally. The backbone, EAFIX, was launched in December 1998, and together with it Jambonet, an access service for ISPs. The cost of Jambonet was about one quarter of the cost of leasing an international digital data line. The result was the entry of more ISPs in the market, which led to even more competition for customers. There has been a proliferation of ISPs, especially in Nairobi. In 1996 there were nine licensed ISPs and this number had risen to 70 by 2002 (Kane, 2002). Some of the main ISPs operating in Kenya are: Swift Global, Nairobinet, Africa online, Wananchi online, and Kenya Web. In July 1999 the government officially liberalized the telecommunications market in Kenya. Another key player in the telecommunication sector is the Communications Commission of Kenya (CCK). Its purpose is to license and regulate the communications sector in Kenya as retrieved on 20<sup>th</sup> May 2009 from (<http://www.cck.go.ke/aboutcck/director.htm>). CCK began operating in February 1999. Its role is to promote the development of telecommunication and postal services and to ensure universal access to communication facilities. It also serves as the regulatory body for the communication sector by

awarding licenses, regulating pricing, establishing interconnection principles and managing the radio frequency spectrum. By 2002 there were 50,000 Internet account holders in Kenya, with an estimated monthly growth of 300 each (Kiiru, 2002). In a report presented in Geneva 2002, by the Ministry of Trade, Kenya had 200,000 Internet users in a population of 30million. Of the Internet users 50% were multi-national corporations, international corporations and NGOs. As at 2001, the report indicated there were only 1,700 .ke domains. In the urban areas teledensity was pegged at 4 lines per 100 people whereas in the rural areas was pegged at 0.6 lines per 100 people. From the above information it is clear the level of usage of the Internet is relatively low. But the government recognized the important role that e-commerce play in trade development and particularly poverty alleviation. It formed a National Task Force in 1999 that was later reconstituted and registered as Nationwide Task Force on e-commerce (NTFECOM) (Kiiru, 2002).

## **2.2 Definition of Electronic Commerce and Electronic Business**

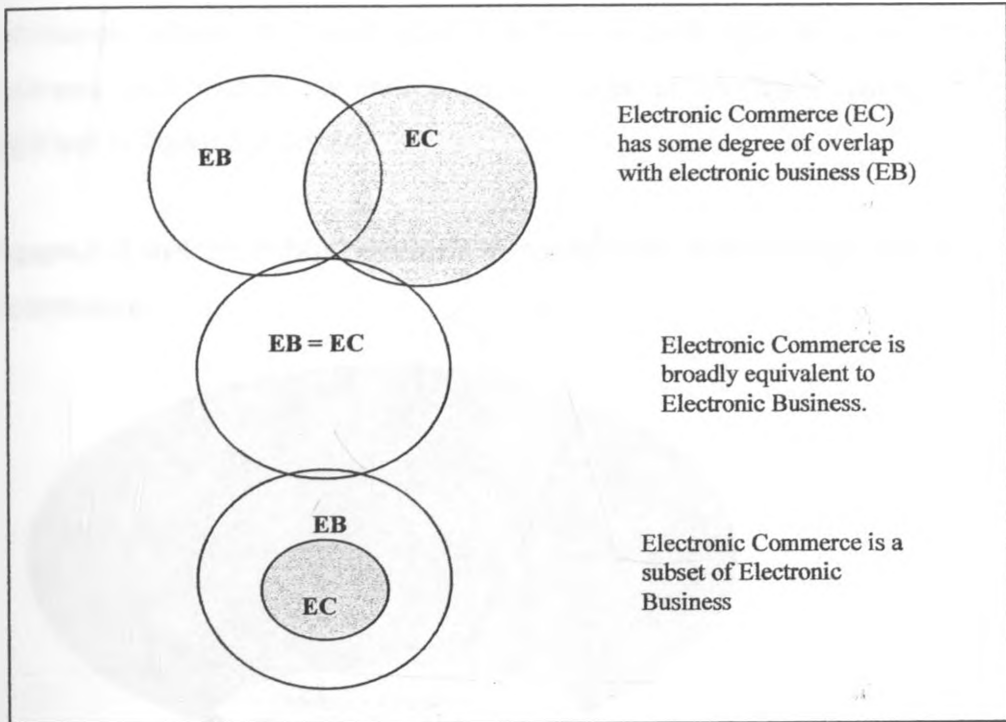
Literature defines electronic commerce and electronic business differently. Clarke (1999) feels that electronic commerce and electronic business is one and the same thing. He defines electronic business as the conduct of business with the assistance of telecommunications and telecommunications-based tools and electronic commerce as the conduct of commerce in goods and services, with the assistance of telecommunications and telecommunications-based tools. He points out that the difference is that electronic business has a lot of overlapping segments; it is like electronic commerce at a broader scale.

Even though some people use these words interchangeably, Amor (2000) and Hartman (2000) argue that they differ. However, the authors' definitions do not differ much from the above, but find it essential to explain the difference and relationship between e-commerce and e-business. The authors define e-commerce as a subset of e-business; e-commerce deals mainly with the buying and selling on the Internet while e-business is the umbrella definition



which goes on to include e-banking, e-marketing, e-directories, e-franchising, e-gambling, e-learning, e-trading, e-packaging, and other e-family members. Mansfield (2004) also feels that e-business and e-commerce are not synonymous as e-business is more encompassing as explained above.

**Figure-2-1 Alternative forms of the e-business: e-commerce relationship**



**(Source: Chaffey, 2002 as cited by Mansfield, 2004)**

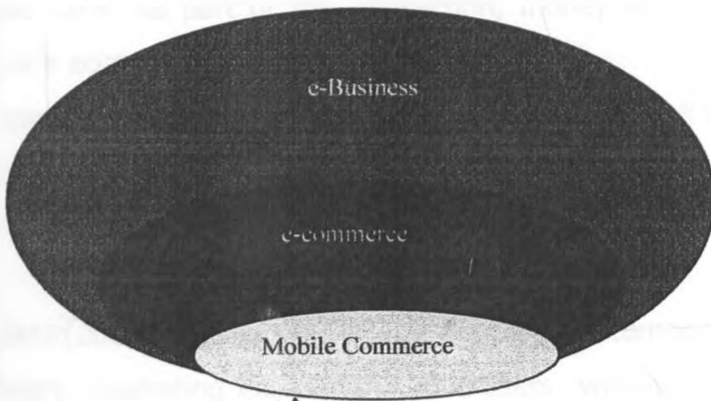
Chaffey (2002) depicted different ways in which electronic commerce can be related to electronic business in figure 2-1 above. The two can be viewed as having an intersection, being the same or electronic commerce being a subset of electronic business.

Hackbarth & Kettinger (2000) and Robinson (2000) also argue for the difference between e-commerce and e-business. The authors define the former as the buying and selling of products and services over digital media,

while the latter, in addition to e-commerce definition includes both front and back office applications with a potential of transforming business relationships (Molla-Adankew, 2002).

Papazoglou & Ribbens (2006) feels e-commerce can also be termed web commerce, and does not integrate Customer Relationship Management (CRM), Supply Chain Management (SCM) and Enterprise Resource Planning (ERP) like e-business. E-business is more generic and encompassing than e-commerce. Jellassi & Enders (2005) defines e-commerce as a subset of e-business, and mobile commerce as a subset of electronic commerce as depicted in figure 2-2 below.

**Figure2-2 Relationship between e-commerce, e-Business and m-Commerce**



**Source: Jellassi & Enders (2005)**

In Kenya it is difficult to draw a line between e-business, e-commerce and m-commerce because they intertwine, one either facilitate or supplement the functions of the other. A marketer decides to advertise a product or inform customers through website, mobile phone or radio. For the purpose of this research, e-commerce can be defined as any form of economic activity conducted over computer-mediated networks.

## 2.3 Electronic Commerce Components

There are unlimited numbers of components that can be listed when dealing with electronic commerce. Let us consider the most basic ones; consumer, seller, bank and the supporting network.

**Consumer** – The consumer in this case can either be a company or a person requiring a product or a service from the supplier. The consumer is the one who places the purchase order to the merchant.

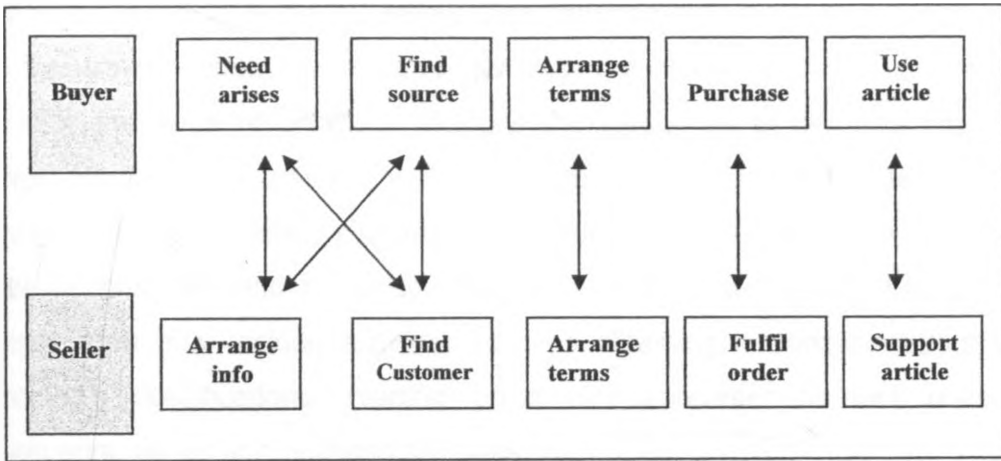
**Seller** – This is a company or the person that provides the goods or services that the consumers may purchase, for example [www.eastafricanstandard.net](http://www.eastafricanstandard.net) where one can subscribe for the daily newspaper. It is responsible for handling purchase orders and sending products to consumers.

**Bank** – This is the company that holds the revenue for both the consumer and the seller. The seller and the buyer do not necessarily have to use the same bank. As part of the transaction, money will be transferred from the buyer's account to the seller's account.

**Network** – e-commerce is dependent on the network for communication and information transfer. This could be an intranet or extranet. A lot of e-commerce transactions take place over the Internet (Kalakota, 1997).

Kosiour(2000) highlights that as the list of components grow to include brokers, marketing companies, advertisers, warehousing and shippers, etc, this, the definition then suites electronic business. Figure 2-1 below shows the interaction of e-commerce components.

**Figure 2-3 Electronic Commerce model (Cloete, 2004)**



## 2.4 Categories of Electronic Commerce

Defining the categories of e-commerce gets just as complicated and varying as defining electronic commerce. Kalakota (1998) came up with the following classes; business-to-business, intra-organizational and business to consumer;

**Business-to-Business** –These includes; marketing, purchasing, delivery of products and bank to bank money transfers to different organizations.

**Consumer-to-Business** – These are electronically conducted customer to business transactions, customers learn about products online, submit purchase orders, pay online and even receive information goods online

**Intra-organizational** –This limits the communications and trading activities to the organization only. It includes workgroup communications, electronic publishing and sales through intranets.

Perry & Schneider (1999) identifies only four, most direct categories of electronic commerce; inter-organizational (B2B), consumer-oriented (B2C), consumer to business (C2B) and consumer to consumer (C2C). Molla-Adankew (2002) and Cloete (2004) see the role of government and consider it when coming up with major players of the e-commerce market: business, consumer and the government. The commonly used classifications of e-commerce in literature are; business to consumer (B2C), business to business (B2B), business to government (B2G) and consumer to government (C2G). A

total of nine categories of e-commerce can be derived from e-commerce business matrix in Table 2-1 below. The common online purchases made are in the travel industry where arrangements are made for car rentals, travel tickets and hotel reservations. Besides the categories of products that are most often bought online, more and more consumers use the Internet to prepare for purchases of many high-value products for which the final transactions still tend to occur offline (e.g. real estate, automobiles). This preparation may include activities such as obtaining information about the product's specifications, reading press and consumer product reviews, comparing prices and applying for loans.

**Table 2-1 Electronic Commerce market segmentation matrix**

	<b>Consumer</b>	<b>Business</b>	<b>Government</b>
<b>Consumer</b>	<b>C2C</b> Auction markets e.g. coffee and tea auction	<b>B2C</b> e.g. information after sales support, online ticketing	<b>G2C</b> Information <a href="http://www.e-government.go.ke">www.e-government.go.ke</a>
<b>Business</b>	<b>C2B</b> e.g. Price Comparison	<b>B2B</b> e.g. Buying of goods and services, <a href="http://www.outsourcetokenya.biz">www.outsourcetokenya.biz</a>	<b>G2B</b> e.g. Employment acts information
<b>Government</b>	<b>C2G</b> e.g. Tax information	<b>B2G</b> e.g. Tax information	<b>G2G</b> Inter departmental Coordination

Source: (Jellassi & Enders, 2005)

### 2.5 e-commerce Benefits

e-commerce offers many advantages over traditional paper-based commerce. It provides the customer with more choices and customization options by better integrating the design and production processes with the delivery of products and services (Richardson, 2007). The consumer enjoys a wider choice of products and services at lower prices, as well as certain convenience (no unnecessary trips, no restricted business hours). Because of the interactive nature of e-commerce, an advantage for business produces an

advantage for consumers and vice versa, thus contributing to the growth and development of this revolutionary means of exchange.

It decreases the time and cost of shopping and expands the marketplace from local and regional markets to national and international markets with minimal capital outlay, equipment, space, or staff. It permits for just-in-time production and payments. Businesses reduce overhead and inventory through increased automation and reduced processing times (Al-Kibsi et al., 2001). High transportation and labour costs of creating, processing, distributing, storing, and retrieving paper-based information and of identifying and negotiating with potential customers and suppliers are drastically reduced.

Through automated information, e-commerce enables production of reliable, shareable historical database of design, marketing sales, and payment information. e-commerce enables dissemination and exchange of digital data, electronic funds transfers, electronic stock exchange activities, commercial auctions, co-operative design and engineering, electronic bidding, direct consumer sales and after-sale services (L A Lefebvre and É Lefebvre, 2000).

One great thing is that due to automation, it facilitates increased customer responsiveness; including on-demand delivery. Online money transactions can be useful, easing the administrative burden on the customer service answering information-based enquiries currently common. Monetary transactions can be processed. Billing can be done instantly electronically, conducted and monitored. Anyone between the seller and the buyer is in big trouble. e-commerce has already successfully invaded territories of middlemen (Gates, 1995).

The use of ICT for the reorganization of internal administration transactions, communications, interrelationships and for easy information flow and transfer offers considerable opportunity to increase the company capacity. Intranets allow different departments to share databases of common customers and to

pool skills and capacities of their members for problem solving. These facilities in turn will pledge faster information flow and transfer, quicker and cheaper provision of goods and services, faster and better decision making processes, and unplugged paper bottlenecks. Knowledge based or expert systems help to create a more responsive and guideline based process.

## **2.6 Challenges of e-commerce**

e-commerce, in general, is referred to as an “enabler”, but on the other hand it should also be regarded as a challenge and a peril in itself (Ndou, 2004). Paré (2001) argues that the application of, and access to, technologies such as the public Internet and the World Wide Web are unlikely to reduce transaction costs sufficiently to reduce the barriers to the entry into global markets by firms in developing countries. Humphrey (2002) underscores the complexity of the transaction cost issues by showing how different value chains have different transactional patterns and that firms face a variety of challenges within these chains.

More generally, the public Internet and e-mail were regarded as a means of supporting existing trade relationships, rather than as an entirely new way of doing business.

A summary of benefits and challenges of electronic commerce are shown in table 2-2 below.

**Table 2-2 Electronic commerce benefits and challenges**

<b>PERCEIVED BENEFITS</b>	<b>PERCEIVED CHALLENGES</b>
Potential to increase in business sales	Virus attacks
Unlimited store hours (24/7/365)	Speeds
Potential to increase in company profits	Pornography
Brand awareness	Impolite content
Expand geographical reach	Data integrity
Allow small market reach or target niche	Hacking
Customer loyalty	Privacy
Create new relationship opportunities	Network reliability
Multiple revenue streams	Expenses
Potential to decrease costs	Lack of regulatory laws
Provides variety	Political will
Democratic working environment	Lack skilled resources

### **2.7 e-commerce adoption in Developing Countries**

Businesses in developing countries face challenges different from those in developed countries. This calls for models that are robust enough to capture most, if not all, of the idiosyncrasies. For instance, businesses in developed countries have employed a relatively well-developed, accessible and affordable infrastructure, while in most of the developing countries; e-commerce adoption has been constrained by the quality, availability, and cost of accessing such infrastructure. The low level of information and communications technology (ICT) diffusion in an economy can also limit the level of e-commerce awareness, a factor taken for granted in the developed countries. In addition, in most developing countries, Internet use and e-commerce practices have yet to reach a critical mass for the network externalities to take effect and encourage businesses to opt for e-commerce innovations. The readiness of institutions to govern and regulate e-commerce



is an essential element, but one lacking in developing countries, for the trust necessary to conduct e-business.

In addition, most businesses in developing countries are small. Their lack of complexity can facilitate e-commerce adoption, but this also means lack of adequate resources to invest in IS and IT and absorb possible failure. Hence, a firm's human, technological, and business resources need to be considered in making adoption decisions. The practice of doing business electronically, dealing with non-cash payments, anonymous and electronic-based intra and inter-business relations, all of which are important in e-commerce, are not common for businesses in developing countries. Thus, success depends on making changes in the organizational structure, product characteristics and business culture of their enterprises to develop such practices. In addition, most, if not all, businesses in developing countries tend to have a highly centralized structure. This suggests that the perception of the managers about their organization, innovation, and their environment is likely to be critical in adopting e-commerce (Mollar and Licker 2005).

Mollar and Licker (2005), in their research on e-commerce application in developing countries singled out four issues of innovation that impact greatly on the success and failures of e-commerce. They are managerial imperative, organizational imperative, technological imperative, environmental imperative and interactionism. Technological imperative models, such as diffusion of innovation and technology acceptance consider the complexity, compatibility, relative advantage, ease of use, usefulness and other Information & Management attributes as key drivers of adoption. Managerial imperative models seek to explain innovation adoption based on the innovativeness attributes of managers, their commitment to the innovation and IT background. Organizational imperative models assert that the key determinants of adoption reside within the internal context of an organization. As a result, they look at organizational characteristics such as specialization, functional differentiation, formalization, centralization, readiness, risk taking

propensity, and innovativeness as major determinants of adoption. Environmental imperative models, on the other hand, tend to focus on external influences. External pressure from market forces, inter-organizational relationship, institutional forces, and the eReadiness of socio-economic forces are some of the environmental factors likely to affect innovation adoption, especially those innovations that cut across firm boundaries.

Singh and Alwyn (2000) in their research concluded that e-commerce has enabled scores of large and small companies worldwide to dramatically improve their business processes and spin off new businesses and services. The authors pointed out that in developing countries, this has resulted in impressive gains in a variety of sectors, including finance, tourism, and online retailing. Larger companies are using web-based advertising and sophisticated logistical applications to strengthen their sales functions and operations. Smaller companies that lack the capital to invest in connectivity and web site design are relying on more basic applications such as email, or they are teaming up with distributors and marketers in developed countries to handle more advanced applications. The Wikiyo Akala Project (WAP) in Kenya has benefited greatly from the use of innovative electronic payments solutions and web-based marketing (Singh and Alwyn, 2000). Located in a slum community in Nairobi, WAP works through a non-profit importer and reseller of the sandals, known as Ecosandals.com. WAP and Ecosandals have teamed up with a U.S.-based company called GetAfrica, which acts as a distributor and marketer for the sandals. GetAfrica processes the orders and payments for the sandals, handles all bulk shipments of the sandals geared for North American customers, and maintains a highly user-friendly web site linked directly to Ecosandals.com. These e-commerce applications have enabled WAP to employ almost 30 fulltime workers who receive training in English, math, and computer skills.

Kinyanjui and McCormick (2002) studied the use of e-commerce in the garment industry in Kenya. The area of focus was mainly B2B subset of e-

commerce as applied in the commodities market. They argued that the least developed countries (LDCs) can better position themselves to engage in trade as a tool for development if they adopt e-commerce. Firms are expected to benefit for two main reasons. First, the products produced by firms in the LDCs are often uncompetitive because of high transport costs and inefficient trade procedures, the latter of which can be partially overcome by the use of e-commerce. Second, e-commerce may allow firms in the LDCs to diversify into new sectors where they can benefit from their low labour costs. e-commerce is expected to ease the entry of firms from developing countries into global markets by allowing them better access to information and to overcome inefficiencies, thereby enabling them to make more advantageous decisions about their participation in international trade. Their findings showed a general trend where the larger the firms the greater the involvement of B2B e-commerce. It was also noted that as much as both analogue and high speed digital connections are available in Kenya, all the firms studied were using modem based analogue network connections. The study provides a basis for assessing the extent of adoption and the perceptions of the impact of B2B e-commerce in Kenya on firms that are trading in global markets.

Ng'inja (2006) made a critical analysis of Internet diffusion in Africa. The researcher made the observation that Internet and subsequently e-commerce is going to rise going by recent policy pronouncements by various governments, Kenya and South Africa in particular. Costs of telecommunications and Internet access are dropping significantly laying a conducive environment for innovation of new services that can spur demand and entrepreneurship, as well as ensuring utilization of untapped network capacity. However the findings identified challenges that entrepreneurs face in trying to apply technology. Among the challenges are availability of skilled ICT resources, socio-political and economic factors.

A study by United Nations Conference on Trade and Development (UNTAD) on e-commerce and development (2003) observes that revolutionary visions of the Internet's role in the economy are giving way to a more nuanced but strongly positive assessment of the Internet's impact on business performance. Many of the promised economic benefits of the Internet seem to be materializing. Even if e-readiness in developing countries is lower than in the high-income regions of the world, a number of relatively advanced ICT adopters have been identified in all regions of the world, and no developing country seems to have regressed in its integration into the digital economy.

## **2.8 The theoretical framework for assessing e-commerce success**

As companies make large investments on e-commerce applications they are at crossroads on how to evaluate the success of their e-commerce systems. Molla and Licker (2003) proposed an e-commerce success model based on the DeLone & McLean (D&M IS) success model. This can be briefly explained as follows:

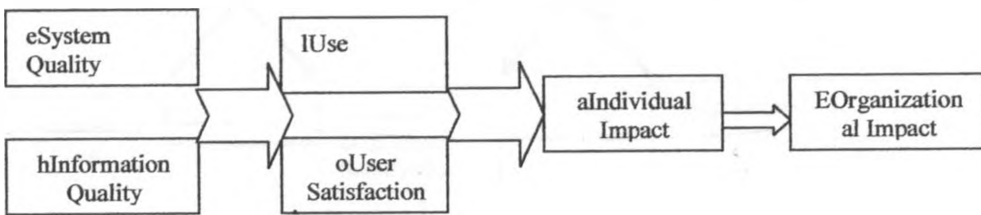
System quality in the Internet environment measures the desired characteristics of an e-commerce system. Usability, adaptability, reliability, availability, and response time (e.g. download time) are examples of qualities that are valued by users on an e-commerce system. Information quality captures the e-commerce content issue. Web content should be personalized, complete, relevant, easy to understand and secure. Service Quality is the overall support delivered by the service provider. Usage measures everything from a visit to a website, to navigation within the site, to information retrieval, to execution of a transaction. User satisfaction measures customers' opinion on e-commerce system.

### **2.8.1 Delone and McLean Information Systems Success Model**

Researchers have not found much agreement on the meaning of IS success despite the large number of empirical studies (Garrity and Sanders, 1998).

The controversy surrounding it is compounded because success is a multidimensional concept that can be assessed at different levels (such as technical, individual, group, organizational) and using a number of not necessarily complementary criteria (such as economic, financial, behavioral and perceptual). However, many authors in the field regard DeLone and McLean's work as a major breakthrough. In order to organize diverse research and to present more integrated view of the concept of IS success, DeLone and McLean introduced a comprehensive, multidimensional model of IS success. The purpose of this model is to be a framework for measuring different dependent variables in IS research. Based on the communications research of Shannon and Weaver from 1949 and the information "influence theory" of Mason from 1978, as well as an empirical management information systems (MIS) research studies from 1981-1987, they categorized IS success into six major dimensions: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact.

**Figure 2-4. DeLone and McLean Information Systems Success Model**



**Source: (DeLone and McLean, 1992: 87)**

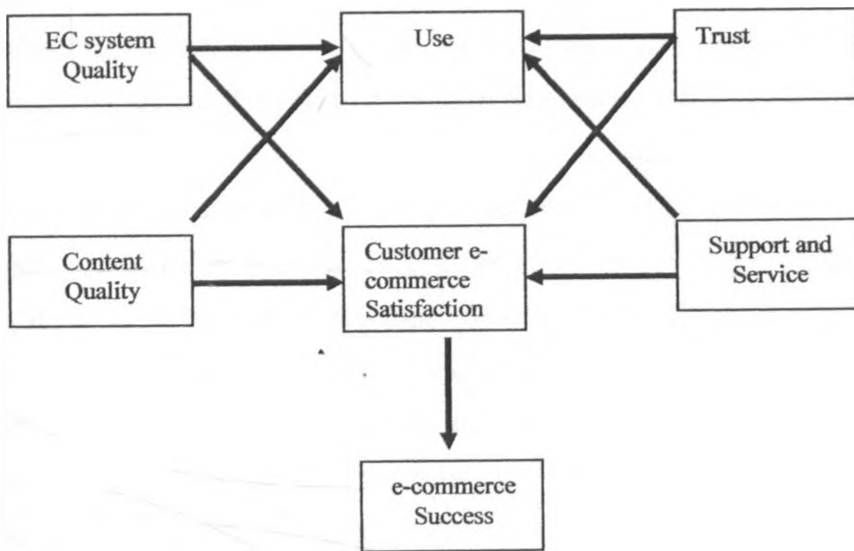
Figure 2-4 presents these six interrelated dimensions of success: System Quality and Information Quality singularly and jointly affect both Use and User Satisfaction. In addition, the amount of Use can have a positive or negative effect on the degree of User Satisfaction and vice versa. Use and User Satisfaction are direct antecedents of Individual Impact, and this impact should eventually have some Organizational Impact (DeLone and McLean, 1992: 83-87). This model was modified to evaluate the overall effectiveness of e-commerce systems and its impact on system, individual and

organizational performance in business, and, in our case, Micro-Finance Institutions.

### 2.8.2 Measuring e-commerce Success

The industry is moving so fast because it operates under totally different principles and work rules in the digital economy. A general rule in e-commerce is that there is no simple prescription and almost no such thing as an established e-commerce success model for companies even within the same industry. Mollar and Licker (2001) provided an adapted version of DeLone and McLean IS success model to suite e-commerce systems as shown in figure 2-5 below.

**Figure 2-5. e-commerce Success**



**Source: Molla and Licker 2001**

Use and User Satisfaction are the most widely used dependent variables in the e-commerce literature. Some use specialized software to calculate indices such as reach, hit, click-through rate and they do not identify what really affects the Use. Business depends on their customers. Customer satisfaction has always been assumed as a necessary condition for the success of

organizations. Several studies have been done to bring to evidence the benefits that derive from a high level of customer satisfaction, namely through increase of customer loyalty, reduction of price elasticity, decrease of failure-related costs, easier acquisition of new customers, increase of the products portfolio supplied to customers, brand's and enterprise's prestige in the market and so forth.

Some models of customer satisfaction focus on the service delivery aspect, others incorporate issues related to features of tangible products such as durability, reliability, structural design and so on. SERVQUAL entails measuring the gaps between the perceptions of customers, the level of service provided and the potential of improvement. Naumann (1995) on the other hand proposes another model and instrument of customer satisfaction that incorporates attributes related to product quality, product design and value. Other models (McColl-Kennedy & Schneider, 2000) investigate influence factors such as social, self-concept, and perceived alternatives on customer satisfaction. Our study here focuses on M&D IS enhanced model.

**e-commerce System Quality:** Systems Quality, studies the success at technical level. It focuses on the desired characteristics of the e-commerce system itself. Seamless site performance is an important consideration in e-commerce. Earlier MIS works investigated reliability of the system, system accuracy, flexibility, online response time and ease of use as part of the system quality dimension (Delone and McLean, 1992). These criteria are equally applicable to e-commerce systems. Recent works (Turban and Gherke, 2000, Han and Noh, 1999) that focus on e-commerce have however suggested additional variables such as 24-hour availability, stability of software and hardware, page loading speed, the system architecture, visual appearance and accessibility as part of the e-commerce system quality. The model highlights that such attributes of e-commerce sites are likely to influence the Use and Customer Satisfaction of e-commerce systems. In e-commerce, potential competitors are only one mouse-click away and site

failure results in customer dissatisfaction and non-use of e-commerce systems. For transactional e-commerce systems, this means loss of sales. For example, some studies purport that failing sites are losing as much as 40 percent of repeat end-user traffic (Fellenstein and Wood, 2000).

**Content Quality:** While information has long been considered as an important asset to modern business, e-commerce has elevated content, i.e., the information, data, experience or knowledge to higher levels of significance. In addition, for some e-commerce business models content forms their core business, i.e., their product. In e-commerce, content is a source of value and containers (products, services, transactions, etc) without content are simply valueless (Hartman et al, 2000). Content quality refers to the characteristics and presentation of information in the e-commerce system (Zhang et al 2000, Von Dran et al, 1999). Content characteristics include attributes of the content that is presented on the e-commerce site. The information systems literature has unequivocally underscored the importance of information quality as one of the determinants of user satisfaction and their intention to use a particular system and identified a number of attributes such as accuracy, up-to-datedness, comprehensiveness, understandability, completeness, timeliness, reliability, relevancy, currency, preciseness. On the other hand, content presentation refers to the organization and presentation of the information content and to what extent a user controls (customizes) the content (Von Dran et al,1999). This involves the amount of information presented on a single page, the need for scrolling down to see the full content of a page, logical structure of information within the website, the readability of the pages, website navigation technique and so on.

**Use:** The use of e-commerce systems is one of the widely used criteria for assessing success. Use level as captured through hits and visits is often used to indicate the market share and reach of e-commerce pacemakers like Amazon and Yahoo. For many of the startup e-ventures, one of the primary challenges is to attract customers to their e-commerce site. It might thus



actually make sense to consider use as an indicator of some sort of initial success. Different types of use have been identified in the IS literature. Likewise, depending on the offering of e-commerce sites it is possible to identify different categories for the use of e-commerce systems. Some uses are followed by specific actions such as a customer updating his/her address, ordering a product while other uses do not result in any specifications, at least not actions discernible to the user.

**Customer e-commerce satisfaction:** Customer e-commerce satisfaction (CES) is the dependent variable in the extended and re-specified model. With the proliferation of e-commerce and e-commerce related services, interpersonal service encounters are giving way to self-service e-commerce systems that reduce the need for direct and intensive human interaction. Moreover, customers interact with e-commerce systems not for the mere purpose of extracting information but also to conduct a number of activities. Customer e-commerce satisfaction corresponds to the evaluation of the reaction or feeling of a customer in relation to his/her experience with all aspects of an e-commerce system (such as informational, transactional and service and support) put in place by an organization to market its products and services.

**Trust:** e-commerce use and satisfaction could be affected by customers' disposition towards security and privacy issues. Real and/or perceived fears of divulging personal information and customers' feelings of insecurity provide unique challenges to e-commerce operators to find ways in which to initiate e-commerce relationships. Customers are concerned about the level of security present when providing sensitive information online (Warrington et al, 2000) and will use e-commerce only when they develop a certain level of trust (Ferraro, 1998). Trust refers to the two important issues that are identified across studies in affecting the future of e-commerce systems – security and privacy.

Security relates to the protection of information or systems from unsanctioned intrusions or outflows (Lobel, 1999). Fear of the lack of security is one of the factors that have been identified in most studies as affecting e-commerce growth and development. The extent to which e-commerce systems ensure that transactions are conducted without any breach of security is an important consideration that might affect e-commerce use and customers' e-commerce satisfaction (Han and Noh, 1999; NNI, 1999). Privacy, on the other hand, refers to the ability of an individual to keep his/her identity confidential during the course of a transaction and the protection of various types of data that are collected (with or without the knowledge of customers) during customers' interaction with e-commerce systems. Privacy issues – such as the amount of personal information required to complete transactions, the privacy policy and rules followed by e-commerce sites and customers' disposition towards the provision and disclosure of personal data – may affect the Use of e-commerce systems and Customer Satisfaction (Han and Noh 2000). In general, the trust that customers have in the system to conclude their transaction securely and to maintain the privacy of their personal information affect their level of satisfaction and their voluntary use of e-commerce systems.

**Support:** A question of value to e-commerce operators is whether their customers will return to their site after their initial experience, i.e., loyalty. Some factors, which influence customers' loyalty have to do with the support the operator is capable of providing the customer across the transaction lifecycle. Customers value highly the support and service the operator provides during all phases (pre, during and after-sale) of the transaction (Young and Benamati, 2000;). This support and service can take different forms and may include the following: site intelligence (the extent to which the e-commerce system remembers repeat users and aids them in achieving goals), relevant search facilities, feedback, calculators, currency converters, tracking order/shipment status, account maintenance, payment alternatives, FAQs, etc (Kardaras and Karakostas, 1999; Schubert and Selz, 2001).

**3.1 Introduction**

This study aimed at evaluating the application of e-commerce by Microfinance Institutions in Kenya. This was done with the use of a structured questionnaire that employed 5-point Likert scale with Strongly Disagree and Strongly Agree anchoring the opposite ends of the response scale. The last part of the questionnaire that investigates the challenges of e-commerce used 3-point scale; Considerable problem, Some problem and No problem.

**3.2 Research Design**

Since this is an initial and exploratory study of evaluating the application of e-commerce system by microfinance institutions in Kenya, the survey method was considered to be the most suitable research method for this investigation.

**3.3 The Population**

The population of interest of this study was all Micro Finance Institutions who are under the umbrella body Association of Microfinance Institutions as at June 30<sup>th</sup> 2009. The study was a population survey. This was chosen to clarify their existence as registered entities operating under similar objectives. All the 33 AMFI members are represented in Nairobi, thus our study is done in Nairobi.

**3.4 Data Collection**

Primary data was collected using a structured questionnaire. The questionnaire was divided into two parts. The first part (A) captured the demographics. The second part (B) established the impact of e-commerce system on MFIs whereas the last section (C) captured the challenges. The questionnaire targeted respondents in the top decision making level or an information systems implementer in the organization. Thus the first set of questions of the questionnaire established the position of the officer and the level of education. Companies were initially contacted by telephone to obtain

the name of the Chief Executive Officer, Project Manager or equivalent to whom the introduction letter was addressed. An appointment was then sought to establish a convenient time to avail the introductory letter and the questionnaire and also established when the questionnaire could be collected. The introductory letter is attached on Appendix I.

### **3.5 Data Analysis**

The aim of data analysis was to test for validity, completeness and consistency with the statement; To evaluation e-commerce application by microfinance institutions in Kenya. A database was therefore prepared to record research outcomes. Tables, charts and percentages were used to represent the response rate from the response data. Part of the data was analyzed through the use of mean scores and standard deviations to rank factors being studied in order of their importance. Of particular importance is the use of factor analysis. Factor analysis is a statistical method used to describe variability among observed variables in terms of fewer unobserved variables called factors. The observed variables are modeled as linear combinations of the factors, plus "error" terms. The information gained about the interdependencies can be used later to reduce the set of variables in a dataset.

While factor analysis looks at correlation, principal component analysis looks at variability by performing a variance-maximizing rotation of the variable space, it takes into account all variability in the variables. In contrast, factor analysis estimates how much of the variability is due to common factors ("communality").

## CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

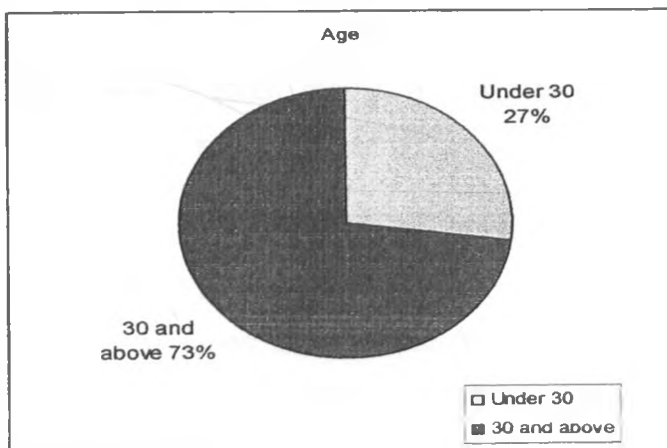
### 4.1 Introduction

This study aimed at evaluating e-commerce application by Microfinance Institutions in Kenya. It targeted 33 Microfinance institutions who are members of Association of Microfinance Institutions of Kenya (AMFI) to whom a structured questionnaire was administered. Out of the targeted respondents, 22 questionnaires were returned. This represents 66.67%. This is sufficient given that the representation is well over 50% of the population. Most of the respondents preferred filling in the questionnaire and picked later. 31.81% preferred sending through email whereas the rest 68.19% were administered at the site.

### 4.2 Demographic Profile of Respondents

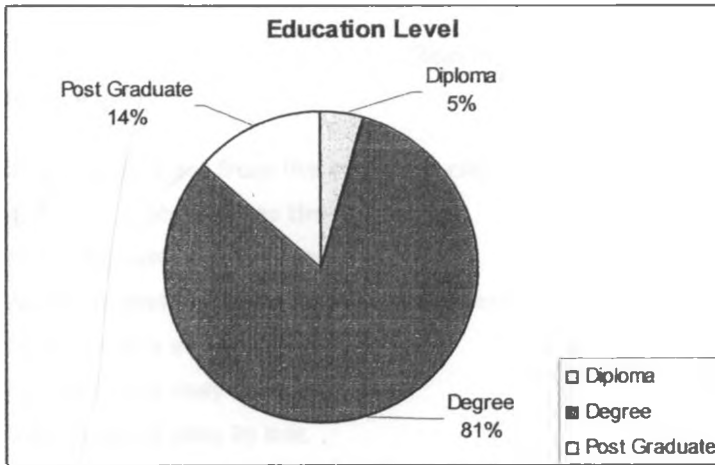
Graph 4.2.1 shows the profile of respondents i.e. the age, level of education, profession and designation, out of 22 respondents, 27% were under 30 years of age whereas 73% were 30 years and above. 18 respondents which represent 81% of the respondents are university degree holders. 14% of the respondents were postgraduate trained whereas only one respondent had diploma level of certificate. All respondents are at management level. These are shown in Graph 4.2.2.

**Graph 4.2.1 Age of Respondents**



Source: Survey Data

### Graph 4.2.2 Education Level



Source: Survey data

### 4.3 Descriptive Data Analysis

The Descriptive procedure in SPSS produces means and standard deviations for variables. Likert scale questions are appropriate to print means for since the number that is coded can give us a feel for which direction the average answer is. The standard deviation is also important as it gives us an indication of the average distance from the mean. A low standard deviation would mean that most observations cluster around the mean. A high standard deviation would mean that there was a lot of variation in the answers. A standard deviation of 0 is obtained when all responses to a question are the same. The scoring of answers from respondents in this study is reversed such that a rating of 1 is a score of 5 whereas a rating of 5 is score 1. Therefore in order to test the research model, a statistical analysis was conducted to aid in finding answers to the research questions.

Many technology adoption researches have been carried out to determine the importance of factors influencing application through the use of the mean and standard deviation. This research also used this approach to rank factors respondents' perceive they are important in determining their satisfaction with

various aspects of e-commerce System application. Table 4.3.1 displayed the ranks as follows.

**Ranking of Factors**

<b>Table 4.3.1</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Analysis N</b>
<b>Information I get from the system is clear</b>	4.68	.477	22
<b>Using the system saves time</b>	4.68	.568	22
<b>Using the system increases productivity</b>	4.59	.590	22
<b>Using the system improves job performance</b>	4.50	.598	22
<b>The system is accurate</b>	4.41	.590	22
<b>The system is easy to learn</b>	4.41	.666	22
<b>The system is easy to use</b>	4.41	.666	22
<b>The system meets the information processing needs of the business</b>	4.41	.590	22
<b>Equipment is readily available</b>	4.36	.902	22
<b>The system is upgradeable</b>	4.36	.658	22
<b>The system is flexible to the needs of business</b>	4.36	.727	22
<b>The system is reliable</b>	4.36	.727	22
<b>The system provides me with sufficient information</b>	4.36	.790	22
<b>The system provides me with up date information</b>	4.36	.727	22
<b>It is friendly</b>	4.32	.780	22
<b>System support is not a problem</b>	4.18	.958	22
<b>It is easy to get the system to do what I want it to do</b>	4.14	.834	22
<b>Competitors can acquire classified information from the company</b>	4.05	1.046	22
<b>The response time is acceptable</b>	4.05	.785	22
<b>There is enough know-how</b>	4.05	1.133	22
<b>It is easy to set up the system</b>	4.00	1.113	22
<b>Lack of personal contact</b>	3.95	.999	22
<b>The system poses a security breach to the company</b>	3.91	1.192	22
<b>The system invades privacy</b>	3.73	1.120	22

5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

From table 4.3.1 variables have been ranked as per their means in descending order based on the importance respondents attach as a determinant of success in the application of e-commerce system by MFIs.

Information I get from the system is clear. This variable was ranked highest with a mean score of 6.68. This means that information clarity received the highest number of votes as an important factor that determines the success in the application of e-commerce system. The variable; Using the system saves time, also has a mean score of 4.68 but with a higher standard deviation. This meant that responses to this factor varied.

Using the system increases productivity. This variable was ranked second with a mean score of 4.59. The factor was highly rated with a fairly low standard deviation. Productivity is therefore a key factor in determining success in the application of e-commerce system.

The third ranked factor is; Using the system improves job performance with a mean score of 4.50. This factor takes stock of the performance improvement as a determinant in the success of the application of e-commerce.

The fourth ranked factor is to do with system accuracy with a mean score of 4.41. Respondents' perception of system accuracy influences success in e-commerce system application. Other factors that had the same mean are; The system is easy to learn, The system is easy to use and lastly, The system meets the information processing needs of the business. They have varying standard deviations ranked accordingly which meant that respondents viewed the importance of the factor as the same but varied in their responses.

Contrastingly, the least 3 important factors fall under the sub category of System Trust. They are Lack of personal contact with a mean score of 3.95. The next is The system poses a security breach to the company with a mean score of 3.91 while the least is The system invades privacy with a mean of 3.73. Their standard deviations were very high denoting highly varied responses.



#### 4.4 Confirmatory Analysis of determinants of successful application of e-commerce system

Confirmatory analysis allows for the test of specific hypotheses about the factor structure for a set of variables, in one or several samples (e.g., comparing factor structures across samples). Over the past 15 years, so-called confirmatory methods have become increasingly popular ( Jöreskog and Sörbom, 1979). Table 4.4.1 displays factors that have been extracted using principal component analysis. After rotation of the sums of the variables, only six factors returned meaningful results.

Total Variance Explained						
Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.708	27.951	27.951	3.889	16.203	16.203
2	3.911	16.297	44.248	3.814	15.893	32.096
3	2.922	12.177	56.425	3.102	12.923	45.019
4	2.450	10.208	66.633	2.991	12.464	57.484
5	1.860	7.751	74.385	2.988	12.449	69.933
6	1.584	6.600	80.985	2.652	11.052	80.985
7	.986	4.110	85.095			
8	.909	3.788	88.882			
9	.633	2.637	91.520			
10	.505	2.102	93.622			
11	.384	1.600	95.222			
12	.274	1.143	96.365			
13	.247	1.030	97.396			
14	.183	.760	98.156			
15	.150	.624	98.780			
16	.110	.457	99.237			
17	9.142E-02	.381	99.618			
18	5.510E-02	.230	99.848			
19	2.049E-02	8.537E-02	99.933			
20	1.017E-02	4.236E-02	99.975			
21	5.923E-03	2.468E-02	100.000			
22	1.843E-16	7.679E-16	100.000			
23	-8.465E-17	-3.527E-16	100.000			

24      -4.721E-16      -1.967E-15      100.000

Extraction Method: Principal Component Analysis.

Since the variables and factors are assumed to be correlated, the sums of squared loadings in the table above cannot be added to obtain the total variance. We will therefore use the rotated component matrix shown in table 4.4.2 below for the factor analysis.

**Rotated Component Matrix**

**Table 4.4.2**

	<b>Component</b>					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Var1</b>	-2.477E-03	-8.152E-02	.798	.126	-.209	-6.457E-02
<b>Var2</b>	-.226	.548	5.792E-02	.572	.224	.422
<b>Var3</b>	.565	.158	.269	-.405	.427	-8.230E-02
<b>Var4</b>	.291	-.117	-.158	.774	.233	.274
<b>Var5</b>	-1.624E-02	.922	-1.617E-02	-8.658E-02	.105	.102
<b>Var6</b>	.397	.598	-.163	.244	1.460E-02	-9.515E-02
<b>Var7</b>	-3.240E-02	-.267	.821	-.283	.160	2.282E-02
<b>Var8</b>	-3.814E-04	.773	-5.273E-03	.217	.221	.321
<b>Var9</b>	.448	.472	-.194	.559	6.810E-02	-6.100E-02
<b>Var10</b>	.854	-5.860E-02	-.203	-1.582E-02	5.833E-02	7.567E-02
<b>Var11</b>	.281	.384	.641	-.434	-7.947E-02	-1.249E-02
<b>Var12</b>	.185	2.995E-02	-.296	7.777E-02	.691	.242
<b>Var13</b>	.917	4.854E-02	8.602E-02	.209	.178	-1.401E-02
<b>Var14</b>	.733	5.640E-02	.231	.371	7.699E-02	-5.189E-02
<b>Var15</b>	7.376E-02	.177	-6.729E-02	.888	.169	9.975E-02
<b>Var16</b>	.128	.345	-9.344E-02	.121	.799	-.146
<b>Var17</b>	.852	8.683E-02	.160	-8.812E-02	-4.882E-02	.277
<b>Var18</b>	.104	5.368E-02	.919	-6.686E-02	-.150	2.604E-02
<b>Var19</b>	7.698E-02	.493	-.117	.287	.709	-.114
<b>Var20</b>	-1.794E-02	.133	4.032E-02	.163	.824	.404
<b>Var21</b>	2.675E-02	.866	3.075E-02	-4.980E-02	.314	5.460E-02
<b>Var22</b>	.228	2.211E-02	.299	.170	-9.762E-02	.661
<b>Var23</b>	-.128	.190	-7.863E-02	.215	.233	.861
<b>Var24</b>	.129	7.414E-02	-.166	-3.696E-02	7.762E-02	.854

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 7 iterations.

The pattern matrix, obtained after an oblique rotation using varimax indicates that the significantly loaded factors are as follows:

Factor 1: The factor was significantly loaded by the following variables:

- Variable 14 is The system is easy to learn. The ease at which users can learn the system influences its application. The variable was weighted at 0.917.
- Variable 10 is: The system is upgradeable. System that is easily upgradeable determines its adoption and implementation. The weight is 0.854.
- Variable 18: The system meets the information processing needs of the business. That is, the successful application of the e-commerce system is influenced by the system ability to satisfy the company's information desire. The loading for this variable is 0.852.
- Variable 15: The system is easy to use. e-commerce system that users do not need much assistance to use positively influences its application. The variable was weighted at 0.733.
- Variable 3: Information I get from the system is clear. Information clarity influences the application of e-commerce system. The loading is 0.565.

Factor 2: The factor can be termed as System Support and was substantially factor loaded by the following:

- Variable 5: It is easy to setup the system. This influences the successful application of e-commerce system. The weight was 0.922.
- Variable 22: There is enough know-how. It weighted at 0.866. Successful application of e-commerce system is determined by know-how.
- Variable 8: System support is not a problem. That is the availability of user support as required determines the success of e-commerce application. The variable loading is 0.773.

- Variable 6: It is friendly. The ease at which the user can relate to the system influences the successful application of the system. The load was 0.598.
- Variable 2: Equipment is readily available. Availability of equipment influences the application of e-commerce system. The weighting was 0.548.

Factor 3: This factor can be named as Trust and has significant factor loadings from the following:

- Variable 19: The system poses a security breach to the company. Security breach influences the trust users may have on the system which determines application of the system. The variable loading is 0.919.
- Variable 7: Lack of personal contact influences the trust users have on the system. The variable received significant loading of 0.821.
- Variable 1: Competitors can acquire classified information from the company. Chances of confidential information flowing to the competitor affect greatly the trust users have on the system. That is successful application of e-commerce is affected by trust hinged on information security. The variable received significant load of 0.798.
- Variable 11: The system invades privacy. The intrusion on privacy of system users affect trust which in turn influence the application of e-commerce system. The variable was weighted at 0.641.

Factor 4: The factor was significantly loaded by the following variables:

- Variable 16: The system is flexible to the needs of the business. This determinant argues that successful application of e-commerce system is influenced by system flexibility and the variable was highly loaded at 0.888.
- Variable 4: It is easy to get the system to do what I want them to do. This determinant affects system usage and the variable is substantially loaded at 0.774.

- Variable 2: Equipment is readily available. This determinant affects system support which influences application of e-commerce system. The weighting is 0.572.
- Variable 9: The response time is significantly loaded at 0.559. System quality is determined by system response time.

Factor 5: This factor is highly loaded by the following factor loadings:

- Variable 21: The system provides me with up-to-date information. Content quality is influenced by the ability of the system to provide up-to-date information that affects e-commerce system application. The variable has a weighting of 0.824.
- Variable 17: The system is reliable. e-commerce system quality is determined by reliability which influences successful application. The weighting is 0.799.
- Variable 20: The system provides me with sufficient information. This means that content quality is a factor that influences the successful application of e-commerce by MFIs. This variable received substantial loadings of 0.709.
- Variable 12: The system is accurate. The preciseness of the information to the user needs affect the application of the e-commerce system. This was highly loaded at 0.691.

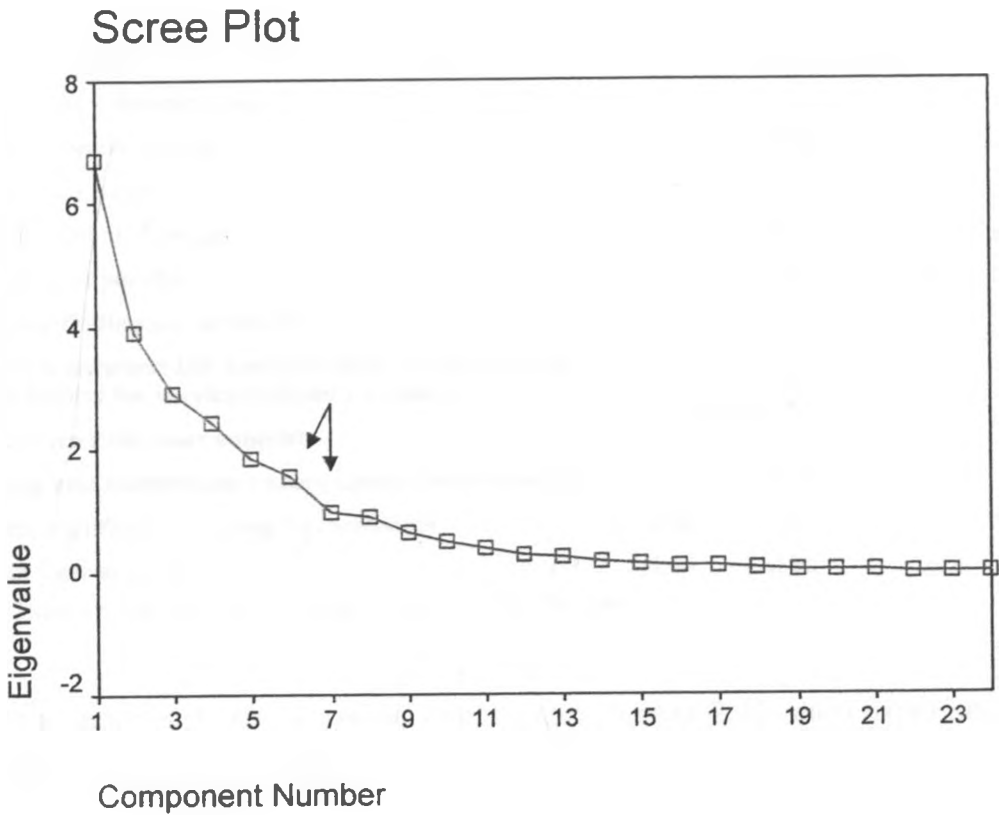
Factor 6: This factor can be termed System Usefulness and has substantial factor loading of:

- Variable 24: Using the system increases productivity. This affects system usefulness which in turn has an effect on e-commerce application. The weighting is 0.861.
- Variable 25: Using the system saves time. This variable greatly impacts on system usefulness that also has a bearing on the Successful application of e-commerce system. The variable was significantly loaded at 0.854.

- Variable 2: Using the system improves job performance. Performance improvement of the job influences the adoption and successful application of the e-commerce system. The variable was significantly weighted at 0.661.

Now that we have measured how much variance each successive factor extracts, the question of how many factors to retain can be answered by the following chart. It is by nature an arbitrary decision one guideline used in practice is the scree test. It is a graphical method proposed by Cattell (1966). Cattell suggests finding the place where the smooth decrease of eigenvalues appears to level off to the right of the plot. To the right of this point, presumably, one finds only "factorial scree" -- "scree" is the geological term referring to the debris which collects on the lower part of a rocky slope. According to this criterion, we would retain six factors according to chart 4.. below.

**Chart 4.4.1 Scree Plot**



According to the scree test above the successive eigenvalues were plotted on the graph and the scree factors are those found on the spot where the plot abruptly levels out as indicated by the arrows in Chart 4.4.1.

#### **4.5 Confirmatory and Descriptive Analysis of factors that challenge the application of e-commerce system**

Table 4.5.1 below ranks, by means scores, factors that respondents perceive as hindrances to the application of e-commerce by MFIs.

**Table 4.5.1****Descriptive Statistics - Ranking**

	<b>Mean</b>	<b>Std. Deviation</b>	<b>Analysis N</b>
<b>Unsolicited email</b>	2.45	.596	22
<b>Slow access / downloading</b>	2.41	.666	22
<b>Internet connection failures</b>	2.36	.790	22
<b>Cost of user support</b>	2.05	.653	22
<b>Security breach / fraud</b>	2.05	.653	22
<b>Reliability of service</b>	1.91	.684	22
<b>Difficulty finding our websites</b>	1.91	.610	22
<b>Problems between ISP and telecoms supplier taking responsibility for service failures / problems</b>	1.91	.610	22
<b>Poor advice from user support</b>	1.86	.774	22
<b>Running and maintenance more costly than expected</b>	1.68	.646	22
<b>Customer difficulty in using our websites</b>	1.68	.568	22
<b>Lack of user support</b>	1.64	.581	22

3=Considerable Problem, 2=Some Problem, 1=No Problem

The first factor is Unsolicited email with a mean score of 2.45 which expresses the concern users have as a threat to the system. The second factor is Slow access/downloading with a mean of 2.45, that is, respondents spend so much time and resources for less information from the Internet.

The third ranked item is Internet connection failures with a mean of 2.36. Internet failures disrupt communication and distort information content thus playing a major role as a challenge to the application of e-commerce system. Cost of user support ranked fourth scoring a mean of 2.05 thus becoming a challenge to the application of e-commerce system. This factor tied with Security breach/fraud in becoming an obstacle to the application of e-commerce system. Their standard deviations are also the same meaning that responses are converged. Reliability of service, Difficulty finding our websites and Problems between ISPs taking responsibility for service failures/problems are three factors that have tied in position five with average means score of 1.91.



Lack of user support with a mean score of 1.64 came as the last in the factors where respondents consider as problems to the application of e-commerce system by MFIs.

**Table 4.5.2**

**Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.448	28.731	28.731	3.448	28.731	28.731
2	2.017	16.808	45.538	2.017	16.808	45.538
3	1.496	12.464	58.003	1.496	12.464	58.003
4	1.417	11.805	69.808	1.417	11.805	69.808
5	1.007	8.396	78.203	1.007	8.396	78.203
6	.844	7.034	85.237			
7	.649	5.406	90.643			
8	.380	3.168	93.811			
9	.305	2.546	96.356			
10	.264	2.203	98.559			
11	.116	.966	99.525			
12	5.703E-02	.475	100.000			

Extraction Method: Principal Component Analysis.

**Table 4.5.3**

**Component Matrix**

	Component				
	1	2	3	4	5
<b>VAR1</b>	.670	5.727E-02	.423	6.366E-02	.290
<b>VAR2</b>	.301	-.583	-.261	.431	-.227
<b>VAR3</b>	.474	-.616	.429	.312	-1.328E-02
<b>VAR4</b>	.845	-.143	-.103	-.251	2.236E-02
<b>VAR5</b>	.220	.597	.167	.573	-.244
<b>VAR6</b>	.445	.768	-7.733E-03	.217	-.147
<b>VAR7</b>	.249	.231	.509	-7.785E-02	.425
<b>VAR8</b>	.752	.239	.135	-.230	-.362
<b>VAR9</b>	.379	-3.190E-02	-.394	.450	.634
<b>VAR10</b>	.701	-.118	-.491	.162	-.162
<b>VAR11</b>	.553	-.333	.229	-.428	-.104
<b>VAR12</b>	.394	.300	-.548	-.470	.198

Extraction Method: Principal Component Analysis.

5 components extracted.

From table 4.5.2 we retain only factors with eigenvalues greater than 1. Unless a factor extracts at least as much as the equivalent of one original variable, we drop it. The appropriate criterion was proposed by Kaiser (1960), and is probably the one most widely used. In our data above, using this criterion, we would retain 5 factors (principal components) as shown in Table 4.5.3.

Factor1: This factor had the following significant factor loadings:

- VAR4: Internet connection failures. This had a weighting of 0.845. This shows the perception of system user that internet connection failure is a challenge.
- VAR8: Reliability of service. This variable influences the perception of system users as a considerable challenge to the application of e-commerce. It captured a weight of 0.752.
- VAR10: Security breach / fraud. The perceived threat to security or susceptibility to fraud attacks determines the trust users can have in the system. The variable had loadings of 0.701.
- VAR1: Cost of user support. Challenge to e-commerce system application is determined by the cost users have to bear to enjoy the service. The variable weighted at 0.670.
- VAR11: Slow access / downloading. The perception that users encounter problems in loading website due to low speed is a challenge to system application. This variable was loaded at 0.553.

Factor 2: This factor had significant factor loadings from the following:

- VAR6: Poor advice from user support. The lack advice from user support to system users when they require it influences system application thus posing a challenge. The variable loaded at 0.768.
- VAR5: Lack of user support. The perception of users as to the absence of required support is a challenge to the application of e-commerce system by MFIs. The variable captured a weight of 0.597.

Factor 3: The factor was significantly factor loaded by the following variables:

- VAR7: Problems between ISPs and telecom supplier taking responsibility for service failures/problems. Challenges to the application of e-commerce system by MFIs is influenced by the perception about problems that exist within the suppliers of the service. The weight for this variable is 0.509.

Factor 4: This factor had significant factor loading from the following:

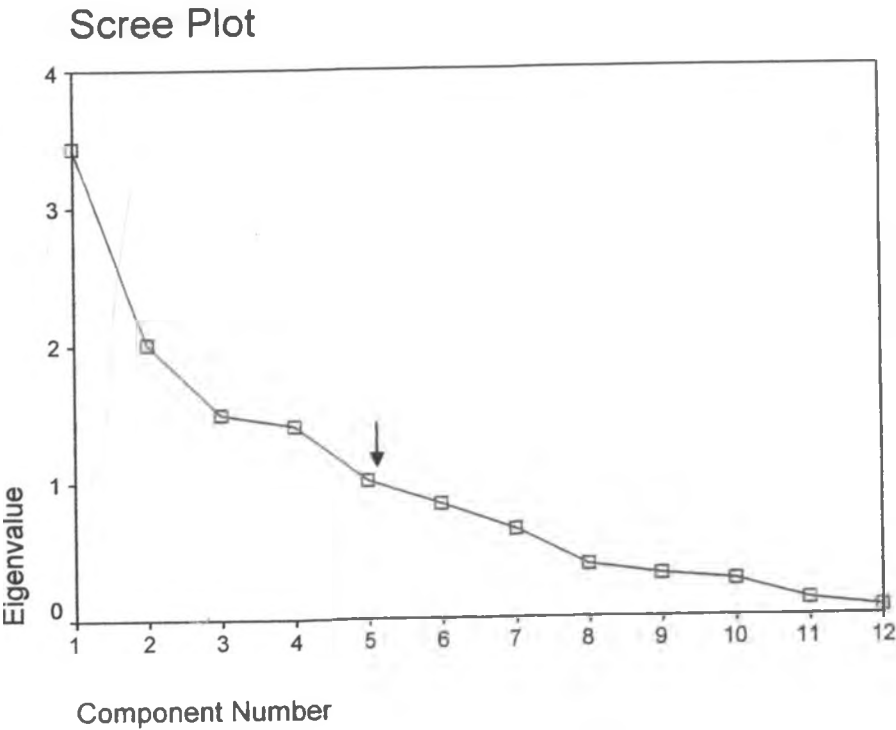
- VAR5: Lack of user support. The perceived lack of support influences the application of e-commerce system. The weight is 0.597.

Factor 5: The factor received substantial factor loading from the following:

- VAR9: Running and maintenance more costly than expected. The variable was substantially loaded at 0.637.

The eigenvalues placed in a scree test can be displayed in the following scree plot diagram. Cattell suggests to find the place where the smooth decrease of eigenvalues appears to level off to the right of the plot. To the right of this point, presumably, one finds only "factorial scree", that is 5 factors in our case as shown by the arrow in Chart 4.5.1.

Chart 4.5.1 Scree Plot



## CHAPTER FIVE: SUMMARY AND CONCLUSIONS

### 5.1 Summary of Research Findings

The study was set to evaluate the application of e-commerce by Microfinance Institutions in Kenya. All institutions covered by the study have well laid out e-commerce engagement with their clients, the public and themselves. Most e-commerce issues are given priority as shown by the profile of those who responded during the interview. e-commerce or Information Systems are core in the training of staff and also qualifying criterion during staff selection process. The study showed that only one out of the 22 respondents was not a degree holder. The institutions placement of highly qualified individuals with ICT knowledge in key management positions is indeed by design to strengthen their competitive wedge against the increasingly unpredictable market. The individuals apart from their core functions also prod the market for new technological changes and accordingly appraise their respective institutions with the new developments. All these are geared towards satisfaction of the e-commerce systems user.

#### 5.1.1 Factors that affect success in application of e-commerce by MFIs

**Content and System Quality.** Information clarity and upgradeability of e-commerce system ranked highly as factors that determine success in the application of the system among system users. Information accessed from the system should be free from ambiguity and distortion. Contrary to this can be quite costly to the institutions in their business strategies of harnessing technology as a competitive market tool. Of particular focus is the content that is displayed in their websites. They have highly trained staffs who are assigned the duty to ensure that website content is accurate, complete, up-to-date, timely and reliable. Every e-commerce site has a feedback facility where clients or systems users can communicate back about their satisfaction or otherwise. Compliments and frustrations are communicated in equal

measure. MFIs have invested so much on e-commerce to make sure that they are ever present in the financial arena on a 24/7 mode. Some have teamed up with other financial institutions to offer 24-hour ATMs whereas others have arrangements with Safaricom Mpesa and Zain Zap money transfer products. MFIs operate in both urban and rural areas. Some of the rural areas have the least developed infrastructure to allow conventional banking services reach the poor communities. The study has clearly showed preference for the system in these areas where system users do not require complicated bank hall to transact business. With a computer, some often powered by solar energy and internet enabling modems, customers can transact business satisfactorily.

From the findings system upgradeability featured in factor 1 as highly loaded variable and this is confirmed by the system integration MFIs have done with other service providers e.g. Safaricom, Zain, KPLC and recently NHIF.

**Use.** The research findings showed Use factors as highly loaded in Factor 1, 2, and 4. Ease of use which was the highest loaded variable confirms the weight respondents attach to influence the successful application of e-commerce system. The ability of the system to meet the information processing needs of the business featured prominently as one important determining factor as far as the success of the application of e-commerce system by MFIs in Kenya is concerned. Websites that are frequently visited and measured by hits can count success in the system since most of the visits and followed by other actions such as physical visits to the business for actual transactions. The friendliness of the e-commerce system is indeed an initial success because it encourages higher use level.

**System Usefulness.** The entire Factor 6 in Table 4.4.2 is loaded with variables under System Usefulness. Increase in productivity was the highest factor loaded variable. Usefulness of e-commerce in the overall operations of the MFIs has harmonized the operations of the institutions such that one

person can now do duties that required more people. For example capturing of sales data and posting them into ledgers are now done online. e-commerce has enabled interactive sessions between MFIs and clients through websites and other telecoms. Advertisements and other product information can now be cost effectively disseminated through ATMs, electronic notice boards and mobile phones. Customer records are being input and updated almost effortlessly by the customers themselves from an e-commerce point such as a website. Less intensive human interaction has now given way to more self-service counters where customers have the benefit of multiple transactions in one session. The simplicity or complexity of the system rendering the service is a significant determinant of the efficiency or inefficiency of a transaction.

**Security and privacy;** were found by the study as major concern to MFIs. Factor 3 in Table 4.4.2 and the subsequent explanation of the factors hinged on Trust whose factors have been substantially loaded. If users' privacy is not protected when using an e-commerce system, they simply will not use it again, making it very difficult to achieve critical mass. Users are becoming more aware of privacy issues and comparing the privacy policies of company sites with those of competitors. This research also found out that Security is protection from intended and unintended breaches that would result in the loss or dissemination of data and is not just about installing the latest security devices and deploying the most modern security technologies. Information security is a combination of business, management and technical measures on an ongoing basis. To secure trust by e-commerce system users is a priority for institutions. Real and perceived fears of divulging personal information affect system satisfaction. Lack of personal contact remains an issue in the technological advancement because physical presence is not substitutable with virtual presence. On security threats MFIs have addressed these by installing reliable systems and up-to-date information technology, competent staff have been deployed and aggressive educational campaigns through various modes have been launched. In fact all the MFIs covered by the study have elevated Information Systems divisions into fully-fledged departments to shore up confidants of clients and system users. This is in recognition to the enormous potential of e-

commerce as a complete paradigm shift in the way business is now being done. The threat posed by computer hackers always cause panic and managers acknowledge that information piracy is equally a threat. Accordingly large funds have been invested to address this and secure confidence in the e-commerce systems. Apart from physical security installed such as burglar-proof doors in ATMs sites, other measures are electronic such as firewalls and secret passwords for system users. System users are required to clear a string of huddles such as pin numbers, passwords and private questions that are appended with private answers to authenticate the individual before allowing any electronic transaction.

**Support.** From the study almost the entire Factor 2 is significantly loaded by System Support factors. System set up ease counts greatly to the success of e-commerce system application. With a little basic instruction, some of it coming from interactive sessions with system, a user should be able to do self installation. This fact complemented by readily available equipment. Customers value highly the support from system providers throughout the entire transaction cycle. In the case of a website; site intelligence, relevant search facilities, feedback, tracking order/shipment status and currency converters are necessary features that enhance customer satisfaction.

### **5.1.2 Challenges of e-commerce**

Our second objective of the study was to determine factors present challenges to the successful application of e-commerce. The discussion that follows draws its observations from Tables 4.5.2 and 4.5.3.

In Factor 1 Internet connection failures were substantially loaded which resonates well with the experiences developing economies face in accessing the Internet. This is due to general teething problems in these economies such as poor infrastructure e.g. low bandwidth and expensive connection. The recent successful completion of the laying of the sea cable in the Indian Ocean was a major antidote to the problem.



Reliability of service was also highly loaded as a factor challenging e-commerce application. Again this is attributed to poor telecommunication infrastructure. Low bandwidth and outdated telecom equipment are usually major culprits.

Perhaps the biggest obstacle in modern times is security threat from internet fraudsters. Internet crime is serious because it is usually committed by people who are so knowledgeable and many times more skilled than average system technology graduate. The cost of e-commerce system fraud is so enormous as to reverse the gains made by system application.

The cost of purchase and installing the system might not be scaring because they are usually one-off funds outflow. This not the case for the cost of system support because support is continuous throughout the use of the system. In the long run the accumulative costs might be prohibitively high.

Slow access to the Internet and subsequent slow download of information is an impediment to system adoption. This problem draws its argument on the telecoms infrastructure, just like reliability and connection failures.

Poor advice results from unqualified system support who lack the training to guide proper use of the system. It can also emanate from lack of equipment and unmotivated staff.

One factor that is solely loaded in Factor 3 is Problems between ISPs and telecom supplier taking responsibility for service failures/problems. When there was only Telkom Kenya as the monopoly ISP service failure was at alarming levels. Competition improved service delivery especially with the installation of CCK as a regulator to level the playing field for ISPs.

**Some Remedial Measures:** Computers with important data have been placed on hierarchical security measures such that the one that has very sensitive and crucial data is always at the apex of the security arrangement. The Government has also recognized the potential of ICT and has constantly worked closely with system providers through passing of legislation to promote the use of e-commerce. ICT enthusiasts have also been lobbying to exert more pressure on the Government to strengthen regulatory laws to deal with internet fraud.

More challenges are internal to the companies. As was found out by the study, MFIs have a shortage in human resource capacity to fully exploit the potential of e-commerce. Training of e-commerce personnel is costly and time consuming. Few institutions that are well endowed have taken this option whereas others have opted to outsourcing of manpower from ICT consultants. Either option is costly but the benefit is the overriding goal.

## **5.2. Conclusion**

e-commerce has become a way of doing business, be it in handling physical products or in service delivery. Travel, finance and service sectors have benefited most from e-commerce. MFIs staff and customers are increasingly becoming an educated lot and have become more Internet savvy. Falling short of a faster way of service delivery will negatively impact on customer satisfaction. Internet connections are increasingly becoming faster and reliable especially with the introduction marine and terrestrial cables. Online transaction costs are likely to come down correspondingly with the reduction of connection costs. This will lead to a more satisfied client base.

## **5.3: Recommendations**

From the study it can be deduced that e-commerce has a great future in the way business is done. Equally said are great the challenges in the way of e-commerce systems application. Institutions should try to find solutions not just within their company precincts. They should join hands with other users

in building knowledge base to strengthen capacity in e-commerce. Research funds should be channeled to universities and other research institutions to develop home grown e-commerce solutions and also strengthen security. This will build systems user confidence, trust and satisfaction on e-commerce applications.

#### **5.4. Limitations of the study**

The study was only limited to those institutions that are members of AMFI. They are only 33 as at the time of the study. Considering the vast nature of business activities low income earners engage in, the services offered by many groups often go unnoticed by mainstream MFIs. As such more groups have strong savings that are not captured by MFIs under AMFI.

Some managers were reluctant to answer questionnaires or allow their assistants to do so. This led to the total response rate to be 66.67%. This undermines the morale and the determination to achieve the objectives of research.

#### **5.5: Suggestions for further study**

The study recommends further research on the other vehicles that the low-income group use to mobilize funds and other non-financial efforts to improve the socioeconomic well-being. Of particular importance are the numerous merry-go-rounds women engage in that are believed to involve large savings in numerous small quantities. They are known to have a direct impact on the members. Studies should be carried out on how e-commerce can benefit more this group of organization.

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# APPENDIX 1

## QUESTIONNAIRE

### Section A

**Fill in the questions below.**

Your name (Optional) \_\_\_\_\_

Your Age \_\_\_\_\_

Level of Education \_\_\_\_\_

Your profession \_\_\_\_\_

Your designation \_\_\_\_\_

Name of your institution \_\_\_\_\_

### Section B

**Please answer by ticking once in the box against each question in the following tables.**

#### **Content Quality...**

	<b>Strongly Agree-----Strongly Disagree</b>				
	1	2	3	4	5
Information I get from the system is clear					
The system is accurate					
The system provides me with up-to-date information					
The system provides me with sufficient information					

#### **System Quality...**

	<b>Strongly Agree-----Strongly Disagree</b>				
	1	2	3	4	5
The system is reliable					
The system is flexible to the needs of the business					
The response time is acceptable					
The system is upgradeable					

System Usefulness...	Strongly Agree-----Strongly Disagree				
	1	2	3	4	5
Using the system increases productivity					
Using the system saves time					
Using the system improves job performance					
The system meets the information processing needs of the business					

System Usage...	Strongly Agree-----Strongly Disagree				
	1	2	3	4	5
The system is easy to use					
The system is easy to learn					
It is easy to get the system to do what I want it to do					
It is friendly					

Trust...	Strongly Agree---Strongly Disagree				
	1	2	3	4	5
The system invades privacy					
The system poses a security breach to the company					
Competitors can acquire classified information from the company					
Lack of personal contact					

Support...	Strongly Agree --Strongly Disagree				
	1	2	3	4	5
There is enough know-how					
Equipment is readily available					
System support is not a problem					
It is easy to set up the system					



## **Section C**

**To what extent did you experience any of the following problems with the Internet or since you started using it?**

	<b>Considerable Problem</b>	<b>Some Problem</b>	<b>No Problem</b>
Slow access / downloading			
Unsolicited email			
Security breach / fraud			
Internet connection failures			
Reliability of service			
Customer difficulty in using / finding our website			
Difficulty using / finding websites			
Running and maintenance more costly than expected			
Lack of user support			
Poor advice from user support			
Cost of user support			
Problems between ISP and telecoms supplier taking responsibility for service failures/problems			

## APPENDIX 2

### LETTER OF INTRODUCTION

Paul Kipkech,  
P.O. Box 363,  
KITENGELA.  
Email: [pakip2000@yahoo.com](mailto:pakip2000@yahoo.com)

Dear Sir/Madam,

**Re: Research on the success of e-commerce application by  
Microfinance Institutions in Kenya**

I am a student at the University of Nairobi pursuing a masters degree in Business Administration (MBA). Attached here with is a questionnaire that I would like it filled. I am undertaking the above research project as part of the academic requirements, I would be grateful if you spare sometime to fill the questionnaire.

The questions relate to the use of e-commerce (Internet, company website and email) in its operations. Upon completion of the questions, kindly email it back or drop it so I can pick from your reception desk

The information you give shall be treated with utmost confidentiality and will be used solely for this research.

Yours Faithfully,

Paul Kipkech  
MBA Student

## APPENDIX 3

### AMFI MEMBERS

- |   |  |    |  |
|---|--|----|--|
| 1 | AAR Credit Services<br>NAIROBI<br>P.O BOX 41766 GPO<br>Tel: 2715319<br>Fax: 2715328<br>www.aarcredit.com   | 6  | CIC Insurance<br>Nairobi<br>CIC Plaza, Mara Road<br>P.O Box 59485-00200,<br>NAIROBI.<br>Tel:2823000<br>Fax: 2823333<br>www.cic.co.ke   |
| 2 | ADOK TIMO<br>Kisumu City<br>Sifa House, Ground Floor,<br>Mission Rd.<br>Off Kakamega Rd.<br>Tel: 057 2025570<br>P.O. Box 3650-40100  | 7  | Co-operative Bank<br>Co-operative Bank House<br>P.O BOX 48231-00100,<br>NAIROBI<br>TEL: 3276210<br>Fax: 249480<br>www.co-opbank.co.ke  |
| 3 | Agakhan Foundation<br>Nairobi<br>Mpaka plaza, Westlands 3rd<br>floor<br>P.O BOX 13149-00100,<br>NAIROBI<br>Tel: 4451349/6/8<br>Fax: 4451349<br>www.akdn.org                  | 8  | ECLOF<br>Rhapta Road, Plot No.47<br>next to Liza Apartments, P.O<br>BOX 34889 NAIROBI<br>Tel: 254-020-<br>4453947,4453948<br>Cell: 0721344699<br>Fax: 254-020-4454006<br>www.eclof.org |
| 4 | AIG Kenya Insurance<br>Company Ltd.<br>AIG House, Eden Square<br>Complex, Chiromo Road<br>P.o Box 49460-00100,<br>Nairobi.<br>Tel: 020-3676901/3751800<br>Fax: 020-3676001-2 | 9  | Elite Microfinance<br>MOMBASA<br>P.O BOX 2111 MOMBASA<br>Tel: 041-5486771<br>Cell: 0720735514<br>Fax: 5486767  |
| 5 | BIMAS<br>BIMAS Comlex Opposite<br>Shell Petrol Station Embu.<br>P.O BOX 2299 EMBU<br>Tel: 068-31645<br>Fax: 068-31573  | 10 | Equity Bank<br>NHIF Building Upper Hill<br>P.O BOX 75104-00200<br>NAIROBI<br>Tel: 27366620/17<br>www.equitybank.com  |

- 11 Faulu Kenya  
Ngong Lane, Off Ngong  
Road  
P.O BOX 60240-00200  
NAIROBI  
Tel:3877290/3872184/4  
Fax:3867504/3874857  
www.faulukenya.com
- 12 Fusion Capital Ltd  
View Park Towers 10th Floor  
Tel: 247538/218223  
Fax: 219738  
www.fusioncapital.org
- 13 Jamii Bora  
Industrial Area  
P.O BOX 2704-00202  
NAIROBI  
Tel: 2034514/3/2/2034543  
0722-937516/0733691564  
www.jamiibora.org
- 14 Jitegemea Credit Scheme  
KCB Plaza Jogoo Road  
P.O BOX 46514, NAIROBI  
Tel: 535866/552169
- 15 Jitegeme Trust  
Lenana Road, Roshan Maer  
Place  
P.O BOX 21768-00505  
NAIROBI, Tel: 3874693 /  
3872998  
Fax 561120
- 16 K-rep Bank Ltd  
Opposite Precious Blood  
Girls Sec School. Naivasha  
Rd -Kawangware  
P.O BOX 25363-00603  
NAIROBI  
Tel 3871511  
Fax 3873178  
www.k-repbank.com
- 17 K-rep Development Agency
- 18 KADET  
Capital Hill Towers  
P.O BOX 1676-00200  
NAIROBI  
Tel: 2731954/87  
Fax: 2731955  
www.kadet.co.ke
- 19 Kenya Gatsby Trust  
ACK Garden Hse 6thFlr,  
WingD  
P.O BOX 44817-00100  
NAIROBI  
Tel:  
2720711/2720703/2720571  
Fax: 2721707  
Cell:  
0722201233/0735337661  
www.kenyagatsby.org
- 20 Kenya Post Office Savings  
Bank  
Post Bank House Banda  
Street  
P.O BOX 30311-00100  
NAIROBI.  
Tel 229551-6  
Fax: 229186  
www.postbank.co.ke
- 21 Kenya Women Finance Trust  
Muchai Drive Off Ngong  
Road  
P.O BOX 55919 NAIROBI.  
Tel 2712903/2712823  
Fax 2723303  
www.kwft.org
- 22 Micro Kenya Ltd  
Off Lenana Road  
P.O BOX 52926 NAIROBI

- Tel: 2727373  
Fax: 2721745
- 23 Millenia Multipurpose credit Society  
P.O BOX 12056, NAKURU  
Tel: 051-2214943
- 24 OIKO CREDIT  
AACC Building 4th Flr  
Waiyaki Way  
P.O BOX 67181 NAIROBI  
Tel: 4445845/4441442  
Fax: 4445318  
www.oikocredit.org
- 25 Plan Internationa  
Central/Nyaza  
North Star Building Lenana Road  
P.O BOX 3870420 NAIROBI  
Tel: 3870216/3874987/  
3862593  
www.plan-international.org
- 26 SISDO  
Next to Adams Arcade  
P.O BOX 76622-00508  
NAIROBI  
Tel : 3870280  
Fax: 3871531  
www.sisdo.org
- 27 SMEP  
Kirichwa Road Off Argwings  
Kodhek Road  
P.O BOX 64063 NAIROBI  
Tel:3870162/3861927  
Fax:3870191  
www.smep.co.ke
- 28 SNV  
Wood Gardens Off Wood  
Avenue Kilimani.
- P.O BOX 30776-00100  
NAIROBI  
Tel: 3870960/8  
Fax: 3872491  
www.snvworld.org
- 29 SUNLINK  
3rd Floor Woodvale Place,  
Woodvale Groove  
P.O BOX 13874-00800  
NAIROBI  
Tel:4450750/1  
Fax: 4450752  
www.mpl.co.ke
- 30 Swiss Contact  
Nairobi  
Westlands,Vanguard House,  
6th Floor,  
P.o Box 47996-00100,  
NAIROBI  
Tel: 4445284  
Fax: 4445315  
www.swisscontact.co.ke
- 31 WEDCO  
Onginga Ondiga Street  
Opposite Swan Centre  
P.O BOX 6711-40103  
KISUMU  
Tel: 057-2021211/2034849  
Fax: 057-21680  
0722-205171/ 0733609996
- 32 WEEC  
Kiserian Off Magadi Road.  
P.O BOX 486 KISERIAN  
Tel: 045-25226
- 33 Yehu Enterprises Support  
Services  
Kwale District  
P.O BOX 82120 NAIROBI  
Tel: 041-224406  
www.yehu.org

Source: AMFI Kenya