

**E-COMMERCE ADOPTION BY FORMAL MICRO AND SMALL ENTERPRISES IN
NAIROBI, KENYA**

KIBUKO K. KINYA

**SUPERVISED BY
DR. MURANGA NJIHIA**

**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS
ADMINISTRATION (MBA), SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI**

2013

DECLARATION

This research project is my original work and has not been presented for award of a degree at the University of Nairobi or any other university.

Signature..... Date.....

KIBUKO K. KINYA

D61/67880/2011

This research project has been submitted for examination with my approval as the university supervisor.

Signature..... Date.....

Dr. MURANGA NJIHIA

Chairman, Department of Management Science

DEDICATION

I dedicate this work to my parents Mr. Samuel Kibuko and Mrs. Florah Kibuko, my sister Doreen, my brothers Denis and Peter and my niece Aby for their endless love, patience and encouragement in supporting me all through. May this work be an inspiration to you to strive for higher and greater heights in your endeavors in life.

To my parents and siblings,
Thank you for your love and support

My extended family and friends
You are God's Gifts to me.

ACKNOWLEDGEMENT

I would like to thank the Almighty God, through whom all things are made possible.

I wish to express my gratitude to my Supervisor Dr. Muranga Njihia for his guidance, motivation and patience throughout the project. I am also indebted to Mr. Onserio Nyamwange for his guidance as my moderator.

I am also grateful to my family and friends for their encouragement and support during my entire period of study.

Special appreciation to all the Owners and Managers of Micro and Small enterprises operating in the Central Business District who graciously gave their time to fill the research instrument without whose cooperation this project wouldn't have been a success.

ABSTRACT

The objective of the study was to identify the factors that influence the adoption and utilization of e-commerce by the micro and small sized enterprises (MSEs) operating within the NCBD. The research design adopted was a cross sectional survey.

The study population comprised of all MSEs with formal premises registered with the Nairobi City Council operating within the NCBD. The main source of data was primary data. The primary data collection instrument was a structured questionnaire with both open and close ended questions developed by the researcher. The structured questionnaire was administered through personal interviews with the business owners or the managers of the businesses.

The data collected was analyzed using the factor analysis statistical method to determine the combination of factors that were most appealing to MSE managers or owners. Descriptive statistics method was also used. This involved the use of frequency tables, percentages, rank ordering and mean scores. Frequency tables were used for arraying data obtained to facilitate working out percentages in order to address the objective of the study.

The results show that MSEs in Kenya are sole proprietorships and are mostly operated by young people who have at least a secondary level of education and in most cases college education. The findings further indicate that of the four factors considered skills and IT knowledge levels of business owners and staff accounted for the greater adoption of e-commerce by formal MSEs in Nairobi Kenya. Arising from the study findings the researcher therefore recommends that the government should enact legislation to regulate the ICT industry in Kenya with a few of reducing the cost of ICT applications. The management of formal MSEs should also ensure that their employees are trained on ICT aspects.

TABLE OF CONTENTS

DECLARATION	2
DEDICATION	3
ACKNOWLEDGEMENT	4
CHAPTER ONE	9
INTRODUCTION	11
1.1 Background of the study	11
1.1.1 E- Commerce Adoption.....	11
1.1.2 Formal Micro and Small Enterprises in Nairobi, Kenya.....	13
1.2 Statement of the problem	14
1.3 Objectives of the Study	15
1.4 Value of the Study.....	15
CHAPTER TWO	17
LITERATURE REVIEW	17
2.1 Introduction	17
2.2 E-commerce	17
2.3 Factors influencing utilization of e-commerce.....	18
2.3.1 Individual Factors.....	18
2.3.2 Organizational Factors.....	19
2.3.3 Technological Factors.....	20
2.3.4 Environmental Factors.....	20
2.4 Inhibitors of E-commerce.....	21
2.5 Theories of Technology Adoption	22
2.6 Empirical Studies	23
2.7 Chapter Summary	24

CHAPTER THREE	26
RESEARCH METHODOLOGY	26
3.1 Introduction	26
3.2 Research Design	26
3.3 Target Population	26
3.4 Sample Design	26
3.5 Data Collection	27
3.6 Data Analysis	27
CHAPTER FOUR.....	28
DATA ANALYSIS AND INTERPRETATION.....	28
4.1 Introduction	28
4.2 Data Analysis and Presentation.....	28
4.3 General Information	28
4.3.1 Respondent Position	28
4.3.2 Gender of Respondents.....	29
4.2.3 Age Distribution	29
4.3.4.Level of Education and Management Qualification.....	29
4.2.5.Number of Years in Business	30
4.2.6 Form of Enterprise.....	31
4.2.7.Use of E-commerce, Internet and other IT tools	32
4.4 Use of ICT and Internet by MSEs.....	32
4.5 Factors Influencing Adoption of E-Commerce.....	33
4.5.1Awareness of Benefits of E-Commerce	33
4.5.2 Cost of E-Commerce	34
4.5.3 Technical Skills and IT Knowledge of Owners and Staff.....	35
4.5.4 Environmental Factors.....	36
4.6 Factor Influencing Adoption of e-commerce cvy	37

CHAPTER FIVE	48
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	48
5.1 Introduction	48
5.2 Summary and Discussions	48
5.3 Conclusion.....	49
5.4 Recommendations	49
5.5 Limitations of the Study	50
5.6 Suggestions for Further Research	50
APPENDIX 1: INTRODUCTORY LETTER.....	57
APPENDIX 11: QUESTIONNAIRE	58

LIST OF TABLES

Table 4.1 Purpose of E-Commerce Applications.....	33
Table 4.2 Awareness of E-Commerce	34
Table 4.3 Cost of E-Commerce.....	35
Table 4.4 Technical Knowledge and IT Skills.....	36
Table 4.5 Environmental Factors	37
Table 4.6: Communalities- Adoption of E-Commerce	38
Table 4.7: Total Variance Explained- Adoption of E-Commerce.....	40
Table4.8: Correlation Matrix- Adoption of E-Commerce	41
Table 4.9: Key Variables	44

LIST OF FIGURES

Figure 4.1 Age of Respondent	29
Figure 4.2 Level of Education	30
Figure 4.3 Management Training Qualifications	30
Figure 4.4 Number of Years in Business	31
Figure 4.5 Form of Enterprise.....	31
Figure 4.6 Use of E-Commerce	32
Figure 4.7: Scree Plot on E-Commerce Adoption	45

CHAPTER ONE : INTRODUCTION

1.1 Background of the study

Recent development of Information and Communications Technologies including electronic data transfer, internet and World network has caused an increased complexity of system effectiveness on buyer-supplier relationships in a supply chain. This complexity of supply chain management makes companies to improve on on-line communication systems so as to gain a competitive advantage in the market. For Instance, the internet may be used to increase relations through increased interactions among companies and the customer. Supply chain management focuses on general and long-term benefits and advantages for all members which include improving efficiency in ordering, transfer of money, appointing of suppliers, reducing bureaucracy and short-term order flow, through increased cooperation of buyers-supplier, betterment of inter-organizational processes, removing the intermediates, receipt of consultants based upon buying and transfer of power from seller to buyer all of which are made possible through the use of e-commerce (Nikakhtar and Yang, 2011).

Globally MSEs account for eighty percent of a country's economic growth and are therefore considered the engine of growth of the world economy (Bodorick, Dhliwal and Jutla, 2002). In some other countries however, they account for more than ninety percent of the total business. With this large number of MSEs, it is therefore very important that enterprises engage in the use of e-commerce as it allows them to expand to new geographic areas, increase effectiveness in cost within the supply chain and improves a firms visibility (Ericksson, Hultman and Naldi, 2008).

1.1.1 E- Commerce Adoption

Electronic Commerce (e-commerce) is the process of buying, selling, transferring, or exchanging products, services and information based on conditions such as ease of internet and e-mail availability and the use of World Wide Web to enhance business activity (Turban, King, McKay, Marshall, 2008) E-commerce allows enterprises to sell products, advertise, purchase supplies, bypass intermediaries, track inventory, eliminate paperwork, and share information, it helps in

reducing the expenses, time, distance and space in carrying out business activities which leads to better customer service, increased efficiency, improved products and high profits for the enterprises. Through its use, many enterprises are able to gain a competitive advantage by selling their goods and services directly as well as for communicating with suppliers, customers, creditors, partners, shareholders, clients, and competitors around the world (Lee & Viehland, 2008).

The use of e-commerce is increasingly becoming important in many organizations due to the increased development of information and communication technologies and globalization of business. Many research findings point out that enterprises are very slow in adopting e-commerce applications to their business models (Simpson and Docherty, 2004). This is due to lack of exposure and experience with information systems (IS), by most enterprises, low investment in IS and the fact that most enterprises have to depend on third parties for technical support. The enterprises are also faced with fears such as employee's fear of losing their jobs as a result of technology, lack of the required information on the website as well as the fear of being disconnected from their customers (Eriksson, Hultman and Naldi, 2008). Despite these fears, some enterprises have been able to embrace e-commerce in their daily activities of buying and selling of their products with an aim of gaining a competitive advantage in the market place especially in the fashion industry where most enterprises have turned to the use of e-commerce to buy and sell their products, with an aim of improving productivity and increasing customer support.

According to Tasabehji (2003), e-commerce adoption and utilization is determined by technological, political, social and economic factors where the technological factors refer to the degree to which telecommunication infrastructure is advanced which increases access to new technology for enterprises, and consumers. Technology provides a competitive advantage to firms by reducing costs, increasing innovations and ensuring quality of products and services. The political factors refer to the rules and regulations laid down by the government that all enterprises are supposed to abide by in order to operate in a particular country; other factors include funding, incentives and other initiatives that the government gets involved in to support the use and development of e-commerce and information technology while the social factors include cultural aspects and demographic variables which include age distribution, education,

leisure activities, attitude towards career and gender role. Incorporation of a high level of advancement in IT education and training will ensure both buyers and sellers are able to utilize e-commerce as they will be able to understand the use of new technology.

According to Sandy (2006), micro and small enterprises have been actively looking for suitable solution and methods of adopting and integrating electronic commerce into their business processes. Electronic commerce is not just another mechanism to sustain and enhance existing business practices but a paradigm shift that is radically changing traditional ways of doing business (MacGregor and Vrazalic, 2008). Many companies have found out the hard way that successful e-commerce requires more than a flashy web presence. Existing business processes must be seamlessly integrated with the new, electronic form of interaction with suppliers and customers (Jansen-Vullers, and Reijers, 2004). According to research, it's mostly the large companies that have benefited from e-commerce utilization with MSEs showing a slower rate of utilization, this is due to reasons such as difficulties in obtaining finances and technical information, security concerns and lack of management and technical expertise. (Mac Gregor and Vrazalic, 2006).

1.1.2 Formal Micro and Small Enterprises in Nairobi, Kenya

Small enterprises in Kenya cut across all sectors of the economy and provide one of the main sources of employment and generate widespread economic benefits (GoK, 2005).

According to Ocha (2011). In Kenya "Micro-enterprises" are those that comprise of 10 or less workers while Small enterprises comprise 11-50 workers. The 1999 National Micro and Small Enterprise Baseline Survey defines MSEs as enterprises employing 1-50 workers (Republic of Kenya Sessional paper No.2, 2005). Due to their size and resource limitations MSEs are said to face a liability of smallness and are unable to develop new technologies or make important changes to existing ones. There is however evidence that MSEs have the potential to initiate minor technological innovations to suit their circumstances (Jeffcoate et al. 2002). Akkeren and Cavaye (1999) found that MSEs need specific policy measures to ensure that technology services and infrastructure are provided in order to fully develop and use this potential.

1.2 Statement of the problem

Previous studies have indicated that MSEs achieve significant benefits by adopting and utilizing e-commerce which is a very powerful method or tool of doing business as its use enables enterprises to carry out their business from any location and penetrate new markets at a click of a mouse (Olson and Boyer, 2002). Despite this Micro and Small Enterprises in Kenya do not appear to be utilizing its potential to the full to increase their productivity, improve customer support and reduce the overall costs with an aim of gaining a competitive advantage in the market. This study sought to unearth the factors that influence the adoption of e-commerce in formal MSEs in Nairobi, Kenya.

Micro and Small Enterprises (MSEs) are a significant component of many economies in the world (Mutula & Van Brakel, 2007). This is due to the contribution they make in creating employment and facilitating regional development and innovation thus impacting on the economy of their countries. There has been a lot of changes in both the developed and developing countries due to rapid developments in ICT especially the Internet (Looi, 2005). There is a great motivation to expand commercial activities beyond the physical boundaries of the organizations into distant geographical regions through the domains of computer networks telecommunications, satellite broadcasting, digital television (Chaston, 2004) and the Internet. The channels of these networks were mostly through personal computers (PC's) but Internet technology more recently has facilitated the use of devices such as digital cell phones, smart phones, palm-pads, laptop computers and many similar devices.

A study by Wangechi (2006) found out that there was a correlation between adoption of e-commerce and costs of e-commerce. This study failed to cover other factors that influence the adoption of e-commerce in MSEs. A study carried out by Ocha (2011), found out that variable knowledge of benefits derived from e-commerce and infrastructure would enable businesses to actively pursue e-commerce. She also found out that the Cost of e-commerce implementation within the business, technical skills and IT skills amongst owners and employees would additionally encourage businesses in venturing into e-commerce.

Mbuvi (2000) in his study found that most tour operators mainly used the internet for the purposes of gathering information as opposed to carrying out transactions and that the tour operators were prepared and had the potential to adopt e-commerce. Accordingly, there was need for further studies to investigate other factors that influence the adoption of e-commerce in MSEs in Nairobi, Kenya. Therefore, this research sought to answer the following research questions; what are the factors that influence the adoption of e-commerce in MSEs in Nairobi? What is the level of awareness of e-commerce in MSEs in Nairobi? and what is the level of usage of e-commerce in MSEs in Nairobi?

1.3 Objectives of the Study

The overall objective of this study was to identify the factors that influence the utilization of e-commerce in micro and small enterprises in Nairobi. Specifically, the study aimed at covering the following objectives:

- i. To determine the factors that influence the adoption of e-commerce in MSEs in Nairobi.
- ii. To establish awareness of e-commerce in MSEs in Nairobi Kenya.
- iii. To establish levels of e-commerce usage in MSEs in Nairobi.

1.4 Value of the Study

Findings from this research will help managers of MSEs in Nairobi to understand the factors behind use of e-commerce in carrying out their business activities.

E-commerce has become a very important way of doing business and therefore so many enterprises have recognized the opportunities for gaining a competitive advantage as well as the risks associated with the performance of ICT. Considering this study looks at the utilization of e-commerce in MSEs in Nairobi, it will carry the assumption that e-commerce represents both positive as well as negative implications hence the negatives will also be highlighted so that MSEs in Nairobi can address these shortcomings.

The findings from this research will help researchers and academicians in developing and expanding the syllabus in respect to this study thus providing a deeper understanding of the factors that influence the utilization of e-commerce in Micro and Small enterprises and their

implications. Apart from this, the results of the findings may encourage other researchers to research more on the factors that influence the utilization of e-commerce in MSEs in developing countries.

In Kenya, the government has embraced a policy on Information and Communications Technology named e-government where all GoK agencies get up-to-date and authoritative e-Government information & resources. The government can use the findings of this research to assist them come up with policies of adopting e-commerce as well as come up with initiatives such as funding, incentives and other initiatives that support the use and development of e-commerce and information technology.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature related to factors influencing utilization of e-commerce in Micro and Small Enterprises. It gives a brief description and history of e-commerce, discusses the benefits of e-commerce in MSEs, the adoption of e-commerce, further goes on to review previous e-commerce adoption factors in MSEs and the challenges of e-commerce.

2.2 E-commerce

Electronic commerce is the process of buying and selling of goods and services over the internet and other computer networks which has grown rapidly over the years. The meaning of the term “e-commerce” has changed over the last 30 years. Originally, it meant the facilitation of commercial transactions electronically using technology like EDI (electronic data Interchange) as well as EFT (electronic funds transfer) which were used to send commercial documents like purchase orders or invoices electronically. In e-commerce, ‘e’ refers to the technology or systems while ‘commerce’ refers to the traditional business models. (Turban et al., 2008).

In the dot com era e-commerce included areas such as web commerce which refers to the buying and selling of goods over the World Wide Web, usually over secure connections, using e-shopping carts and electronic payment services such as credit card payment authorizations (Nissanoff 2006). In today’s world, electronic commerce is made up of a very wide range of business activities and processes which include e-banking and e- logistics. The ever increasing need to use electronically enabled business processes encouraged the growth and development of support systems including backend systems, applications and middleware (Chaudhury et al., 2002).

In the year 2000, a dot.com crash was experienced where many US internet-based businesses collapsed (Teo & Ranganathan, 2004), since then, most organizations and practitioners have embarked on finding the best methods of utilizing e- commerce with minimum loss and failure of systems. The use of e-commerce has greatly lowered barriers to the entry in selling of goods

and services and due to this so many home based proprietors are able to use the internet to sell their goods for example through use of sites such as the OLX, EBay or Amazon .com as well as the face book pages(Nyaanga, 2007).

The use of electronic commerce has been very popular in the corporate world with large firms in developed countries reaping benefits while its development in Micro and Small sized firms has been slow(Mac Gregor & Vrazalic,2006) This study focuses on the factors influencing the utilization of e-commerce in MSE's in Nairobi.

2.3 Factors influencing utilization of e-commerce

E-commerce utilization factors are those factors that either motivate or inhibit the utilization of e-commerce. This review adopts a four dimension framework for reviewing the factors affecting e-commerce adoption and use in MSEs that has been slightly modified from the Tornatzky and Fleischer (1990) model. According to Tornatzky and Fleischer (1990), the process by which a firm adopts and implements technological innovations is influenced by the individual context, technological context, the organizational context, and the environmental context.

2.3.1 Individual Factors

Most MSEs are run by a manager who is usually an owner of the organization (Demirbas, Hussain, & Matlay, 2011).One of the key individual factors influencing e-commerce adoption is the owner or Manager characteristics which refer to executive decisions that an MSE manager or owner makes, the financial commitments they take in relation to the overall direction of the firm, whether or not they appreciate ICT and whether the MSE must adopt e-commerce or not (Riemenschneider et al., 2003) An MSE whose manager/owner doesn't appreciate the value of ICT is likely to experience stifled growth.

In order to drive e-commerce activities in a firm, it's important that the manager/owner attains some acceptable level of education. According to previous research, the level of education is one of the criteria for successful e-commerce adoption and utilization (Sarosa & Zowghi, 2003). A basic level of education is important as it allows easy communication and understanding of

business terms; therefore MSE managers/Owners should have the basic level of education such as high school so as to be able to drive the successful adoption and utilization of e-commerce.

An acceptable level of ICT and e-commerce knowledge by the manager/owner can assist the MSE to adopt appropriate e-commerce activities in any enterprise (Looi, 2005). A high level of appreciation of ICT and e-commerce principles by the owner/manager will directly lead to increases appreciation for further e-commerce uptake in the business. In developed countries MSEs have better knowledge of ICT than those in developing countries (Erickson et al., 2008). In developing countries, there is a low literacy level amongst MSEs which makes it difficult for the owners/managers to appreciate e-commerce opportunities in the market.

2.3.2 Organizational Factors

These are the factors that are defined from the nature and characteristics of the firm itself, usually making it unique to the firm. Financial ability and cost implications is an organizational factor that influences the utilization of e-commerce in MSEs. In most developing countries, MSEs have very little resources to venture into e-commerce initiatives (Mutula & Van Brakel, 2007). Lack of finances is an issue that greatly derails e-commerce utilization in MSE's as it hinders them from setting up and buying the necessary equipments for e-commerce implementation, consultancy and training of the employees as well as maintenance of websites (Mutula & Van Brakel, 2007; Lee et al, 2003).

The size of an organization also plays a very important role in determining whether an enterprise utilizes e-commerce or not. According to Bharati and Chaudhury, (2006) the size of an enterprise can influence the decision to adopt or not to adopt e-commerce. With Supply chain management systems (SCM) that link with suppliers, larger businesses have plenty of resources (Shore, 2001) while smaller businesses find it very difficult to acquire such resources. Bharati and Chaudhury (2006) found that the size of a firm has a significant impact on the type of technologies employed. They found that most MSEs are likely to employ simple technologies rather than complex technologies.

2.3.3 Technological Factors

Technological factors are those that are obtained from the nature and characteristic of the ICT that the MSE employs or intends to use for e-commerce adoption (Scupola, 2009). Availability and speed of internet influences the utilization of e-commerce in most enterprises. In many developing countries, the unavailability of Internet in MSEs has greatly contributed to the delay in adopting e-commerce (Molla and Licker, 2005a). Even though the Internet is available, the continued use in MSEs is hindered by lack of electricity especially in rural areas. Further, the slow speed of Internet inhibits e-commerce adoption.

One of the other factors hindering e-commerce utilization in MSEs is the complex nature of technology. Some organizations have been skeptical to adopt e-commerce technology due to concerns about data management issues between the old and new ICT applications (Forman, 2005). In some MSEs some managers do not consider the use of e-commerce due to their fear of technology. Organizations need to develop a strategy for e-business applications for incorporating technological issues.

2.3.4 Environmental Factors

According to Sculopa, (2009) the external environment of the MSE organization describes the realm of business engagement of the firm. This includes factors such as the government support and the nature and characteristic of the value chain.

The Government plays a very important role in providing various forms of intervention for the development of e-commerce in MSEs. It can provide support by facilitating policies for MSE operations in the country, providing financial and technological assistance, improving e-commerce infrastructure, and enacting favourable e-commerce laws (Scupola, 2009). The developed countries have been able to adopt and utilize e-commerce due to their governments proactive role in providing good infrastructure for e-commerce to thrive (Martinsons, 2008) Developing countries are not able to adopt e-commerce as easily because their governments are usually concerned with issues of poverty and hunger eradication (OECD, 2004). Unfavorable government and regional policies stifle creativity among MSEs, threatening the existence of this sector in the economy.

The other environmental factor influencing e-commerce utilization is the Nature and Characteristic of Value Chain. Social relationships between buyers and sellers in the Business to Business market place can open up room for e-commerce adoption or close opportunities for growth. Previous studies in South Africa have shown that MSEs may not adopt e-commerce due to the peculiar nature and characteristics of certain industries such as the horticultural and garment industries. Due to the closed nature of these industries, it is not necessary to undertake business on the open internet as all the participants are within a closed market (Humphrey et al., 2003). Any decision to adopt e-commerce will have to be considered alongside other stakeholder's position in the market system.

2.4 Inhibitors of E-commerce

According to Ocha (2011), e-commerce has become so convenient as a method of doing business that most people do not spend much time thinking about its disadvantages. It has taken e-commerce a few years to get established. It also took customers a few years to feel safe about using their credit card information as there wasn't always an alternative method of paying if one didn't have a credit card.

In the cases where a customer is not a good manager of finances, they run the risk of overspending on credit cards. The use of e-commerce therefore requires discipline on the part of the customer so as to avoid running into debt (Humphrey et al.,). According to Ocha (2011), customers are hesitant to buy some products online for example furniture since customers want to test the comfort of an expensive product before purchasing it. Many people consider shopping a social experience in that they may enjoy going to a Shopping Mall with friends and family, an experience they cannot duplicate online.

Ocha (2011) noted that, e-commerce doesn't provide the touch and feel aesthetics of a product. This is because an image on the screen doesn't always capture the true look and feel of a product. Many times, a customer will order a product and find that it is not the colour they had expected. A customer cannot also try on the product before ordering it. Due to the fact that

products vary in sizes and shape depending on different manufacturers, or countries, one may not be able to tell whether large or medium is the right choice for items like clothing.

According to Jones, Heckler and Holland (2003), unexpected delays that may come with e-commerce can be annoying. There are instances where one cannot tell whether the delays came from the supplier or at the dispatch with the transporter. The weather could also lead to such delays. Due to the challenges in distance especially for global customers, clients may not be enjoying the benefits of having the products delivered almost immediately to their premises and they are forced to pay the price of items to be shipped on time and the shipping costs as well.

Looi (2005) noted that MSEs are not keen on ICT utilization when internal and external barriers, related to infrastructure, legal, political, social and cultural factors come into play. These barriers include; lack of skills, lack awareness about possible return in ICT spending, little support and policies for MSEs from the government and low internet connection. Lack of ICT knowledge is a major barrier in every part of the world. Improvement of e-skills to the entire work force is therefore important to encourage the utilization of e-commerce in addition to the human resource aspect in terms of knowledge workers.

2.5 Theories of Technology Adoption

Two prominent theories for adoption models at the firm level have been used in Information System. These models are Diffusion on Innovation (DOI) (Rogers 1995); and the Technology, Organization and Environment (TOE) framework (Hsu 2006).

According to Rogers (1995), The DOI is a theory of how, why and at what rate new ideas and technology spread through cultures, operating at the individual and firm level. It sees innovations as being communicated through certain channels over time and within a particular social system. Individuals have different degrees of willingness to adopt innovations and it's generally observed that the population adopting an innovation is normally distributed over time and this distribution leads to segregation of individuals into the Innovators, early adopters, early majority, late majority and Laggards. The theory found that individual characteristics, internal characteristics

of an organizational structure and external characteristics of an organization are important antecedents to organizational innovativeness.

The TOE framework was developed in 1990 (Kuan and Chau 2001). It identifies three aspects of an enterprises context that influence the process by which it adopts and implements a technological innovation which are the technological context, organizational and environmental context. According to Hsu, (2006) the technological context describes both the internal and external technologies relevant to the firm. The organizational context refers to descriptive measures about the organization such as scope, size and managerial structure while the environmental context is the arena in which a firm conducts its business.

2.6 Empirical Studies

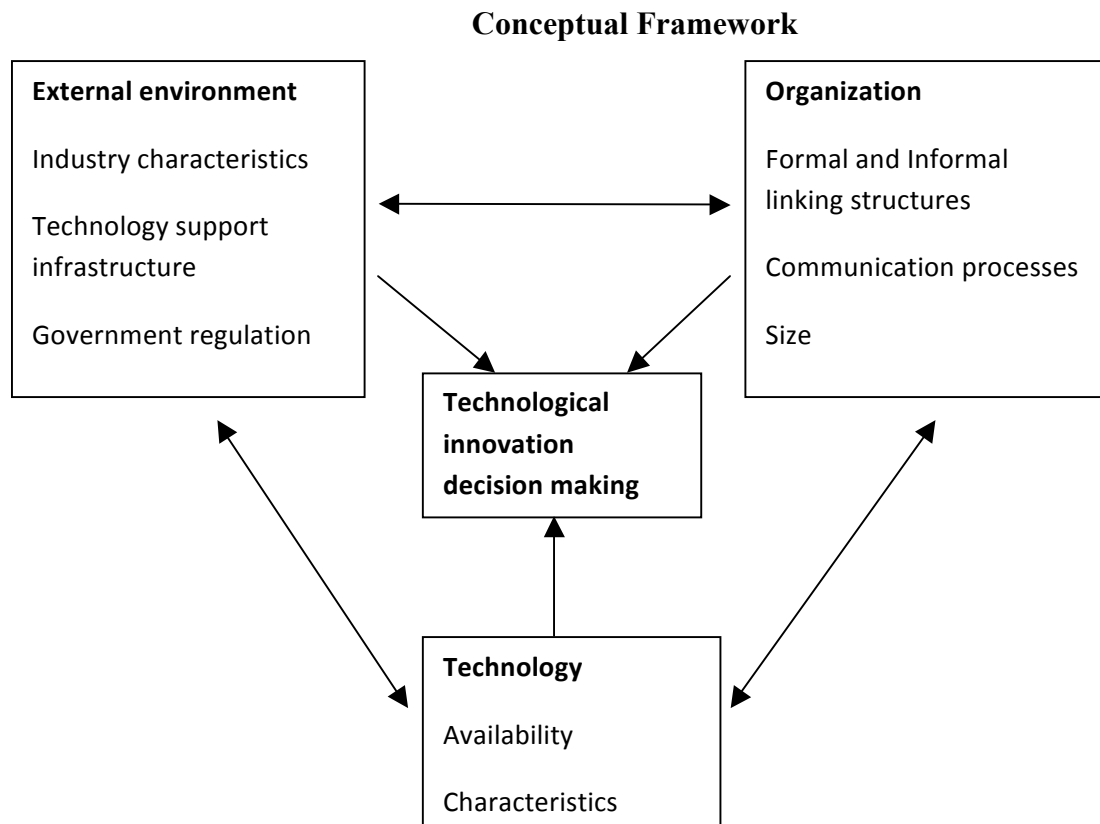
According to Mutula and Van Brakel (2007), Micro and Small Enterprises (MSEs) are a significant component of many economies in the world due to the contribution they make in creating employment and facilitating regional development and innovation, thus impacting on the economy of their countries. Jones and Davies (2011) argued that there has been a lot of changes in both the developed and developing countries due to rapid developments in ICT especially the Internet. Looi (2005), stated that “there is a great motivation to expand commercial activities beyond the physical boundaries of the organizations into distant geographical regions through the domains of computer networks telecommunications”, satellite broadcasting, digital television and the Internet. The channels of these networks were mostly through personal computers (PC’s) but Internet technology more recently has facilitated the use of devices such as digital cell phones, smart phones, palm-pads, laptop computers(Chaston, 2004).

Some of the studies that have been done previously about the aspect of e-commerce include a study on ICT use in Kenya amongst the MSEs by Wangechi (2006).The research was a case study of firms in Nairobi and it found out that there was a correlation between adoption of e-commerce and costs of e-commerce. A study carried out by Ocha (2011), on the factors that influence adoption and frequency of use of e-commerce by Micro and Small Enterprises (MSEs) in Kisumu, Kenya found out that variable knowledge of benefits derived from e-commerce and

infrastructure would enable businesses to actively pursue e-commerce. She also found out that the Cost of e-commerce implementation within the business, technical skills and IT skills amongst owners and employees would additionally encourage businesses in venturing into e-commerce.

2.7 Chapter Summary

On the gap analysis and the contributions from the literature reviewed, the study intends to determine the factors that facilitate or inhibit the utilization of e-commerce in MSEs in Nairobi. The study will seek to establish the level of awareness of e-commerce and its potential in MSEs and also establish the level of e-commerce usage in the MSEs in Nairobi. The study will also check whether MSEs in Nairobi have a formalized policy on MSEs as well as whether they focus on Business-to-Business or Business-to-Customer e-commerce in their businesses. In addition to these, the study will evaluate how important e-commerce issues are to the Micro and Small Enterprises Management.



Adopted from Technology, Organization, and environment framework (Tornatzky and Fleischer 1990)

The TOE framework above identifies three aspects of an enterprise's context that influences the process by which it adopts and implements a technological innovation, technological context and the environmental context where the technological context describes both the internal and external technologies relevant to the firm. The organizational context refers to descriptive measures about the organization such as scope, size and managerial structure while the environmental context is the arena in which a firm conducts its business. (Tornatzky and Fleischer 1990)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the procedures used by the researcher to collect and analyze data collected from the field in the study. It covers the following areas: Research design, target population, sample and the sampling procedure, data collection instruments, test of validity and reliability of instruments, data collection procedures and data analysis procedures.

3.2 Research Design

The research design chosen for this study was a cross sectional survey. According to Orodho (2003), a descriptive cross sectional design is a method used to collect information by interviewing or administering a questionnaire to a sample of individuals. The data was collected at one point in time from a sample of firms selected to represent a larger population. This study was concerned with investigating the factors that influence the adoption of e-commerce in MSEs in Nairobi, Kenya.

3.3 Population

The study population comprised of formal Micro and Small Enterprises in Nairobi Central Business District. According to Mathenge (2010), the Nairobi City Council has registered over 50,000 MSEs operating within the NCBD.

3.4 Sampling

According to the table developed by Bartlett, Kotrlik & Higgins, using a margin error of 0.3, an alpha of .05 and $t = 1.96$ the researcher used cluster sampling to select a sample of 120 respondents from three shopping malls which include the Jamia Mall, Cianda Market and the world business centre. The researcher then used systematic sampling technique to identify 40 managers/Owners in each of the selected locations which involved a random start and then the selection of every 5th shop until the desired 120 respondents were selected.

3.5 Data Collection

The main source of data was primary data. The primary data collection instrument was a structured questionnaire which was developed by the researcher. The primary data was collected using self administered questionnaires which constituted of Likert Type scale and was subdivided into the following sections; Section A: comprised of the general information, Section B comprised of the e-commerce application seeking to determine the frequency of use of e-commerce tools such as the computer, internet, email, and/or website while Section C captured the factors that influence the utilization of e-commerce. The structured questionnaire was administered through personal interviews with the business owners or the managers of the businesses.

3.6 Data Analysis

On receiving the feedback from the respondents, the Factor analysis statistical method was used to determine what combination of factors were most appealing to MSE managers or owners and to test whether new groupings could be exhibited through data reduction. Descriptive studies which include mean and standard deviation was used for Likert-scale responses to summarize the data while frequency tables were used to analyze the general information and e-commerce application data.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis of data collected from the administered questionnaires. 120 questionnaires in total were administered but the researcher managed to obtain 78 completed questionnaires representing a 65% response rate. According to Kombo and Tromp (2006), a sample size of at least 10 % or 20% of the population is considered reasonable for the findings of the study to be valid. The questionnaire contained questions that addressed the objectives of the study. This study sought to investigate the factors that influence the utilization of e-commerce in micro and small enterprises in Nairobi.

4.2 Data Analysis and Presentation

The collected questionnaires were edited for completeness in preparation for coding. Once the questionnaires were coded, they were entered into the Statistical Package for Social Sciences (SPSS) version 17 computer package for analysis.

Descriptive statistics such as mean, standard deviation and frequency distribution were used to analyze data. Factor analysis was also used to sort out the factors in the order of influencing utilization of e-commerce in micro and small enterprises in Nairobi.

4.3 General Information

4.3.1 Respondent Position

Respondents were required to indicate their position in the organization. Majority (43.6%) of the respondents in this study indicated that they were managers only and then followed by those who were both managers and owners at 34.6%. The remaining 21.8% of the respondents were owners only. The research findings therefore reveal that majority of the respondents were in relevant positions in their organizations and as such could articulate the issues under study.

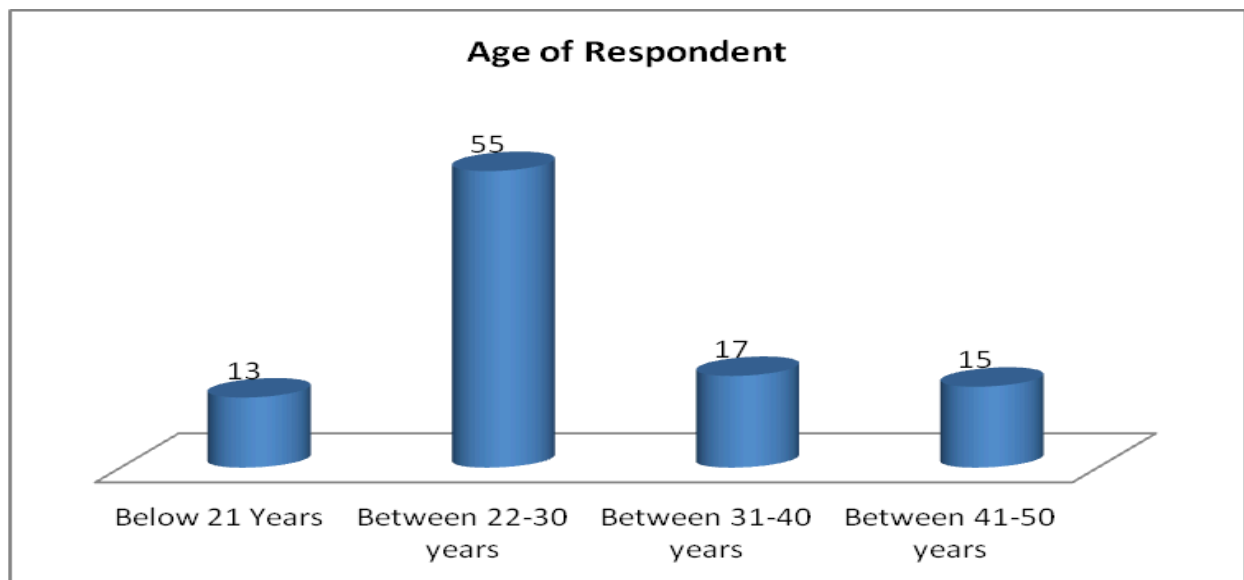
4.3.2 Gender of Respondents

Respondents were further required to indicate their gender. 70.5% of the respondents were male and the remaining 29.5% of them were female. This implies that majority of the MSEs in Nairobi are owned and managed by men.

4.3.3 Age Distribution

Majority (55%) of the respondents in this research were aged between 22-30 years of age hence a youthful generation who easily appreciate use of technology. The findings are as shown in Figure 4.1.

Figure 4.1 Age of Respondent



4.3.4. Level of Education and Management Qualification.

Respondents were further required to indicate the highest level of education they had attained. 57% of them had attained college level of education. Another 21% of them indicated that they had attained university education. A significant 19% of them had attained secondary education and the remaining 3% of them had attained postgraduate qualifications. The findings are as shown in Figure 4.2. Further, 38% of the respondent indicated that they had attended management training and the remaining 62% of them indicated otherwise as shown in Figure 4.3.

Figure 4.2 Level of Education

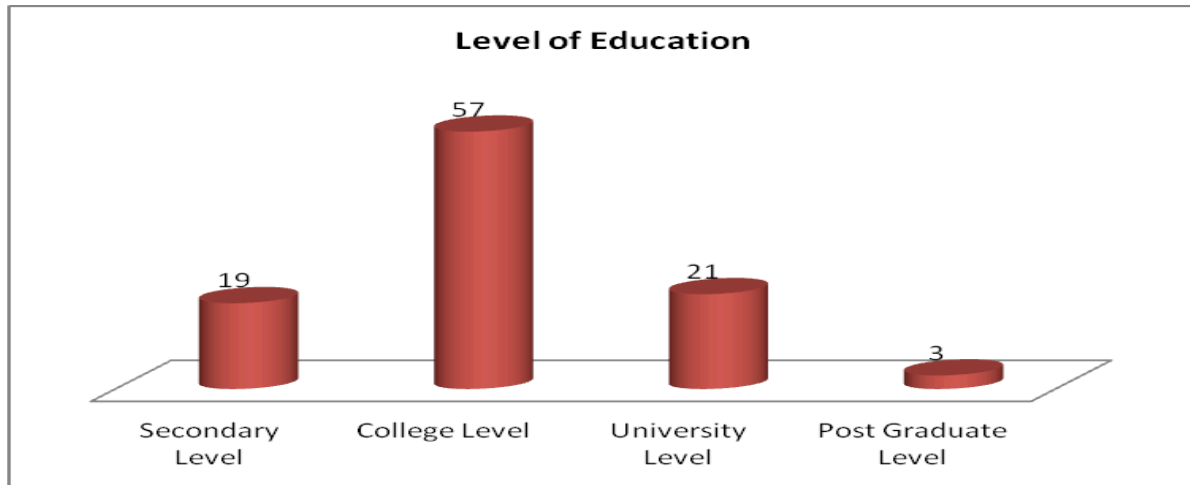
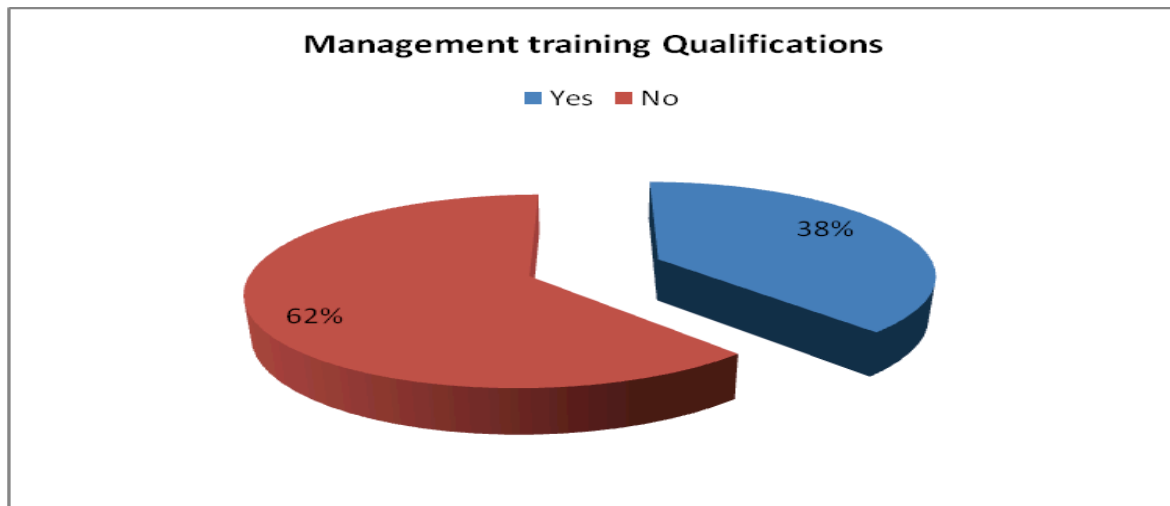


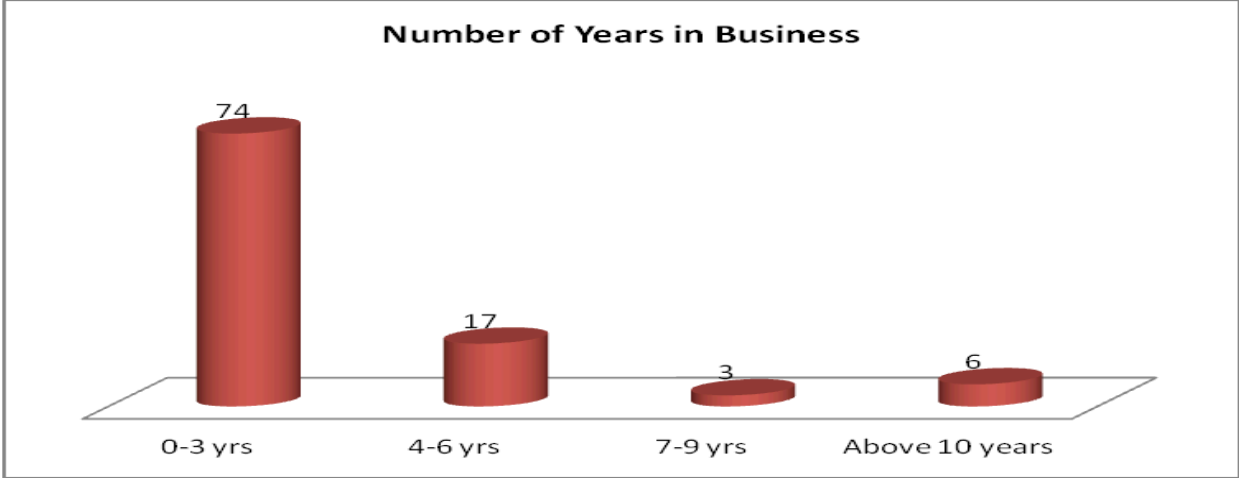
Figure 4.3 Management Training Qualifications



4.3.5. Number of Years in Business

The number of years in the business was used to indicate how experienced the respondents were in the business, the level of usage of e-commerce and the factors influencing the adoption of e-commerce. Majority (74%) of the respondents indicated that they had been in business for a period of between 0-3 years as shown in Figure 4.4.

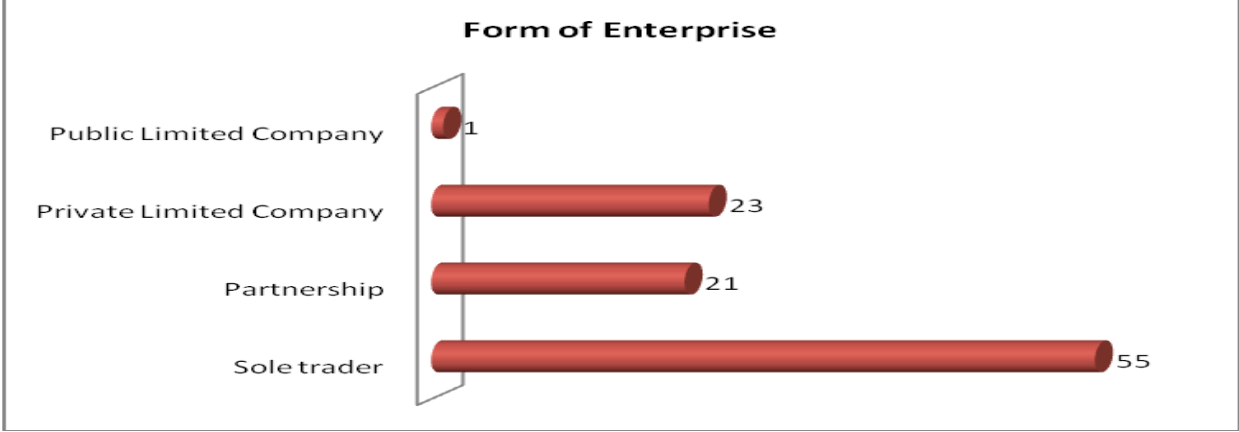
Figure 4.4 Number of Years in Business



4.3.6 Form of Enterprise

Majority (55%) of the respondents indicated that their businesses were sole proprietorships, 23% of them were private limited companies, 21% of them were partnerships and 1% of them were public limited companies. The findings are as shown in Figure 4.5.

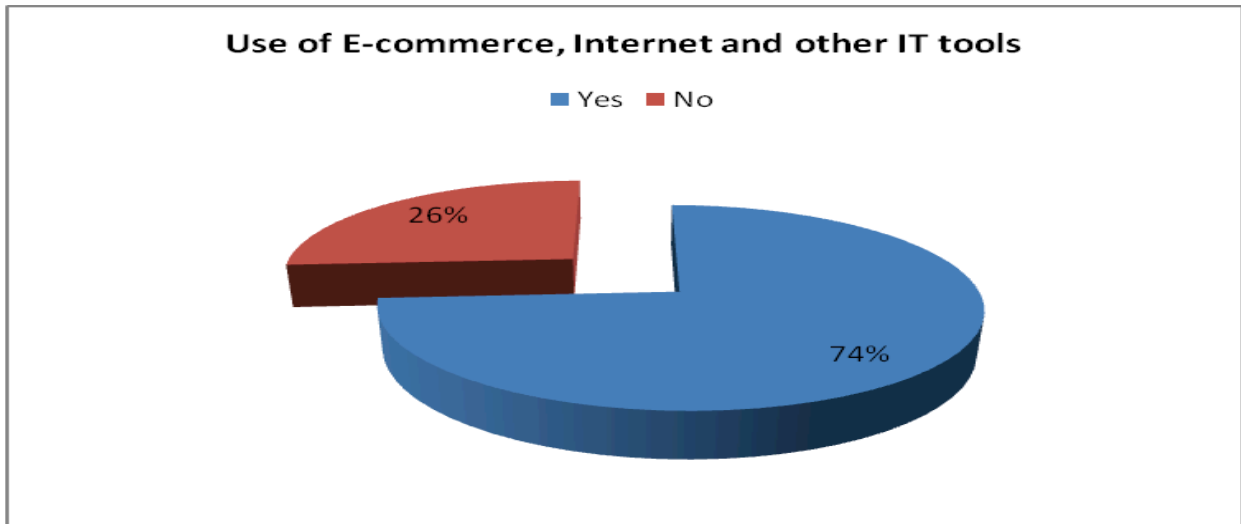
Figure 4.5 Form of Enterprise



4.3.7. Use of E-commerce, Internet and other IT tools

Respondents were further required to indicate whether they used e-commerce applications in their businesses. 74 % of them indicated that they used IT and e-commerce in their businesses and the as shown in Figure 4.6.

Figure 4.6 Use of E-Commerce



4.4 Use of ICT and Internet by SMEs

Respondents were required to indicate the frequency at which they applied various forms of Ecommerce based on a Likert Scale of 1 to 5, where 1- Do not use at all and 5 – Very frequently. Means of between 3.3774 – 4.3396 and standard deviations of between 0.07687 - 0.95888 were registered. The study findings therefore reveal that majority of the respondents were of the opinion that they frequently used E-Commerce applications to communicate with customers, suppliers and employees; to set-up customer/suppliers databases and to receive orders to a great extent. On the other hand majority of the respondents indicated that they occasionally used E-Commerce applications to pay suppliers; to track and enquire about orders via email and to place orders to a small extent. The findings are as presented in Table 4.1.

Table 4.1 Purpose of E-Commerce Applications

	Mean	Std. Deviation
To communicate with customers, suppliers and employees	4.3396	.61842
To perform financial accounting	3.7925	.09822
To manage payroll	3.7547	.95888
To perform market/product research	3.8302	.89305
To carry out business banking	4.0189	.77187
To setup customer/supplier databases	4.3208	.64371
To locate suppliers	4.0755	.72983
To place and track orders via email	3.7358	.07687
To pay suppliers	3.3774	.14735
To receive orders	4.2830	.66151
To place orders	3.6981	.15334
To track and enquire about orders by customers via email	3.5849	.94937
To promote products or services	3.7358	.90194
To search for information	4.0377	.89791
Overall Mean	3.8989	

4.5 Factors Influencing Adoption of E-Commerce

4.5.1 Awareness of Benefits of E-Commerce

Respondents were required to indicate their level of agreement to various aspects on awareness of benefits of E-Commerce based on a Likert Scale of 1 to 5, where 1- Not at all and 5 – To a very great extent. Means of between 3.6226 – 4.3585 and standard deviations of between 0.10842 - 0.96001 were registered. The study findings therefore reveal that majority of the respondents were aware that application of E-Commerce in their businesses could reduce business costs, lead to customer reference and increased business efficiency to a great extent. On

the other hand majority of the respondents were aware that application of E-Commerce led to improved overall customer satisfaction, increased number of customers and increased sales volume. The findings are as presented in Table 4.2.

Table 4.2 Awareness of E-Commerce

	Mean	Std. Deviation
Efficiency in the business will improve	4.0189	.72032
Business costs will improve	4.3585	.59142
Sales volumes will increase	3.9623	.96001
Number of news customers will increase	3.6604	.10842
Overall customer satisfaction will be improved	3.6226	.92459
Customers will encourage other customers to get their products from us	4.1321	.70813
Overall Mean	3.9591	

4.5.2 Cost of E-Commerce

Respondents were required to indicate their level of agreement to various aspects on costs of E-Commerce based on a Likert Scale of 1 to 5, where 1- Not at all and 5 – T o a very great extent. Means of between 2.2075 – 4.3774 and standard deviations of between 0.01083- 0. 85273 were registered. Majority of the respondents were categorical that it was very expensive for their businesses to have their own websites to a great extent. Further, they indicated that computer maintenance costs were too high. On the other hand they were moderate that subscription to internet was affordable for their business. The findings are as presented in Table 4.3.

Table 4.3 Cost of E-Commerce

	Mean	Std. Deviation
Use of e-commerce is affordable in our business	2.7308	.65710
Subscription to the internet is affordable for our business	2.2075	.08057
Buying a computer software is affordable for our business	3.7547	.85273
It's very expensive for our business to have its own website	4.3774	.84286
Paying for computer support for our business is affordable	3.5472	.61160
Computer maintenance costs are too high	4.3077	.01083
Overall Mean	3.4875	

4.5.3 Technical Skills and IT Knowledge of Owners and Staff

Respondents were required to indicate their level of agreement to various aspects on technical skills and IT knowledge of owners and staff based on a Likert Scale of 1 to 5, where 1- Not at all and 5 – T o a very great extent. Means of between 2.7170 – 4.1321 and standard deviations of between 0.10284- 0.99162were registered. Majority of the respondents were categorical that they had knowledge on how to use Microsoft office and how to use internet. However, they were categorical that their employees did not know how to use internet and that they did not have knowledge on website maintenance. The findings are as presented in Table 4.4.

Table 4.4 Technical Knowledge and IT Skills

	Mean	Std. Deviation
I know how to use internet	4.1132	.84718
I have some training in information technology tools	3.4340	.97091
I know how to use Microsoft office	4.1321	.78539
I am knowledgeable in website maintenance	3.0943	.71425
I attend workshops to improve my computer skills regularly	3.5472	.99162
My employees know how to use internet	2.7170	.98795
My employees know how to use computer software and IT tools	4.0566	.79458
My employees are knowledgeable in website maintenance	3.4906	.10284
My employees regularly attend workshops to improve their computer skills	3.6792	.10547
Overall Mean	3.5849	

4.5.4 Environmental Factors

Respondents were required to indicate their level of agreement to various aspects on environmental factors and E-Commerce application based on a Likert Scale of 1 to 5, where 1- Not at all and 5 – T o a very great extent. Means of between 2.4717 – 3.6226 and standard deviations of between 0.00434- 0.80636 were registered. Majority of the respondents agreed that their businesses enjoyed a good relationship with their suppliers and customers. However, they moderately agreed that their businesses enjoyed infrastructural assistance from the government and financial assistance from the government. The findings are as presented in Table 4.5.

Table 4.5 Environmental Factors

	Mean	Std. Deviation
This business enjoys financial assistance from the government	2.4717	.79913
This business enjoys infrastructural assistance from the government	2.7547	.80636
This business enjoys a good relationship with its suppliers and customers	3.6226	.00434
Overall Mean	2.9496	

4.6 Factor that Influence Adoption of E-Commerce

Further, factor analysis was applied by comparing the pattern of correlations between observed measures. Measures that are highly correlated were likely to be influenced by the same factors while those that are uncorrelated are likely to be influenced by different factors. Factor analysis produced communalities of the variables which is the proportion of the variance that each item has in common with other items. Table 4.6 shows the communalities of the variables with extraction method being the principal component analysis. The study findings revealed that over 88% of E-Commerce adoption by formal Micro and Small Enterprises in Nairobi is accounted for by employees regularly attending workshops to improve their computer skills. This is followed by trainings on awareness of information technology tools at 86.7%. Another 86.6% of e-commerce adoption is explained by affordable e-commerce. The Findings are as presented in Table 4.6.

Table 4.6: Communalities- Adoption of E-Commerce

	Initial	Extraction
Efficiency in the business will improve	1.000	.714
Business costs will improve	1.000	.640
Sales volumes will increase	1.000	.562
Number of news customers will increase	1.000	.597
Overall customer satisfaction will be improved	1.000	.730
Customers will encourage other customers to get their products from us	1.000	.822
Use of e-commerce is affordable in our business	1.000	.866
Subscription to the internet is affordable for our business	1.000	.758
Buying a computer software is affordable for our business	1.000	.781
It's very expensive for our business to have its own website	1.000	.781
Paying for computer support for our business is affordable	1.000	.828
Computer maintenance costs are too high	1.000	.753
I know how to use internet	1.000	.794
I have some training in information technology tools	1.000	.867
I know how to use Microsoft office	1.000	.861
I am knowledgeable in website maintenance	1.000	.741
I attend workshops to improve my computer skills regularly	1.000	.747
My employees know how to use internet	1.000	.764
My employees know how to use computer software and IT tools	1.000	.763
My employees are knowledgeable in website maintenance	1.000	.615
My employees regularly attend workshops to improve their computer skills	1.000	.882

This business enjoys financial assistance from the government	1.000	.771
This business enjoys infrastructural assistance from the government	1.000	.821
This business enjoys a good relationship with its suppliers and customers	1.000	.797
Awareness of e-commerce benefits	1.000	.689
Cost of e-commerce implementation	1.000	.836
Technical Skills and IT knowledge of owner/staff	1.000	.670
Environmental factors	1.000	.745

Table 4.7 shows all the factors extracted from the analysis along with their Eigen values, the percent of variance attributable to each factor, and the cumulative variance of the factor and the previous factors. The study findings revealed that the first component explained 21.6% of e-commerce adoption, 15.3% by component two, component three explained 9.6%, component four explained 7.2%, component five explained 6.3%, component six explained 5.9%, component seven explained 4.8% and component eight explained 4.2%. Cumulatively the eight components of factors account for 74.9 % of the variance with regard to adoption of E-Commerce by formal MSEs in Nairobi, Kenya. The other components were not statistically significant.

Table 4.7: Total Variance Explained- Adoption of E-Commerce

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.055	21.626	21.626	6.055	21.626	21.626
2	4.272	15.256	36.882	4.272	15.256	36.882
3	2.697	9.633	46.515	2.697	9.633	46.515
4	2.022	7.220	53.735	2.022	7.220	53.735
5	1.772	6.328	60.063	1.772	6.328	60.063
6	1.661	5.934	65.997	1.661	5.934	65.997
7	1.354	4.837	70.834	1.354	4.837	70.834
8	1.163	4.153	74.986	1.163	4.153	74.986
9	.986	3.522	78.508			
10	.952	3.401	81.909			
11	.796	2.843	84.753			
12	.732	2.616	87.368			
13	.684	2.444	89.813			
14	.523	1.869	91.681			
15	.445	1.589	93.270			
16	.370	1.321	94.591			
17	.285	1.019	95.610			
18	.250	.892	96.501			
19	.226	.807	97.309			
20	.173	.617	97.925			
21	.141	.505	98.431			
22	.115	.409	98.840			
23	.090	.321	99.161			
24	.077	.276	99.437			
25	.072	.255	99.692			
26	.038	.137	99.830			
27	.031	.109	99.939			
28	.017	.061	100.000			

Table 4.8 shows the loadings of the twenty eight variables on the eight main component factors extracted. The higher the absolute value of the loading, the more the variable contributes to the factor.

Table4.8: Correlation Matrix- Adoption of E-Commerce

	1	2	3	4	5	6	7	8
My employees know how to use computer software and IT tools	-.755							
I attend workshops to improve my computer skills regularly	.746							
I have some training in information technology tools	.739							
This business enjoys a good relationship with its suppliers and customers	-.722							
Customers will encourage other customers to get their products from us	-.634							
Computer maintenance costs are too high	.615							
Overall customer satisfaction will be improved	.576	.519						
Efficiency in the business will improve	-.527							
It's very expensive for our business to have its own website	.522							

Subscription to the internet is affordable for our business								
This business enjoys financial assistance from the government		-.750						
This business enjoys infrastructural assistance from the government		.737						
My employees regularly attend workshops to improve their computer skills	.535							
My employees know how to use internet		.517						
I am knowledgeable in website maintenance			.591					
I know how to use internet			.568					
Paying for computer support for our business is affordable				.564				
Use of e-commerce is affordable in our business	-.522			.539				
Buying a computer software is affordable for our business		.530			.559			
My employees are knowledgeable in website maintenance					.537			
I know how to use Microsoft office					.523			

Number of news customers will increase						.507		
Business costs will improve								
Sales volumes will increase								.647

Table 4.9 shows the sorted variables according to their explanatory powers. Variables in component 1 contains factors which have the most explanatory power on e-commerce adoption than the other components. Component one mainly comprises of technical skills and IT knowledge of owners and staff and environmental factors. They comprised of possession of training on information technology tools, business enjoying infrastructural assistance from the government and attending workshops to improve computer skills regularly.

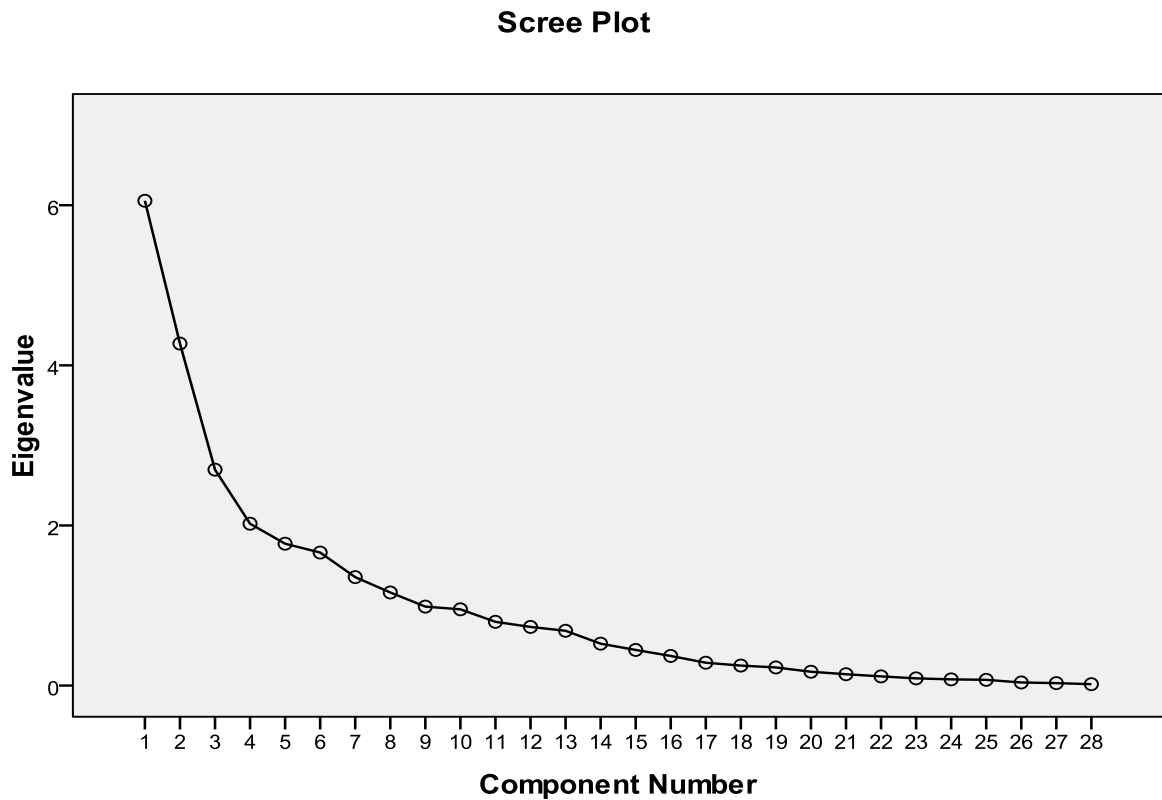
On the other hand component two comprised of high computer maintenance costs, knowledge on how to use Microsoft office, overall customer satisfaction improved. Component four on comprised of affordable subscription to the internet, knowledge on how to use internet and improved efficiency in business. Finally component four comprised of cost of computer software and cost of constructing a business website.

Table 4.9: Key Variables

Component 1	Component 2
I attend workshops to improve my computer skills regularly I have some training in Information Technology tools This business enjoys infrastructural assistance from the government	Computer maintenance costs are too high I know how to use Microsoft office Overall customer satisfaction will be improved
Component 3	Component 4
Subscription to the internet is affordable for our business I know how to use internet Efficiency in the business will be improved	Buying a computer software is affordable for our business It is very expensive for our business to have its own website

Figure 4.4 shows the Scree plot on the factors explaining adoption of E-Commerce by formal MSEs in Nairobi. According to the Scree plot four factors were considered as key in explaining adoption of E-Commerce by formal MSEs in Nairobi. This is because the curve tends to flatten from the fourth component onwards, due to relatively low factor Eigen values thereafter.

Figure 4.7: Scree Plot on E-Commerce Adoption



4.7 Discussion of Findings

Four main factors were considered ranging from technical skills and knowledge of owners and staff, awareness of benefits of e-commerce, environmental factors and cost of e-commerce. The study findings revealed that over 88% of E-Commerce adoption by formal Micro and Small Enterprises in Nairobi is accounted for by employees regularly attending workshops to improve their computer skills. This is followed by trainings on awareness of information technology tools at 86.7%. Another 86.6% of e-commerce adoption is explained by affordable e-commerce.

Pertaining to awareness of the benefits of e-commerce the study findings revealed that majority of the respondents were aware that application of E-Commerce in their businesses reduced business costs, led to customer reference and increased business efficiency to a great extent. On

the other hand majority of the respondents were aware that application of E-Commerce led to improved overall customer satisfaction, increased number of customers and increased sales volume.

With regards to cost of e-commerce majority of the respondents were categorical that it was very expensive for their businesses to have their own websites to a great extent. They further indicated that computer maintenance costs were too high. Technical skills and IT knowledge of owners and staff is also critical in enhancing e-commerce adoption by formal MSEs in Nairobi. Majority of the respondents were categorical that they had knowledge on how to use Microsoft office and how to use internet. However, they were categorical that their employees did not know how to use internet and that they did not have knowledge on website maintenance. This complements the findings of Erickson et al. (2008) who contends that an acceptable level of ICT and e-commerce knowledge by the manager/owner can assist the MSE to adopt appropriate e-commerce activities in any enterprise (Looi, 2005). A high level of appreciation of ICT and e-commerce principles by the owner/manager will directly lead to increases appreciation for further e-commerce uptake in the business. In developed countries MSEs have better knowledge of ICT than those in developing countries.

Pertaining to environmental factors majority of the respondents were categorical that their businesses enjoyed good relationship with their suppliers and customers. However, they moderately agreed that their businesses enjoyed infrastructural assistance from the government and financial assistance from the government. The study findings are similar to the findings of Sculopa, (2009) who established that the external environment of the MSE organization describes the realm of business engagement of the firm. This includes factors such as the government support and the nature and characteristic of the value chain.

Factor analysis further revealed that the twenty eight factors were sorted into four main factor components according to their absolute values. The higher the absolute value of the loading, the more the factor contributes to the variable. Variables in component 1 contains factors which have the most explanatory power on e-commerce adoption than the other components. Component one mainly comprises of technical skills and IT knowledge of owners and staff and environmental factors. They comprised of possession of training on information technology tools, business enjoying infrastructural assistance from the government and attending workshops to improve computer skills regularly.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the study, discussions and conclusions. The researchers then present the major limitations of the study and the recommendations for both the research and for the policy and practice.

5.2 Summary and Discussions

The researcher administered 120 questionnaires in total but the researchers managed to obtain 78 completed questionnaires representing 65% response rate. The questionnaires contained questions that addressed the objectives of the study. The research sought to investigate the factors that influence the utilization of e-commerce in micro and small enterprises in Nairobi.

Four main factors were considered ranging from technical skills and knowledge of owners and staff, awareness of benefits of e-commerce, environmental factors and cost of e-commerce. The study findings revealed that over 88% of E-Commerce adoption by formal Micro and Small Enterprises in Nairobi is accounted for by employees regularly attending workshops to improve their computer skills. This is followed by trainings on awareness of information technology tools at 86.7%. Another 86.6% of e-commerce adoption is explained by affordable e-commerce.

Pertaining to awareness of the benefits of e-commerce the study findings revealed that majority of the respondents were aware that application of E-Commerce in their businesses reduced business costs, led to customer reference and increased business efficiency to a great extent. With regards to cost of e-commerce majority of the respondents were categorical that it was very expensive for their businesses to have their own websites to a great extent. They further indicated that computer maintenance costs were too high. Technical skills and IT knowledge of owners and staff is also critical in enhancing e-commerce adoption by formal MSEs in Nairobi. Majority of the respondents were categorical that they had knowledge on how to use Microsoft office and how to use internet. However, they were categorical that their employees did not know how to use internet and that they did not have knowledge on website maintenance.

Pertaining to environmental factors majority of the respondents were categorical that their businesses enjoyed good relationship with their suppliers and customers. However, they moderately agreed that their businesses enjoyed infrastructural assistance from the government and financial assistance from the government.

Factor analysis further revealed that the twenty eight factors were sorted into four main factor components according to their absolute values. The higher the absolute value of the loading, the more the factor contributes to the variable. Variables in component 1 contains factors which have the most explanatory power on e-commerce adoption than the other components. Component one mainly comprises of technical skills and IT knowledge of owners and staff and environmental factors.

5.3 Conclusion

Based on the study findings we can conclude that the factors under study explained adoption of e-commerce by formal MSEs in Nairobi significantly. However, technical skills and IT knowledge of business owners and staff and awareness in the benefits of e-commerce were rated as the key factor explaining e-commerce adoption. The study findings therefore imply that business owners and their staff need to undergo training on Information Technology and its benefits so as to easily appreciate ICT application in business operations.

Cost of e-commerce and environmental factors on the other hand explained ICT adoption by MSEs to a small extent. This is attributable to the fact that the government has greatly subsidized ICT costs hence MSEs can easily afford adopting e-commerce. This conclusion is supported by both the descriptive and inferential statistics as indicated.

5.4 Recommendations

With due regard to the ever increasing desire to have high adoption of e-commerce by formal MSEs in Kenya, there is need to invest in various ICT strategies. This therefore calls upon the management of various MSEs to come up with an e-commerce policy which outlines the strategies and guidelines of applying the same effectively in the organizations. This should be done in a manner in which all the stakeholders are happy. This ensures that they are acceptable,

accessible, ethically sound, have a positive perceived impact, relevant, appropriate, innovative, efficient, sustainable and replicable.

MSE owners and their staff should undergo trainings and attend workshops on ICT so as to easily appreciate e-commerce application in their business operations. This will go a long in enhancing efficiency and effectiveness in service delivery.

There is need to create awareness on benefits of e-commerce in business operations. This will lead to increased sales volumes, increased customer base, increased customer satisfaction and overall business efficiency.

The government should enact policies which regulate the ICT industry aimed at reducing the cost of ICT usage so as to increase e-commerce adoption among MSEs.

5.5 Limitations of the Study

The researchers encountered quite a number of challenges related to the research and most particularly during the process of data collection. Due to inadequate resources, the researchers conducted this research under constraints of finances and therefore collected data from formal MSEs within Nairobi CBD. However, this was considered representational of MSEs in Nairobi because they were considered to have adopted e-commerce in their operations to a greater extent than their counterparts elsewhere in other parts of the country.

Some respondents may have been unable to give information due to reasons such as privacy, fear of unknown and busy schedules at their places of work. However, the researcher convinced the respondents that the information sought was to be used for academic purposes and assured them of confidentiality.

5.6 Suggestions for Further Research

Arising from this study, the following directions for further research in procurement are as follows: First, this study focused on formal MSEs and therefore, generalizations cannot adequately extend to informal MSEs. Further research could therefore focus on all MSEs in

entire Kenyan economy. A broad based study on the effect of e-commerce adoption and performance of organizations should also be carried out.

REFERENCES

- Bartlett, J., Kotrlik, J, and Higgins,C, (2001), ‘Organizational Research: Determining Appropriate Sample Size in Survey Research’, in *Information Technology, Learning and Performance Journal*, 19, (1), Spring 2001.
- Bharati, P., & Chaudhury, A. (2006). Studying the Current Status, examining the extent and nature of adoption of technologies by micro, small and medium-sized manufacturing firms in the greater Boston area. *Communications of the ACM*, 49 (10).
- Bodorick,P.,Dhaliwal, J.Jutla, D. (2002). “Supporting the e- business readiness of Small and Medium-Size enterprises: approaches and metrics”, *Internet Research: Electronic Network Applications and policy*, Vol.12 No2 pp.132-164
- Chaston, I. (2004). *Small Business E-Commerce Management*. New York: Palgrave Macmillan.
- Chaudhury, Abijitre; Jean-Pierre Kuilboer (2002). *E-Business and e-Commerce Infrastructure*. McGraw-Hill. ISBN 07-247875-6
- Cooper, C.R., & Schindler, P.S. (2001). *Business research methods* (10 ed.). Boston: McGraw-Hill.
- Cragg, P.B., & King, M. (1993). Small-Firm Computing: Motivators and Inhibitors, *MIS Quarterly*, 17(2), 47-59.
- Demirbas, D., Hussain, J.G., Matlay, H. (2011). Owner-managers' perceptions of barriers to innovation: empirical evidence from Turkish SMEs. *Journal of Small Business and Enterprise Development*, 18(4), 764- 780.

- Eriksson,L.T., Hultman,J., & Naldi, L. (2008). Small business e-commerce development in Sweden: an empirical survey. *Journal of Small Business and Enterprise Development*, 15(3), pp. 555-570.
- Forman, C. (2005). The corporate digital divide: Determinants of Internet Adoption. *Management Science*, 51(4):,641-654.
- Government of Kenya (2005). Development of Micro and Small Enterprises for wealth and Employment Creation for Poverty Reduction. Sessional Paper No 2 of 2005. Nairobi: Government Printer.
- Humphrey, J., Mansell, R, Pare, D., & Schmitz, H. (2003). The Reality of E-commerce with Developing Countries, Media@LSE, 2003.
- Hsu,P.F, Kraemer6,K.L. and Dunkle, D. (2006) Determinants of e-business use in US firms, “*International Journal of Electronic Commerce*”, 10(4):9-45
- Jeffcoate, J., Chappell, C., Feindt, S. (2002). Best practice in SME adoption of e-commerce. Benchmarking: *An International Journal*, 9(2), pp. 122-132.
- Jones, P., Packham,G., Beynon-Davies, P., & Pickernell, D. (2011). False promises: e-business deployment in Wales' SME community. *Journal of Systems and Information Technology*, 13(2), pp. 163-178.
- Kombo, K.D., & Tromp, A.L.D. (2006). Thesis writing: An Introduction. Nairobi: Pauline’s Publications.
- Kuan,K.K.Y. and Chau, P.Y.K. (2001) A perception-based model for edi adoption in small Businesses using a technology-organization-environment framework, “*Information & Management*”, Vol38, No.8,pp507-521.

- Lee, S.C., Pak, B.Y., & Lee, H.G., (2003). Business value of B2B electronic commerce: the critical value of interfirm collaboration. *Electronic Commerce Research and Applications*, 3, pp. 350-361.
- Looi, H.C. (2005). E-Commerce adoption in Brunei Darussalam: Quantitative analysis of factors influencing its adoption. *Communications of the Association for Information Systems*, 15(3), pp. 61-81.
- Martinsons, M.G. (2008). Relationship-based e-commerce: theory and evidence from China. *Information Systems Journal*, 18, 331-356.
- MacGregor, R. C., & Vrazalic, L. (2006). A basic model of electronic commerce adoption barriers; a study of regional small businesses in Sweden and Australia. *Journal of Small Business and Enterprise Development*, 12(4), pp. 510-527.
- Mbuvi, M.M.(2000). A survey of potentials for Adoption of E-commerce by tour Operators in Nairobi: The case of Kenya Association of Tour Operators' (kato)Members. Unpublished MBA thesis. University of Nairobi.
- Molla, A., & Licker, P.S. (2005a). E-Commerce adoption in developing countries: a model and Instrument. *Information & Management*, 42, pp. 877-899.
- Mutula, S.M., & van Brakel, P. (2007). E-readiness of SMEs in the ICT sector in Botswana with respect to information access. *Electronic library*, 24(3), pp.402-417.
- National Baseline survey. (1999). National Micro and Small Enterprise Baseline Survey. Nairobi: ICEG and K-Rep

Nikakhtar and Yang (2011). Role of e-commerce in Supply Chain Management to minimize costs. Un published Research Project, Business School, University of Shangai for Science and Technology.

Nissanoff, Daniel (2006). Future Shop: How the New Auction Culture Will Revolutionize the Way We Buy, Sell and get the Things We Really Want, Hardcover, The penguin press, 246 pages. ISBN 1-59420-077-7

Nyaanga, Richard O. (2007), the effects of E-commerce adoption on business process Management in Commercial Banks in Kenya. Unpublished MBA research project, University of Nairobi.

Ocha, M.L. (2011). Factors that Influence adoption and frequency of use of e-commerce By Micro and Small Enterprises in Kisumu, Kenya. Unpublished MBA ResearchProject, University of Nairobi.

OECD (2004). ICT, E-Business and SMEs, Organization for Economic Co-Operation and Development.

Olson, John and K. Boyer (2002), “Factors influencing the utilization of Internet purchasing in small organizations”, journal of operations management 21:26:225-245

Orodho, A.J. (2003). Essentials of educational and social science research methods. Nairobi: Mazola Publishers.

Peterson, R. A. (2000). Constructing Effective Questionnaires. Thousand Oaks , Calif [u.a.: Sage Publ.

Rana Tasabehji (2003). Applying E-commerce in business extracted from

Riemenschneider, C. K., Harrison, D. A., & Mykytn, P. P. Jr. (2003). Understanding

- IT adoption decisions in small business: Integrating current theories. *Information & Management*, 40(4), pp. 269-285.
- Sarosa, S., & Zowghi, D. (2003). Strategy for Adopting Information Technology for SMEs: Experience in Adopting Email within an Indonesian Furniture Company. *Electronic Journal of Information Systems Evaluation*, 6(2), pp. 165-176.
- Scupola, A. (2009). Australian SMEs and E-Commerce Adoption: Newer Perspectives: Australian SMEs and E-Commerce Adoption: Newer Perspectives. In Bharati, P., Lee, I., & Chaudhury, A. (Eds.), *Global Perspectives on Small and Medium Enterprises and Strategic Information Systems: International Approaches* (pp. 132-144).
- Shore, B. (2001). Information Sharing in Global Supply Chain Systems. *Journal of Global Information Technology Management*, 4(3), pp. 27-50.
- Simpson, M., & Docherty, A.J. (2004). E-commerce adoption support and advice for UK
- Teo, T.S.H., & Ranganathan, C. (2004). Adopters and non-adopters of business-to-business electronic commerce in Singapore. *Information & Management*, 42, pp. 89-102.
- Tornatzky, L.G., & Fleischer, M. (1990). *The Processes of Technological Innovation*. Lexington, MA: Lexington Books.
- Turban, E., King, D., McKay, J., Marshall, P., Lee, J., Viehland, D. (2008), *Electronic Commerce: A managerial perspective*. Pearson Education, Upper Saddle River, NJ.
- Wangeci, M.G. (2006). A study on ICT use in Kenya amongst the MSMEs. Unpublished MBA thesis. Kenyatta University.

APPENDICIES

APPENDIX 1: INTRODUCTORY LETTER

TO WHOM IT MAY CONCERN.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH ON FACTORS THAT INFLUENCE THE UTILIZATION OF E-COMMERCE IN MICRO AND SMALL ENTERPRISES (MSEs) IN NAIROBI, KENYA.

I am a Master of Business Administration degree student at the University of Nairobi. In partial fulfillment of the degree, I am required to carry out a research as aforementioned.

Being one of the MSEs in Nairobi, your business is the main focus of the study. I kindly request for your assistance through the filling of the questionnaire attached here-in. The information requested is needed purely for academic purposes and will be treated as confidential and will not be used for any other purpose apart from my research.

Yours Faithfully.

Kibuko K. Kinya

APPENDIX 11: QUESTIONNAIRE

INSTRUCTIONS.

This questionnaire seeks to collect information on the Factors that Influence the Utilization of e-commerce in Micro and Small enterprises (MSEs) in Nairobi Kenya. Please provide information in the spaces provided unless indicated as optional and tick or circle the appropriate boxes. All the information received will be treated confidentially and will only be used for academic purposes.

A.GENERAL INFORMATION

- a) Name of Business (Optional) _____
- b) Telephone Number (Optional)_____
- c) E-mail address (Optional)_____

Please tick your selection

1. Are you the manager, owner or both of this business?

A	Owner only (the business is managed by someone else)	
B	Manager only(the business is owned by someone else)	
C	Both Owner and Manager (you own and manage the business)	

2. Please indicate your gender

A	Male	
B	Female	

3. Please Indicate your age

a	Below 21 years	
b	Between 22-30 years	
c	Between 31-40 years	
d	Between 41-50 years	
e	Between 51-60 years	
f	Above 60 years	

4. Please indicate your highest level of education

a	Primary	
b	Secondary	
c	College	
d	University	
e	Post Graduate	

5. Do you have a management training certificate?

a	Yes	
b	No	

6. If your answer to question 5 is yes, please specify

.....
.....
.....

7. What kind of an enterprise is the business?

a	Sole proprietorship	
b	Partnership	
c	Private Limited Company	
d	Public Limited Company	

8. How many full time employees do you employ in the company?.....
9. How long have you owned or managed this business?.....Years.
10. Do you use internet/e- commerce applications or IT tools in your business?

Yes

No

B. E-COMMERCE APPLICATION

11. Please indicate the frequency of use of e-commerce tools such as the computer, internet, email, and/or websites based on the scale given below.

Scale

1= Do not use at all, 2=Rarely, 3=Occasionally, 4=Frequently, 5=Very frequently

Task	Scale
To communicate with customers, suppliers and employees	
To perform financial Accounting	
To manage payroll	
To perform market/Product Research	
To carry out business banking	
To set-up customer/Supplier databases	
To locate suppliers	
To place and track orders via email	
To pay suppliers	
To receive orders	
To place orders	
To track and enquire about orders by customers via email	
To promote products or services	
To search for information	

C. FACTORS INFLUENCING ADOPTION OF E-COMMERCE

Using the scale below, please indicate the extent to which you agree or disagree with the statement.

Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent
1	2	3	4	5

AWARENESS OF BENEFITS OF E-COMMERCE

If we make use of e-commerce tool in our business:

1	Efficiency in the business will improve	1 2 3 4 5
2	Business costs will reduce	1 2 3 4 5
3	Sales volumes will increase	1 2 3 4 5
4	Number of New Customers will increase	1 2 3 4 5
5	Overall customer satisfaction will be improved	1 2 3 4 5
6	Customers will encourage other customers to get their products from us.	1 2 3 4 5

COST OF E-COMMERCE IMPLICATIONS

7	Use of e-commerce is affordable in our business	1 2 3 4 5
8	Subscription to the Internet is affordable for our business	1 2 3 4 5
9	Buying a computer software is affordable for our business	1 2 3 4 5
10	It's very expensive for our business to have its own website	1 2 3 4 5
11	Paying for computer support for our business is affordable	1 2 3 4 5
12	Computer Maintenance costs are too high	1 2 3 4 5

TECHNICAL SKILLS AND IT KNOWLEDGE OF OWNERS AND STAFF

13	I know how to use the internet	1 2 3 4 5
14	I have some training in Information technology tools	1 2 3 4 5
15	I know how to use Microsoft Office	1 2 3 4 5
16	I am knowledgeable in website Maintenance	1 2 3 4 5

17	I attend workshops to improve my computer skills regularly	1 2 3 4 5
18	My employees know how to use the internet	1 2 3 4 5
19	My employees know how to use computer software and IT tools	1 2 3 4 5
20	My employees are knowledgeable in website maintenance	1 2 3 4 5
21	My employees regularly attend workshops to improve their computer skills.	1 2 3 4 5

Environmental factors

22	This business enjoys financial assistance from the government	1 2 3 4 5
23	This business enjoys infrastructural assistance from the government	1 2 3 4 5
24	This business enjoys a good relationship with its suppliers and customers	1 2 3 4 5

22. Please rate the following factors in the order of importance in influencing the utilization of e-commerce in your business.

1=Very important, 2= Important, 3=Neutral, 4=Not very important, 5= Not important at all.

1	Awareness of e-commerce benefits	1 2 3 4 5
2	Cost of e-commerce implementation	1 2 3 4 5
3	Technical Skills and IT knowledge of owner/staff	1 2 3 4 5
4	Environmental factors	1 2 3 4 5

THANK YOU FOR TAKING TIME OUT OF YOUR BUSY SCHEDULE TO ANSWER THIS QUESTIONNAIRE.

