

**A MODEL TO EVALUATE THE EFFECTS OF INFORMATION AND
COMMUNICATION TECHNOLOGY (ICT) ON SMALL AND MEDIUM
ENTERPRISES (SME'S) PERFORMANCE IN AFRICAN CITIES: CASE OF NAIROBI
COUNTY**

BY

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REQUIREMENTS FOR THE AWARD OF THE DEGREE IN MASTERS OF SCIENCE
IN INFORMATION SYSTEMS MANAGEMENT**

DECLARATION

This proposal is my original work and to the best of my knowledge has not been presented for examination of any Masters Degree in any institution or university.

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This research proposal has been submitted for examination with my approval as university supervisor

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Dedication

I dedicate this project to my parents the late Paul and Elizabeth without whom; this and much of me would never have been realized. There are not enough words to describe how thankful I am to the both of you. Thank you for your endless amounts of love, even when I probably don't deserve it. Mom and Dad you've gone through a lot of struggle and pain. But I promise, I won't let all that go in vain. I want to do justice to every time you believed in me. Mom and Dad I will work hard to make you proud. I have no words to acknowledge the sacrifices you made and the dreams you had to let go, just to give me a shot at achieving mine. Thanks.

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Abstract

The study set out to assess the role of Information and Communication Technology (E-commerce tools, Networking components/Internet, and communication technology) on the growth of Small and Medium Enterprises (SMEs), analyze how the use of Customer Relationship Management systems (CRM), Enterprise Resource Planning (ERP) systems, Decision Support Systems (DSS), Mobile communication, VOIP, Mobile Money Transfer (MMT) and use social media technologies affects the growth of SMEs. Descriptive survey design was used; a sample of 69 SMEs from a total of 464 registered SME's was selected using Simple random sampling in Nairobi County. Primary data was collected using semi- structured questionnaires. Analysis was done using Statistical Package for Social Science (SPSS). Study findings indicated that e-commerce tools were highly adopted by SMEs with mobile payment systems being the highest adopted, online shopping and online catalogues for products and services. Adoption of e-commerce tools related to growth of SMEs. CRM systems were highly adopted by SMEs and had a moderate positive correlation their growth. Findings indicated that high growth SMEs was mostly associated with usage of social media and communication technology. The study recommended that SMEs should consider wide flexible solutions of open source software solutions, scalable platforms to allow progressive upgrade to meet increasing use and cloud solutions. Research should be conducted to identify additional challenges that will enable SMEs operations to be efficient, cost-effective to ensure their growth and sustainability.

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CHAPTER ONE

INTRODUCTION

1.0: BACKGROUND TO THE STUDY

Over the years, technology in business has been changing rapidly as the global environment becomes highly competitive and innovative. The use of Information and Communication Technology (ICT) has become very vital to businesses that intend to remain competitive in the market. In the words of Cravens (2010), the drivers of change in today's world include, deregulation, global excess capacity, global competition, changing customer expectations, ICT, demographic shifts and changing work and lifestyles. These changes have led organizations to embark on activities that will provide a source of competitive advantage and embrace the usage of ICT; this is well outlined by the Kenya ICT policy (draft 2016) vision which is to have a prosperous and competitive ICT-driven Kenyan society. ICT is often viewed as a necessary ingredient to most businesses in recent times. ICT's importance to economic development and business growth has been so monumental, in fact, that it's credited with ushering in what many have labeled the Fourth Industrial Revolution. ICT also underpins broad shifts in society, as individuals en masse are moving from personal, face-to-face interactions to ones in the digital space. This new era is frequently termed the Digital Age. This view of ICT has led to a rush to implement IT systems by most businesses. The view that there exists a link between improved performances due to implementation of ICT in a business's operations is a presumed statement, opposing views on which opinion offered is divisive. To an extent, it is often a struggle for many managers, stakeholders and academicians to properly link a firm's ICT infrastructure to the extent to which it defines firm performance (Bharadwaj, 2006). ICT refers to "Information and Communication Technology" and as such refers to any investment made by the company in the form of computer and communication technologies and shareable technical platforms and databases (Ross, Beath, and Goodhue, 2011). To redefine the term in a more discernible way, we can refer to IT as any technology that helps to produce, store, communicate and disseminate information.

Small and Medium Enterprises (SMEs) are widely recognized as the key engine of economic development globally. Small and Medium Sized Enterprises (SMEs) play an important role in economic development of a country. As a result of this recognition, a

central issue dominating policy debates around the world and Africa in particular has been how to stimulate economic growth through the development of SMEs. In Kenya, SMEs are important not only because they create employment but also because they employ unskilled workers, who are overly abundant in our 47 counties, in this reference Strathmore University in collaboration with other stakeholders on 19th April 2017 announced they will be training 300 young entrepreneurs on SMEs.

The study sought to investigate usage of ICTs by SMEs and impact they create on performance. To begin with, ICTs are dynamic and form part of many resources a given firm relies on to enhance performance. Secondly, SMEs are vaguely defined with the definition being borrowed from developed economies case and locally from a definition that also addresses Micro enterprises. Thirdly, performance of any firm, depends on many other factors and sector of operations may be hardly be accentuated to ICTs.

According to (Merono CA, 2008), the development of information and communication technology (ICT) (the digital disruption), very rapidly Integration of computer technology, information systems and communication technologies, as well as the existence of the Internet, has spawned a very favorable synergies. Various application systems were created, to support and simplify business processes. With its unique characteristics, ICT is believed to bring a positive impact on the development and performance of any business.

In Africa like most of developing countries in the world small and medium enterprises (SMEs) account for a significant share of production and employment and are therefore directly connected to poverty alleviation (wolff, 2001). Survey conducted in Botswana, Malawi, Eritrea, Swaziland and Zimbabwe underscores the importance of SMEs Sector. In Zimbabwe for instance, a baseline survey conducted by McPherson et al (1998) found that there were 860,000 SMEs outside agriculture and primary production, employing approximately 1.63 million people (Biobele, 2009). Data from the ministry of industrialization and enterprise development indicates that SMEs sector employs about 74.2% of the Kenyan workforce and contributes 18.4% of the country's Gross domestic production (Ministry of Industrialization and Enterprise Development, 2016) The 21st century has embraced itself with ICT as one of the driving forces behind accelerated business growth in the world. The Kenyan Information and Communications Technology (ICT) Policy has been formulated through the process of public consultations. The Policy is premised on the following principles: one, ICT is a developmental tool that should be widely accessible

and utilized by the general population; two, There will be a technology neutral approach in the adoption and regulation of ICT systems and services in the promotion of competition; three, Innovation will be promoted for the benefit of consumers, producers and service providers while at the same time protecting the interest of innovators; and four, Investing in human resource development and capacity building will also be prioritized. The ICT Regulator, the Communications Authority of Kenya (CA) will be expected to adopt and implement the highest standards of procedural efficiency, transparency and responsiveness to technological changes. ICT is rapidly changing global production, work and business methods, trade and consumption patterns in and between enterprises and consumers. It is evident that ICT has brought immense innovations, improvements and advanced ways of doing business in a speedy manner in the developed economies. According to Kalakota, R. and Marcia (2011), technology is no longer an afterthought in forming business strategy, but as part of actual cause and driver. Hence, currently, the use of information system resources such as computers, internet, e-business, point of sales (POS), Enterprise resource planning (ERPs) Human Resource Information Systems (HRIS) and other ground-breaking business practices is a common feature of SMEs in the advanced world. The modern business environment is not only complex but also extremely dynamic interminable and with cutting edge improvement characterized by multifaceted customer needs and wants that must be met with accuracy and momentum in order to ensure the survival and growth of small and medium scale business activities. According to Laudon and Laudon (2013), information technology is one of the important tools that managers (businesses) use to cope with change.

A national study on ICTs, trade and economic growth by Dr Mbui Wagacha, confirmed that economic growth and competitiveness of an economy can be enhanced through the use of ICTs. Co-author in this study, Prof. Meoli Kashorda, stated that already 32% of the surveyed Kenyan businesses were using the World Wide Web for interaction with clients and or suppliers while 68.42% used emails to interact with the suppliers/ customers, making ICT a valuable chain enhancer (Kashorda and Wagacha, 2007)

ICT is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer, Communication networks hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. According to the European Commission, the importance of ICTs lies less in the technology itself than in its ability to create greater access to information and communication in

underserved populations. Many countries around the world have established organizations for the promotion of ICTs, because it is feared that unless less technologically advanced areas have a chance to catch up, the increasing technological advances in developed nations will only serve to exacerbate the digital divide.

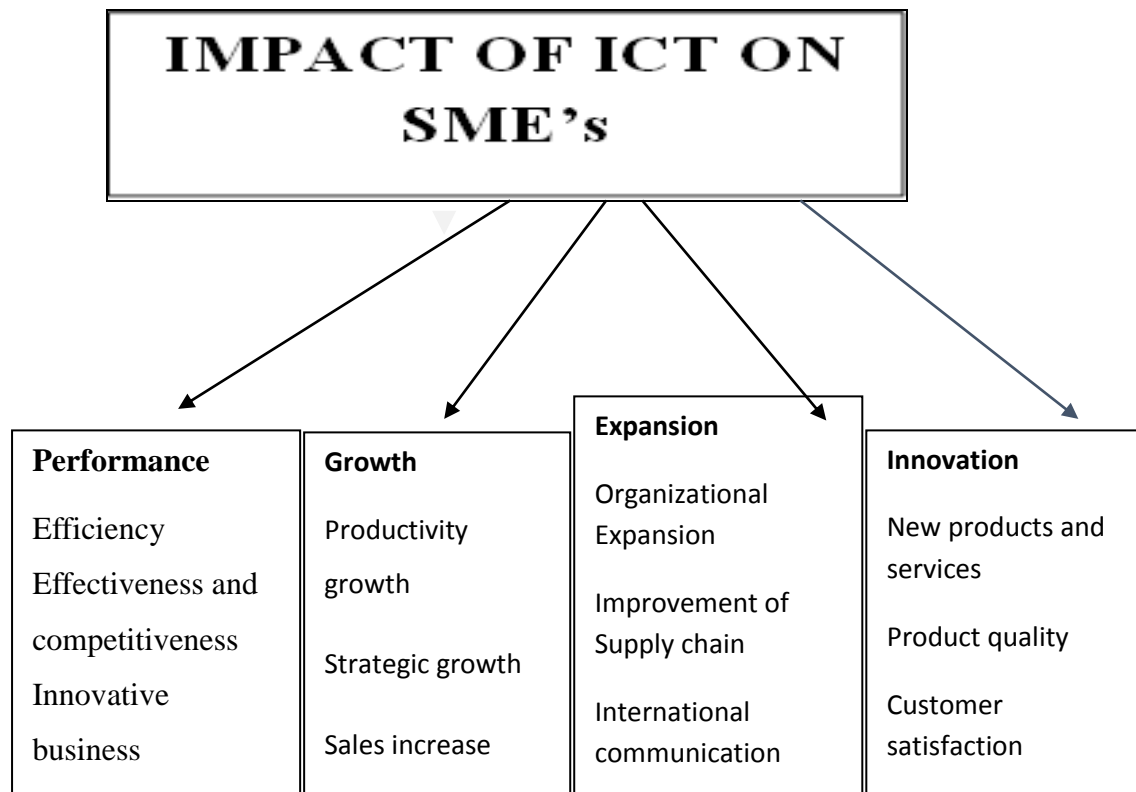


Figure 1.1: ICT Benefits to organization

The business terrain is thus, controlled by strict compliance with ICT innovations through networking, internet connectivity and improved information communication flow. Information communication is so vital in today's business environment and thus, firms are nowadays encouraged to invest heavily on information system and technology. The need to adopt state-of-the-art ICT innovations to enhance the business development processes by SMEs to improve efficiency, profitability and growth potential is inevitable.

Several theories elaborate on connection between information technology, economic development and social change. Almost all agree on the importance of information and communication technology adoption in SME, while the importance of SME as engines to economic growth is well acknowledged worldwide. Information technology, particularly the

Internet is having a significant impact on the operations of SME and it is claimed to be essential for the growth of nation's economies in general and SME in particular (Guba, 2010). According to Loretta (2008), Information and Communication Technology is changing the economy and traditional business become more dependent on new technologies. Compared with traditional business, new technologies facilitate an increased interactivity, flexibility, cheap business transactions as well as improve interconnection with business partners and customers. Information technology is having a significant impact in sector of Small and Medium Sized Enterprises (SME), especially where industries are in decline or when unemployment levels are high. In Kenya, SME development is drawing attention too and modern trends of businesses and information technology usage are taking place (Alendo, 2010). This study will be carried out in Nairobi. Nairobi is the capital and largest city of Kenya. The city and its surrounding area form the Nairobi County. Nairobi is the most populous city in East Africa, with a current estimated population of about 3 million. With a population of 3.36 million in 2011, Nairobi is the second-largest city by population in the African Great Lakes region after Dar es Salaam, Tanzania. According to the 2009 census, in the administrative area of Nairobi, 3,138,295 inhabitants lived within 696 km². Estimates are released on a regular basis, and in 2016, it was claimed that those numbers had risen to 5 million. Nairobi is now one of the most prominent cities in Africa politically and financially. Home to thousands of Kenyan businesses and over 100 major international companies and organizations, including the United Nations Environment Programme (UNEP) and the main coordinating and headquarters for the UN in Africa & Middle East, the United Nations Office in Nairobi (UNON), Nairobi is an established hub for business and culture. Nairobi County is divided into eight administrative Sub-counties namely Central, Dagoretti, Embakasi, Kasarani, Kibera, Makadara, Pumwani and Westlands (KNBS, 2009). It is upon this backdrop that this study is being conducted to adequately appreciate the effects of ICT in performance of small and medium enterprises (SMEs).

1.1: PROBLEM STATEMENT.

The problem that is identified for this study is that most SME's perform very poorly and as a result they end up collapsing due to challenges presented by lack of ICT usage (globalization) and competition from more established firms which also poses a great challenge to SMES existence.

Failure is a topic most of us would rather avoid. But ignoring obvious and subtle warning signs of business trouble is sure way to end up the wrong side of business survival. A study done by Erica Oslen in 2014, on redefining small business administration indicates that statistically the survival rates of SMEs is just 40% four 4years or more. He defines business operational failure as failures to achieving expected performance.

According Paul Track, (2014) at a corporate level the consequences of failing to implement and use ICT can be catastrophic. He continues to say that without ICT SMEs fail to meet standards of current day communication expected by customers, employees and shareholders. A good example is NOKIA, which fell out of step with the market and struggled to turn its good idea into products. This was caused by traditional methods of communication, and lack of analysis of the market that could otherwise be done by use of ICT.

Erica Olsen, 2016 highlights ten causes of business failure and in his list ICT is listed number four. Without the use of ICT the SMEs are faced with the challenges of customer prediction and market analysis and this leads to closure of this small and micro enterprises. He notes that ICT is a key Communication and market analysis tool for any enterprise that intends to remain relevant and competitive in the digital era.

1.2: OBJECTIVES OF THE STUDY

The study's objectives can be categorized mainly into specific and general objectives. The overall purpose of this study is to come up with a model to investigate the impact/ effects of ICT on SMEs' performance in Nairobi County.

To arrive at the above purpose the following research specific objectives are developed:

1.2.1: The specific objectives of the study include the following:

1. To investigate the effects of ICT use on growth and expansion of SMEs in Nairobi county.
2. To investigate the effect of ICT use on the quality of SMEs product/service in Nairobi county

3. To establish the effect of ICT use on cost efficiencies of SMEs in Nairobi County
4. To find whether the advent of the internet has changed the ways of businesses; if the use of the internet is essential in locating additional contracts/ customers and to expand the enterprises' market in Nairobi county.

1.3: RESEARCH QUESTIONS

1. What are the effects of ICT use on growth and expansion of SMEs in Nairobi County?
2. What are the effects of ICT use on quality of product/ service of SMEs in Nairobi County?
3. What are the effects of ICT use on the cost of inputs and returns of SMEs in Nairobi County?
4. What is the impact of Internet on reference to expansion of SMEs market in Nairobi County?

1.4 RESEARCH ASSUMPTION

1. Information and Communication Technology affects the growth and expansion of SMEs.
2. Information and Communication Technology affects the quality of product/service of SMEs.
3. Information and Communication Technology affects the cost efficiencies of SMEs.

1.4: MOTIVATION

The choice to investigate SMEs adoption of ICT was due to the following factors;

1. Ability to work as a sub-contractor of large companies
2. Ability to create work opportunities under low capital investment
3. Ability to Decentralize business activities
4. Ability to support fast development of regions, small towns and communities.
5. Ability to create conditions for developments and implementation of new technological.

1.5: SIGNIFICANCE OF THE STUDY

The desire to investigate the effects of ICT on the business development agenda and profitability of SME's was prompted by results of a sample survey that was conducted among SME's through random selection. These SME operators hinted that they have not taken full advantage of ICT even though it is considered the major driving force behind contemporary business success. Modern business processes and practices are mainly driven by ICT and that its contribution to the development of SME's cannot be overstated. Findings from the study would:-

The significance of this study can be highlighted as follows;

1. To provide for small scale business stakeholders the need to propagate their resourceful processes and practices towards global needs.
2. To incline individuals, agencies and government to create an enabling environment within which small scale businesses can grow.
3. To emphasize on the value of the business processes and practices that are globally oriented.
4. If ICT strategically aligned with business agenda then we will address the issue of unemployment.

In addition the study will benefit the following groups of individuals:

5.1.1 Scholars

The study will contribute new knowledge to the existing body of knowledge on entrepreneurship in Kenya. It will also inspire future researchers to carry out a study on similar or related areas.

5.1.2 SMEs Management

The study will be of substantial help to SMEs managers and entrepreneurs in the manufacturing industry, to be particular it will help managers to know the importance or

rather the relationship of ICT and their business on how to use ICT as a solution to their SMEs

5.1.3 Government

This study will give the government necessary information to enable the planning of various national development agendas. For instance, policy makers in the government agencies will gain insights from the study and make policies that are geared towards enhancing the performance of SMES in the country.

5.1.4 Donors

The donors play a very important role in field of entrepreneurship. With the aid of this study, donors will be able to see the importance of ICT on the growth of entrepreneurship in our country Kenya and allocate more resources on the capacity building of our entrepreneurs with the information and communication skills.

5.1.5 Policy makers

The policy makers with key players in the industry will be major beneficiaries of this report as they lay down the rules and regulations pertaining SME and ICT

1.6: THE SCOPE

The study is based on the performance of small and medium enterprise through efficient and effective institutional practices in Kenya. However, the location of the study is Nairobi City where the activities of small and medium enterprises are mostly concentrated. This study focuses on the effects of ICTs on performance of the SMEs, and narrowed down to those SMEs that have been in operational for more than three years. Studies have established that majority of the SMEs collapse within the third anniversary as a result of challenges in operational skills such as management, marketing and finance (session paper of 2010)The study will be confined to the SMEs based in Nairobi county who are registered under the Ministry of Industrialization and Enterprise Development. The role of this ministry

in Kenyan Vision 2030 is to create employment and wealth with the sector overall goal being to increase its contribution to the GDP by at least 10% per annum. The SMEs under investigation micro enterprises; those firms with up to 10 workers, Small were those employing 10-50 workers while medium enterprises employing 50-99 workers.

The study will be a descriptive research with the intention to determine and report the way things are with the SMEs under study. Unfortunately the study will be limited in this goal due to time and finances and thereby the researcher will use a sample of the SMEs in the study. The research will be carried out over a period of three months. Another limitation will be lack of formalization of the SMEs in the country. Most of these SMEs are not registered with the department of Micro and small Enterprises Development under the ministry of industrialization and enterprise development. Thereby the study will use a sample of SMEs registered with the Kenya Ministry of Industrialization and Enterprise Development.

Unavailability of responses may also pose a challenge as most tends to have suspicion of the intention of the researcher. This is due to the fact that most SMEs are informal and tend to be incompliant to the government statutory requirements like tax payment and licensing. To mitigate this, the researcher will obtain a letter from the university detailing the research under study and also the researcher will include interviews to the SMEs owners so that to clarify and provide insight into specific conversation.

In conclusion the study focused on contribution of ICTs on performance of SMEs in Nairobi County. The ICTs referred were those that are meant to ease in business operations rather than being central to business itself. Nairobi County has been picked as the case study where appropriate techniques were used to carry the study on a sample chosen to represent the study area. The study limited itself to performance improvement that is contributed or perceived to be contributed by adoption of ICTs by SMEs.

1.7: LIMITATION OF THE STUDY

The need to conduct a reconnaissance study and select a representative sample, is faced by limitations of time, financial resources, identification and classification of SMEs by sector and finally, exclusive quantification of impacts of the adopted ICTs to performance of these SMEs.

1.8: ICT VALUE

According to Schubert and Leimstoll (2007), there are two schools of thought with regard to the issue of ICT value. The one, known as Porter's theories, says that ICT adds value to SMEs and the other, known as Millar's theories, believes that ICT does not really add any value since it is a commodity, just like electricity, available to everyone. Yet, they agree that competitiveness of an SME depends on the ways in which ICT is used to support business processes. Therefore, having ICT implemented in a business does not necessarily give the business any competitive advantage, but having it linked to the business processes and strategy will most likely give a competitive advantage. In general, it appears that SMEs that employ ICT according to the critical success factors below have a better chance of becoming commercially successful (Taylor and Murphy, 2004).

The critical success factors are as follows:

“Owner motivation, experience and management skills, expertise in managing growth, access to resources (money, technology and people), innovation, a competitive advantage and flexibility, close contact with customers, a focus on profits rather than sales and Strong demand and operating in a growth market”.

In order to achieve the above critical success factors, the SMEs need to embark on the following:

- They need to have a clear ICT strategy that will govern the adoption process within that particular SME.
- They need to make sure the ICT strategy is aligned with the business strategy, which means that the ICT strategy should support and achieve business goals.
- The SME should make sure that it employs the right skills (permanent or contracted) and identifies the roles that these skills will play in making sure that the SME is successful in leveraging ICT.

CHAPTER TWO LITERATURE REVIEW

2.0: INTRODUCTION

The concept of information and communication technology has not been extensively analyzed and discussed in the literature by either researchers, academics or professionals in the business area, although it is an essential element in the effectiveness of work in operational and management areas of enterprises, particularly SMEs areas (Moshin et al., 2013). Also, one of the many elements that characterize the present century is the information and communication technology, which plays a fundamental role in establishing the basis for the adoption and implementation of the innovation activities that the organizations need to improve management and production methods, which will allow them to survive in a highly globalized and competitive market (Moshin et al., 2013). In this sense, according to Frishammar and cohort (2005) usually the ideas that become innovations are implemented by initiatives of the information and communication technology, commonly, the results of this improve significantly the innovation of new products and processes, which translates in a customer's loyalty promotion and stimulate a demand for other products of the organization. Also, Karadal and Saygin (2011) concluded in their study that the adoption and implementation of the information and communication technology, have significant positive effects on the development of new products and therefore, innovation, which allows companies to make better use of information and, communication technology for the generation of new ideas and implementing these in production processes for the production of products demanded by customers and consumers of the organization.

The definition of SMEs differs from one country to another but is often based on employment, assets or a combination of both. Jutla et al, 2002 state that SMEs have been defined against various criteria such as the value of assets employed and the use of energy. National Council of Industries refers to SMEs as business enterprises, whose total costs, excluding land, are not more than two hundred million naira KSh200million.

Smith & Watkins, 2012 in www.researchgate.net states that the inherent characteristics of small and medium enterprises (SMEs) afford these enterprises the potential to absorb unskilled labour and to nurture and develop entrepreneurial skills. However, in the South African economy, these benefits are not forthcoming due to the high failure rate of SMEs. The impediments to SME success includes numerous and varied obstacles. Studies

conducted confirmed SME owner-managers ignorant pertaining to the risks their enterprise face with risk management techniques deployed reactively and ineffectively. By embedding a structured approach to enterprise risk management within SMEs, potential benefits such as reducing the over-management of risks and organizational alignment towards the SME's vision can be realized. Kagwathi, Kamau, Njau and Kamau (2014) revealed that SMEs sector is constraint to play their roles to the fullest due to poor management and related business risk financing. A lack of awareness of risks confronting the SMEs by their operators sometimes leads to situations in which managers direct their attention only on risk control programmes that concerned safety at work and quality assurance on production (Smit & Watkins, 2012).

Hence, Small and Medium Enterprise has been the vehicle that drives economic growth and development globally, especially SMEs has contributed immensely to the economic growth in developing countries, Kenya inclusive. Small and Medium Enterprises (SMEs) occupy a place of pride in virtually every country or state because of their (SMEs) significant roles in the development and growth of various economies, they (SMEs) have aptly been referred to as the engine of growth and catalysts for socioeconomic transformation of any country Basil, 2008. Hence, Ongori and Migiro, 2010 agree that SMEs not only help to improve the living standards of people but bring about substantial local capital formation and achieve high levels of productivity and capacity.

Consider, for example, some findings from the World Bank. In 2016, it stated that more than 75% of people worldwide have access to a cellphone. However, internet access through either mobile or fixed broadband remains prohibitively expensive in many countries due to a lack of ICT infrastructure. Furthermore, the World Bank estimated that out of the global population of 7.4 billion people, more than 4 billion don't have access to the internet. Additionally, it estimated that only 1.1 billion people have access to high-speed internet. In the United States and elsewhere, this discrepancy in access to ICT has created the so-called digital divide. The World Bank, numerous governmental authorities and non-government organizations (NGOs) advocate policies and programs that aim to bridge the digital divide by providing greater access to ICT among those individuals and populations struggling to afford it. These various institutions assert that those without ICT capabilities are left out of the multiple opportunities and benefits that ICT creates and will therefore fall further behind in socio-economic terms. The United Nations considers one of its Sustainable Development Goals (SDG) to "significantly increase access to information and communications technology and strive to provide universal and affordable access to the internet in least developed

countries by 2020." Economic advantages are found both within the ICT market as well as in the larger areas of business and society as a whole.

However, SMEs in Kenya do not enjoy this in a substantial way due to the low state of the ICT in this industry, so their success and contribution to the economy could also remain low. Even though the use of ICT robs unskilled workers of their jobs, it increases the efficiency and effectiveness with which business activities are operated. The use of digital technology in running businesses increases productivity, so a country that is not very fast in adopting these technologies will not have a fast growing economy Minton.S, 2009.

Nowadays the use of ICT in enterprises is very important, especially in SMEs, that are the majority of companies operating in the world. The adoption and use of ICT can bring benefits in terms of efficiency, effectiveness, innovation, growth and competitive advantages.

This chapter analyses, in depth, the literature on determinant factors that stimulate the adoption and use of ICT and the impact on organizations. For good business performances it is important to align organizational and productive processes with ICT tools; adequate conditions favor the best ICT implementation. Included in the review are the effects of ICT in performance of SMEs with regards to service delivery strategy, decision making, increased capital share, increased margin and increase in number of employees.

2.1: THEORETICAL FRAMEWORK

The present century is characterized, among other factors, by an uncertainty in the business in which the market increasingly globalized and highly competitive, in the participating firms, ICT is driving organizations to make significant changes in their strategies to bring them into line with the requirements of the new competitive environment (Moshin, Bashir &Latif, 2013). Therefore, firms particularly small and medium-sized enterprises (SMEs), have a strong pressure to maintain or improve their competitive advantage in an environment increasingly turbulent and various organizations have considered innovation as an essential strategy, which can provide the competitive advantages that require not only to maintain its current competitive position, but also to survive (Nonaka & Takeuchi, 2008).

Similarly, the information and communication technology plays an important role in the new millennium companies, since its adoption and implementation in business activities

generates, on one hand, a higher level of process innovation (Quinn, Baruch & Zien, 2007) and, on the other hand, the applications of information technology or software that handle specialized companies such as the resource planning (ERP) system for decision support (DSS), relationship management (CRM), enable a higher level of innovation and knowledge in the organization (Moshin et al., 2013). In this sense, various researchers, academics and professionals of business and computer science, consider that the use and management of information and communication technology by managers and/or owners of SMEs not only provide organizations greater level of competition, but also decrease the risk and uncertainty about the business environment and facilitate the implementation of strategic planning (Dibrell & Miller, 2002; Gibson & O'Connor, 2003). In addition, for SMEs to achieve a higher level of innovation, all activities related to innovation made by companies, should have a basic support of information technology and communication (Frishammar & cohort; 2005 Dibrell, Davis & Craig, 2008).

Further to an analysis of the various studies done on the subject of ICT and firm growth as well as the enumeration of the various determinants of firm performance, it is imperative that the theories that form the basis for the arguments presented herein as well as the subsequent chapters are presented.

The main theory is the Resource based theory (Metville et al., 2004) and a lesser used theory is the Transaction cost theory (Gurbaxhani and Whang, 1991; Melville et al., 2005).

2.1.1: ICT and growth of SMES

According to world development report (2011), for leading countries in the world economy, the balance between knowledge and resources has shifted so far towards the former that knowledge has become perhaps the most important factor determining the standard of living more than land, tools, and labor. Today's most technologically advanced economies are truly knowledge based. Countries in the world are moving from an industrial economy to a knowledge economy in which economic growth is dependent on a country's ability to create, accumulate and disseminate knowledge. Computers and the internet catalyzed the growth of the knowledge economy by enabling people to put knowledge into a digital form easily transmitted to anywhere around the world. ICT has sped up the pace of globalization and increase the complexity of business practices because firms not only need to be familiar with their local context but also with global developments. Thus, to compete in the

knowledge economy, countries need a strong ICT literate skills base that can innovate and adapt quickly to change. More value is placed on the knowledge worker than ever before, knowledge economy relies heavily on ICT; it has led to the rapid growth of ICT sectors.

Many countries such as India, the Republic of Korea, Taiwan and China have created enabling environments to ensure that SMEs are well positioned to capture these emerging business opportunities. India, for example offered relief from import duties for IT hardware, tax deductions for income earned from software exports, and tax holidays, and developed infrastructure in software technology parks. India's thriving ICT sector has in turn propelled the country's economic growth. SMEs outside the ICT sector have also benefited by adopting ICT in their own operations, enabling them to communicate quickly, increase productivity, develop new business opportunities, and connect to global networks.

2.1.2: ICT and Vision 2030

The Kenya Vision 2030 aims to provide the national long-term development blue-print to create a globally competitive and prosperous nation, transforming Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment. Vision 2030 three pillars, namely the Economic, Social and Political are anchored on macroeconomic stability; continuity in governance reforms; enhanced equity and wealth creation opportunities for the poor. The Economic Pillar which captures the expectations of the ICT market seeks to improve the prosperity of all regions of the country and all Kenyans by achieving a 10% GDP growth rate by 2017. Information Communication and Technology is identified as enabler or foundation for socio economic transformation. The vision recognizes the role of Science, Technology and Innovation in modern economy in which new knowledge plays a central role in boosting wealth creation, social welfare and international competitiveness.

2.1.3: ICT challenges in developing countries

Wolf, S. (2001) found that in most African countries, small and medium enterprise (SME) account for a significant share of production and employment and is therefore directly connected to poverty alleviation. Especially in developing countries SMEs are challenged by the globalization of production and the shift in the importance of various determinants of

competitiveness. ICTs can improve efficiency and increase productivity by different ways including, improving efficiency in resource allocation, reducing transaction costs, and technical improvement, leading to the outward shifting of the production function. Although South Africa is much more developed and its ICT infrastructure is far more advanced, Wolf in his study found that SMEs in South Africa faces similar problems as in other African countries with respect to poor management practices, limited access to technology, and limited access to credit facilities education, unemployment, ICT infrastructure and role of the SME sector leading to slow pace of internet services. The challenges are to move SMEs to go beyond these first few basic steps, and to eventually move towards integrating ICTs in more sophisticated business applications. This is a major step for SMEs, especially in developing countries, because these would require management and technical skills and investments (as well as organizational changes) that they may not be able to afford or for which they may not have ready access.

2.1.4: ICT diffusion in SMEs in developing countries

There are very few studies about ICT adoption in developing countries (Yeh et al 2007), (Sewanyana et al 2007), (Kapurubandara et al 2010). (Lal 2007) investigating adoption of ICT in Nigerian SMEs for example found that, one of the major factors inhibiting ICT diffusion and intensive utilization is poor physical infrastructure. In developing countries some of the ICT adoption challenges include legal and regulatory issues, weak ICT strategies, lack of R& D, excessive reliance on foreign technology and ongoing weaknesses in ICT implementation. There are a number of studies that discuss adoption of Internet and e-business in SMEs in developed countries (Lucchetti and Sterlacchini 2009), (Love et al 2009), (Schubert and Leimstoll 2008 and 2009a, b), (Koellinger 2008), (Stroeken 2009), (Morikawa 2010), (Caldeira and Ward 2011), (Gregor et al 2008), and (Doczi 2011).

Governments around the globe recognize the importance of adoption of ICT by SMEs and they have created special groups to study various aspects of ICT adoption in SMEs. Despite the importance of ICT and emphasis by various governments to encourage SMEs to adopt ICT, it has been reported that SMEs have been slow in adopting ICT for various reasons (Houghton and Winklhofer, 2009)

2.1.4 Barriers to ICT Adoption

(Duan et al 2007) identified lack of ICT skills and knowledge in SMEs as one of the major challenges faced by all European countries, particularly in the UK, Poland and Portugal. (Houghton and Winklhofer 2007) have reported a slow response of SMEs relating to adoption of ICT. (Shiels et al, 2009) found that characteristics of the firm and industry sector are contributory factors to the adoption and exploitation of ICTs by SMEs. (Kapurubandara et al 2011) have categorized internal and external barriers that impede adoption of ICT by SMEs in a developing country. The internal barriers include owner manager characteristics, firm characteristics, cost and return on investment, and external barriers include: security of ICT infrastructure, social, cultural, political, legal and regulatory.

2.1.5 The impact of ICT on SMEs

It is only in the 1990s that empirical evidence was found that computers had a substantial effect on firms' productivity levels. In their studies of the effect of information technology on productivity, Brynjolfsson and Hitt (1995) observed that alongside firm effects, ICT capital contributes positively and significantly to output and productivity for large US firms. Similar results are also found when examining the effects the use of various ICT's has on productivity. These results were consolidated even further in a more recent study (Brynjolfsson and Hitt 2009), which underscores the importance of complementary factors such as restructuring the enterprise and improving the skills level of the personnel to get productivity growth as a result of investment in ICT.

There are hardly any studies that analyze the effect of ICTs on small enterprises in developing countries, partly due to data problems. Müller-Falke (2010) found out for Indian manufacturing SMEs that enterprises that use more advanced forms of ICT have on average a higher labour productivity and a higher growth rate. In a survey of 59 electric and electronic manufacturing Indian SMEs mainly employing less than 50 people, Lal (2009) observed higher profit margins, skill intensity and export and import intensities for firms using IT. There is also some evidence that export performance of SMEs is related to ICT adoption (Lal 2009, Nassimbeni 2010). However it is not the investment in the technology alone but the combination with other technologies and especially relevant skills that make ICT work. Flexibility is considered to be a major source of competitiveness for SMEs compared to larger enterprises. The use of ICT could now on the one hand increase the

competitiveness of SMEs as they enable the creation of more flexible links with trading partners because of faster and more reliable communication channels. On the other hand ICTs could help bigger enterprises to increase their flexibility through a restructuring of the organization which will enable them to adapt quicker to changing conditions. Therefore the competitive advantage of SMEs could also increase. (Susanna Wolf, 2009). This could be seen in the form of increased Revenue (sales metric), cost reduction of doing business, customer satisfaction and retention, process cycle-time improved, increased number of customers, the customer churn rate, increased Market access, increased capital base, informed Decision Making, Differentiation Strategy among others.

2.2 RESOURCE BASED VALUE THEORY

The Resource based value (RBV) theory of the firm is the framework which links the success of a firm to resources and skills which are firm specific, rare, and difficult to imitate (Barney 2007, 2008). The RBV focuses on difficult to copy attributes of the firm that are fundamental drivers of performance (Schultze, 2007). Researchers argue that since investments in ICT are easily duplicated by competitors, investments per se do not provide any sustained advantages, rather it is how firms leverage their investments to create unique IT resources and skills that determine a firm's overall effectiveness (Mata et al., 2007). Wernefelt (2012) offers a contributing angle in his seminal approach to the subject of Resource Based theory by alluding to the notion of resource position barriers, according to him, that act as barriers to imitation and link resource attributes to profitability. Subsequent studies on the subject matter on the Resource Based Theory examine how resource attributes lead to competitive advantage of a given firm (Amit and Schoemaker, 2009; Peteraf 2010). A key point to note is that the RBV theory also recognizes the importance of intangibles such as customer orientation and organizational knowledge or the technical know-how. The complementariness of these factors to ICT is of importance in the eventual examination of how ICT impacts on firm growth. It is through a firm's ability to combine these factors with ICT use that gives a firm an ICT capability.

2.3 Conceptual Framework

Mugenda and Mugenda (2003), define a conceptual framework as a hypothesized model identifying the concepts under study and their relationships. In this framework, there are certain factors that determine the role of Information and Communication Technology on the growth of SMEs. These factors include but are not limited to E-Commerce Tools, Customer Relationship Management System, Enterprise Resource Planning (ERP) systems and Social Media Tools. For this study, all the four are considered as the independent variables. Information and Communication Technology in growth of SMEs is the dependent variable that is affected by the independent variables.

This is a precise presentation of ideas and key words in research objectives. This involves lexical and operational definition and a description of how a concept will be measured. The study seeks to investigate usage of ICTs and their effects to performance of SMEs, usage of ICTs relates to adoption and incorporation of various technologies that ease in generation of business related information and enhance communication within the business environment. Impact of these technologies is taken to be both positive and negative. While these technologies have eased and ensured efficient and effective management of SMEs, they have their involved costs which may otherwise harm performance of business operations. Business operations relate to activities that define a firm's value and supply chain. It encompasses interaction of all stakeholders involved and resources employed both in internal and external environments of a firm. Resources employed range from financial, time, human, expertise and ICTs. ICTs are dynamic and highly varied, ranging from those for an individual's life, SMEs and Large organizations operating in different geographical areas including multinationals. They perform multiple and critical functions in a firm. ICTs have and are changing the operations of any firm at a surprising rate. While they have been taken to be a necessity, ICTs have also point and operational costs involved in their adoption and use.

Margaret Rouse, 2007 highlights that although there is no single, universal definition of ICT (information and communications technology, or technologies), the term is generally accepted to mean all devices, networking components, applications and systems that combined allow people and organizations to interact in the digital world. ICT, or information and communications technology (or technologies), is the infrastructure and components that enable modern computing. ICT encompasses both the internet-enabled sphere as well as the mobile one powered by wireless networks. It also includes antiquated technologies, such as

landline telephones, radio and television broadcast -- all of which are still widely used today alongside cutting-edge ICT pieces such as artificial intelligence and robotics.



Figure 2.1: Components of an ICT system

The fact that the diffusion of information and communication technologies (ICTs) is a prevailing reality in many parts of world it is particularly for developing countries held to offer remarkable opportunities for the alleviation of poverty and the creation of employment and have the potential to expand a country’s economy by making economic enterprises more accessible to local and global markets, improving access to market information, providing information for better and more competitive prices, and lowering transaction costs (Rao 2004). For small and medium sized enterprises, ICT can be exploited to create a list of contacts and to make use of available information to start and sustain new business ventures. For example, Moyi (2003:222) and Shiel et al. (2003:312) express that ICTs have the potential to link small sellers and buyers to the daily market prices of commodities in different places, giving them the ability to improve their negotiating power. So much so, Cohen and Kallirroi (2006:45) agree that information and communication technologies can radically change the competitiveness of organizations, and note how electronic commerce has reduced the cost of trading among companies and also helped to strengthen their relationships and collaboration. In this regards ICT Independent variables on dependent variable “Performance” can be identified as Use of Internet/ Networking, Communication technology, E-Commerce / Applications and Challenges and solution among other variables not in this study (Rao 2004).

The ICT revolution has radically changed the way companies compete. It offers immense opportunities for comprehensive socio and economic development. A national study on ICT, trade and economic growth confirmed that economic growth and competitiveness of an economy can be enhanced through the use of ICTs. Today, mobile phones, desktop computers, hand held devices, emails and the use of internet has become a central part of our culture and society.

It is indeed an open secret that the contemporary business practices and environment are heavily influenced by information and communication technological changes. In other words ICT is currently perceived as the engine of innovations and growth for modern business practices with SMEs as no exception to this disposition (plumb and Zamfir, 2008). Liberalization has opened integration into a global economy, consequently bringing new entrants to the market. Only those SMEs that are capable of harnessing technology in their operational performance will be able to compete in the region and globally.

The Kenya Economic Survey 2011 released by the ministry of planning, National development and Vision 2030 states that SMEs generated 80% employment in the Kenya economy in 2010, their GDP contribution was only 20%. A lot of the SMEs do not go beyond the 3rd year anniversary in operation as this sector is characterized by among other things, low adoption of advanced technology, which stunts its growth. Given the contribution of this sector in economic growth of this country, the challenge in the sector must be addressed for the economy to realize its full potential. A lot of studies has focused on the effects of ICT on the business operations in general, for instance, (wolf ,2010) states that ICT has a positive impact on a total factor productivity by improving efficiency and increased productivity. However scanty, systematic research is available that relates the effects of ICT in performance of SME's. The researcher therefore developed a conceptual model as below.

Independent Variables

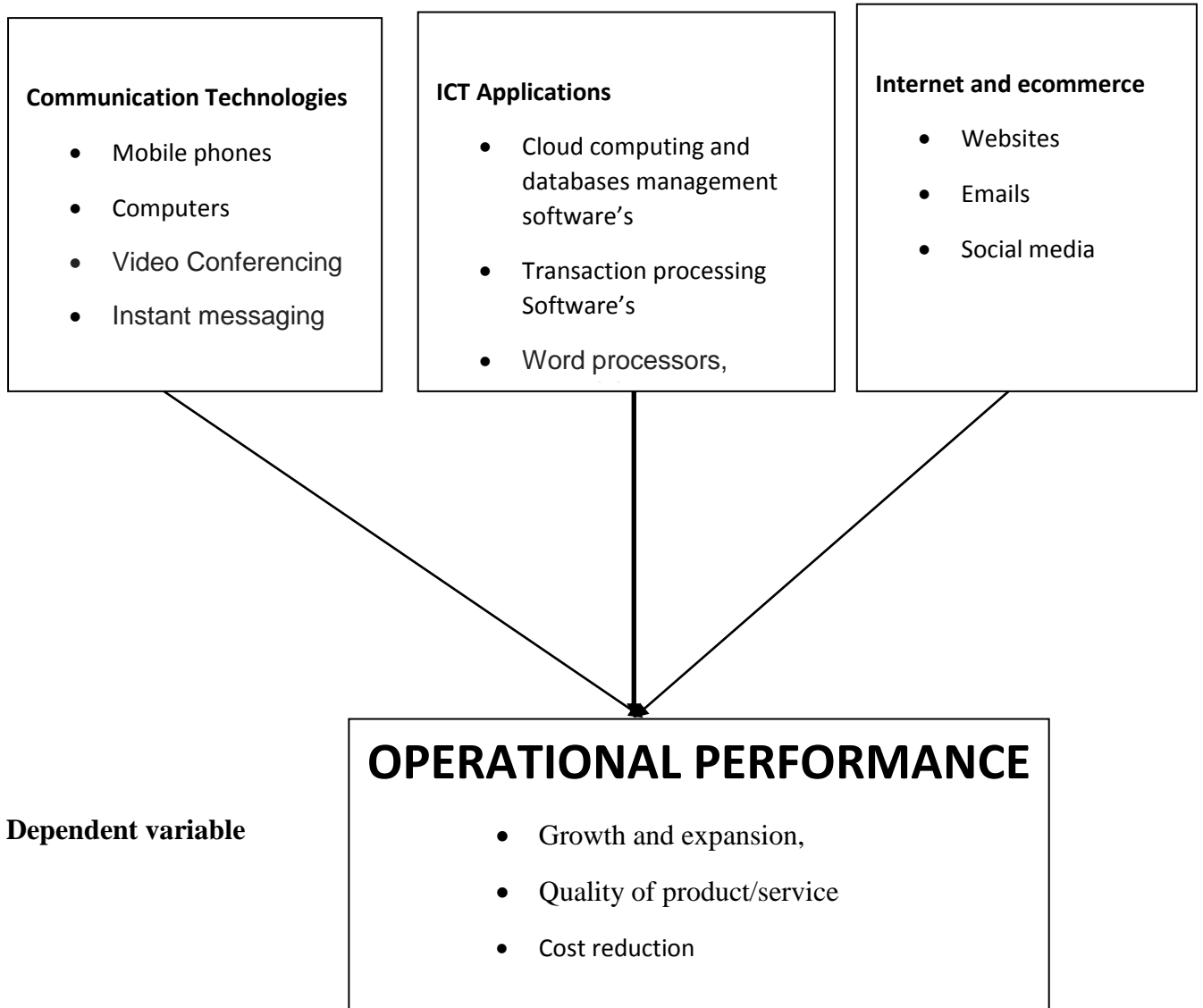


Figure 2.2 Conceptual model (Researcher, 2017)

A failure to make changes may result in harm to the organization through stagnation, negative growth, loss of customers and failure to introduce new products leading to a potential closure of business (Churchill and Lewis, 2008). This notion on the need for a business to institute change has led to reliance on ICT as one of the tools for aiding business growth. An increased spending on ICT has led to questions as to whether there is any value for money in ICT for a business as everyone seems to be pushed towards ICT use. Most businesses place such a high premium on use of ICT that they forego basic principles of operating a business in order to concentrate on ICT use (Carr, 2008). With the increased attention and focus being put on Small and Medium Enterprises (SMEs) Investment's survival and growth in Kenya as the important sector that can accelerate sustainable economic growth and help the country reach the Vision 2030 objective of being a middle level income country by year 2030, it is important that the growth of Small and Micro Enterprises be sustained. Much effort and resources has been put on the area of formal credit and financing without addressing other underlying factors that necessitate the Small and Medium Enterprises (SMEs) survival and growth. Although a number of studies have been made in the examination of the role of ICT in small businesses, key among these studies, those by (Cragg and King, 2008, Harrison, Mykytyn and Riemenschneider, 2009 and Igbaria, Zinatelli and Cavaye, 2010), which found out that an increase in spending on ICT has led to questions as to whether there is any value for money in ICT for a business as everyone seems to be pushed towards ICT use, management is often at the center of the drive to have ICT systems in place. The studies also found out that small businesses may find technology difficult to implement due to resource constraints. It is with this insight in mind the focus now shifts to the purpose of this study which sought to examine the role that Information and Communication Technology (ICT) plays on growth of Small and Medium Enterprises (SME). This study therefore vindicated the supporters of the bid by SMEs to implement ICT in their operations. This study strived to assess the role of Information and Communication Technology (ICT) Solutions on growth of Small and Medium Enterprises (SMEs) in Kenya.

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2.4.0: TRANSACTION COST THEORY

Further to the observations by (Melville et al., 2009) on the need to have other supporting theory bases upon which to support the RBV, another theoretical framework that can form a basis to fortify the study is the transaction cost theory. The transaction cost theory provides an understanding to the role that ICT plays in reducing transaction costs to an organization (Gurbaxani and Whang, 2006).

The adoption of ICT has been associated with increased growth in performance of the organization. Firms are increasingly using ICT as a strategy to enhance their growth in performances. This theory therefore explains the effects of ICT on the growth in performance because of adopting ICT, SMEs are likely to enhance their performances and thereby attain fit. Lack of ICT is likely to result into misfit.

2.4.1: Enterprise Resource Planning (ERP) systems

ICT can thus play a very important role because it can help SMEs both create business opportunities and combat pressures from competition. Several classifications of factors affecting firm growth have been presented. The general preconditions for growth have been suggested to be (1) entrepreneur's growth orientation; (2) adequate firm resources for growth; and (3) the existence of the market opportunity for growth (Davidsson, 2011). According to the business professionals' model, a successful firm is one that achieves its highest potential in terms of growth, market share, productivity, profitability, return on capital invested or other measures of the performance of the firm itself (Bridge et al., 2008). An ERP system provides this end to end solution that guarantees efficiency and effectiveness of business operations.

2.4.2: Social Media Tools

It's now become a badge of cool for Kenyan companies to include their social media contacts in their publicity materials. Anyway, a social media presence is an acknowledgement of the importance of these spaces for long-term brand awareness, building and customer engagement. The increasing usage of online sites such as Twitter and Facebook by businesses as applications for the delivery of user services is a case in point. The smartest SMEs and the executives who work for them recognize the value of tapping into "the wisdom of the crowd" to capture the best answers and the most innovative ideas.

2.4.3: Electronic-Commerce Tools

The advent of Internet-based electronic commerce offers considerable opportunities for firms to expand their customer base and enter new product markets and rationalize their business. Important efficiency gains are associated with the use of electronic commerce, arising from reductions in business costs and a rationalization of business processes. In addition to these static gains, firms may use Internet-based electronic commerce to create added value by producing new products, adopting completely new business practices, or

changing the ways in which they interact in the marketplace. Realizing these dynamic gains depends to a large extent on the way in which small firms integrate e-commerce applications into their business functions. The development of effective e-commerce strategies is of fundamental importance for success in domestic and international markets.

2.4.4: Customer Relationship Management System

According to Gaffney (2007), consumers are increasingly interested in communicating with companies via new and multiple channels: not just voice, but also email, web chat, SMS and so on. A company's ability to respond to customer requests wherever they are, and via whatever device they are using at the time, will have an increasingly significant impact on how effectively an organization connects with their customers. Companies that rely on being able to contact customers at home need to address this reality of increasingly mobile consumers. B2B organizations expecting to find customers behind their desks must also develop new interaction models to guarantee being able to contact current and potential customers. Properly developed, a communications infrastructure can help give the enterprise a competitive advantage; the ability to satisfy current and potential customers quickly and effectively is rapidly becoming a key differentiator for enterprises that wish to succeed over the long term (Gaffney, 2007).

2.5: LITERATURE REVIEW GAP

Information and Communication Technology (ICT) is one of the main forces driving the present day business environment. ICT is dramatically informing business practices as well as the outcome of business engagements. This study highlights the gap on effects of adoption of ICT in SMEs performance, some challenges hampering its adoption and its solution to SMEs of developing countries such as Kenya in particular Nairobi County. In addition this study has established that the evolution of technology influences significantly the business by changing the industry infrastructure and business operations and by creating the premises for the emergence of competitive advantages for those organizations that are adopting ICT in their business processes.

Information and Communication Technology offers benefits for a wide range of business processes and improves gaps in information and knowledge management within the

firm, leading to better performance. Firms can manage their processes more efficiently and, as a consequence, they increase their operational efficiency. Moreover, ICT reduces the coordination costs of the firm because of lower procurement and inventory costs and closer coordination with suppliers (OECD,2013). In addition, communication based on ICT and the internet can also improve external communication, reducing the inefficiencies resulting from lack of coordination between firms, and increasing the speed and reliability of information processing and transfer. In general, ICT reduces transaction and coordination costs, maximizing the value of transactions (OECD, 2013).

Lichtenberg and Brynjolfsson (1995) offer empirical evidence of positive effect of ICT in filling the following gaps in SMEs performance; these gaps include better organisational expansion, product and strategic growth, customer satisfaction, product quality and new products. In general, all studies analyzed contain the idea that, to achieve a more competitive position, the SMEs should complement ICT investments with an appropriate use of these technologies, for which, implicitly, complementary resources are required.

CHAPTER THREE

METHODOLOGY

3.0: INTRODUCTION

In this chapter, the researcher describes the methods to be used and how the study will be conducted. The chapter contains research design, the population, sampling techniques, the research instruments, the data collection methods and the data analysis techniques. To test the hypothesis of this research, an empirical study was conducted in 464 registered small and Medium Enterprises in the Nairobi County.

3.1: RESEARCH DESIGN

A research design is a plan and structure of investigating in order to obtain answers to research questions (Kothari, 2009). In order to examine the effects of ICT on the performance of SME's descriptive research design was used. Orodho and Kombo (2008) indicated that descriptive survey is a method of collecting information by reviewing or administering questionnaires to a sample of individuals. It was useful in exploring the relationship between variables. To achieve the research objectives, this study used questionnaires as a tool for collecting data.

The study adopted a descriptive survey research design. The design aimed to describe the essential findings in a rigorous way that was free from distortion and bias (Jones, 2010). Descriptive studies helped to discover new meaning, described what existed, verified the rate at which something occurred, and categorized the information. Thus the researcher chose this design for the study as it facilitated the precise actions the researcher aimed to achieve such as identifying any issues with current practice or justifying current practice.

3.2: Population of the Study

Target population is the collection of elements that possess the information sought by the researcher (Orodho, 2008). The population of interest in this study comprised SMEs and individual business owners from the Nairobi County how have been in operation for more than 3years.

To fit the definition of SMEs, those enterprises with more than 99 employees will be excluded from the study. This research will focus on roles ICT play in prediction of growthand performance of SMEs particularly in the 9 Sub-Counties of Nairobi county. Kothari (2009) points out that an optimum sample is one that has the ability to fulfill the requirements of efficiency, representativeness, reliability and Validity.

The target population of the study will be SMEs in the 9 districts of Nairobi County which begun in 2010 and have been in business to 2014 and beyond. Thus the researcher approximates a population of 69 respondents which is 15% of the 464 registered SMEs.

3.3: Sampling Design and Sample Size

The ultimate test of sample design is how well it represents the characteristics of the population it purports (Kothari, 2009). The researcher will employ probability sampling method to select the various elements for the study. This method will be used because all the SMEs in the County cannot be covered due to their large numbers. The method therefore shall give a fair chance for enterprises in different industries to participate in the study.

The sample was selected from the list of registered SMEs operating in Nairobi County data obtained from the Nairobi City County Council. A sample of 69 SMEs was studied, obtained using 15% of the target population. Stratified random sampling was used to identify the respondents among the SMEs. In order to carry out a scientific study, convenience sampling was used to identify the respondents of each stratum

According to Gay, Mills, and Airasian (2003) “a sample size between 10% to 20% of the total population is representative”. Out of 464 registered SMEs in Nairobi County 69 SMEs will be chosen for the study culminating to 15%of the population of study.

Stratified random sampling will allow for all the variables to have an equal chance of being selected (Mugenda and Mugenda, 2008), thereby giving each individual variable the same probability of being chosen and therefore reducing the biasness.

Fig.3.1 sample frame

Sub-County	No of SME's	Percentage	Size
Dagoretti	56	15%	8
Embakasi	102	15%	15
Kamukunji	56	15%	8
Kasarani	80	15%	12
Lang'ata	22	15%	3
Makadara	44	15%	7
Njiru	12	15%	2
Starehe	72	15%	11
Westlands	20	15%	3
Total	464	15%	69

3.4: Instrumentation

Orodho (2009) defines a questionnaire as an instrument used to gather data, which allows a measurement for or against a particular view point. He emphasizes that a questionnaire has the ability to collect a large amount of information in a reasonably quick space of time. The study used questionnaires with both closed and open-ended questions; these two forms complement one another.

3.5: Data Collection

Prior to the actual data collection, the researcher floated a pilot test of the research instruments, so as to test the clarity of the questions for face validity. This was done by giving 10 respondents the questionnaires. The questionnaires were completed the unclear questions were corrected and thereafter the researcher self-administered the questionnaires to the respondents who were required to complete and return the questionnaire. This was done in effort to overcome the possible difficulty by respondents as the researcher was ready to explain and clarify any question. Where it was difficult for the respondent to complete the questionnaire immediately, the researcher used drop and pick method where the respondents were left with the questionnaire and fill at their own free time and returned after a period of three to four days.

3.5.1 Validity and Reliability of Research Instruments

In order to establish the content validity of a measuring instrument, the researcher identified the overall content to be represented. Items were then randomly chosen from the content accurately to represent the information in all areas. By using this method the researcher obtained a group of items which were representative of the content of the trait or property measured. Experts in the field of study were also used to identify a content area and also helped to advise where applicable. This facilitated the necessary revision and modification of the research instrument. A pilot study was conducted on some SMEs to enable the researcher to be familiar with research content and location as well as administration procedure in order to identify items that required modification. The reliability of a research instrument concerned the extent to which the instrument was consistent. Although unreliability was always present to a certain extent, there was generally a good deal of consistency in the results of a quality instrument gathered at different times.

3.6: Data Analysis and presentation

Data analysis involved reducing the accumulated data to a manageable size, developing summaries, looking for patterns, and applying statistical techniques to generate information that was used to answer the research questions of the study and present results in understandable and convincing manner.

Data collected from the respondents by means of administered questionnaires were first cleaned to identify and eliminate errors which might have made by the respondents. Coded numbers were assigned to each answer of the survey question and from there the coding list or the frame was obtained. The coded items will then be analyzed with the aid of computer software for analyzing data, Statistical Package for Social Sciences (SPSS). The researcher choose SPSS as it is capable of handling large amount of data and can perform can perform all the analysis covered in the text format and much more.

Descriptive statistics were used to analyze the data. Measures of central tendency (mean, mode and median) were used to find how the data tended to agree while measures of variability/dispersion (standard deviation and variance) were also used to determine the extent to which the data varied from a central position. Qualitative data was analyzed by use of content analysis and inferences made thereof. Data presentation was by use of frequency tables, percentages, pie charts and bar graphs.

The researcher will also use multivariate regression analysis to present the data on top of charts frequencies and tables. The regression equation will assume the following form:

$$Y = \beta_0 + \beta_1 x_1 + \dots + \beta_n x_n + \varepsilon$$

Where Y= Operational performance of the SMEs

β_0 = Constant factor

X_i = ICT Variables

X_1 - Internet usage

X_2 – Communication Technology

X_3 – e- Commerce strategies

β_i = coefficient

ε = error term

3.7: Ethical Considerations

The goal of ethics is to ensure that no one is harmed or suffers adverse consequence from the research activities. Neuman (2011) explains that the term 'ethical' is used to mean principle of conduct that is usually considered accurate, particularly by people of a specified group or profession. Research activities may provoke ethical issues concerning the rights of respondents especially the right of privacy. The researcher intends to obtain an informed consent of the respondents before he could issue them with questionnaires. Additionally, the researcher will ensure the respondents are aware of the information needed from them, the reason for seeking the information and its purpose. Information confidentiality from each respondent will also be maintained and used purely for academic purposes only. In this regard, the names of the respondents were not disclosed.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

Introduction

In this chapter findings are analyzed, presented and interpreted. Out of 69 respondents who were given questionnaires, 60 respondents completed and returned the questionnaires. This gave a response rate of 87% which is good enough to make generalization of the findings.

4.1 Respondent's Demographic information

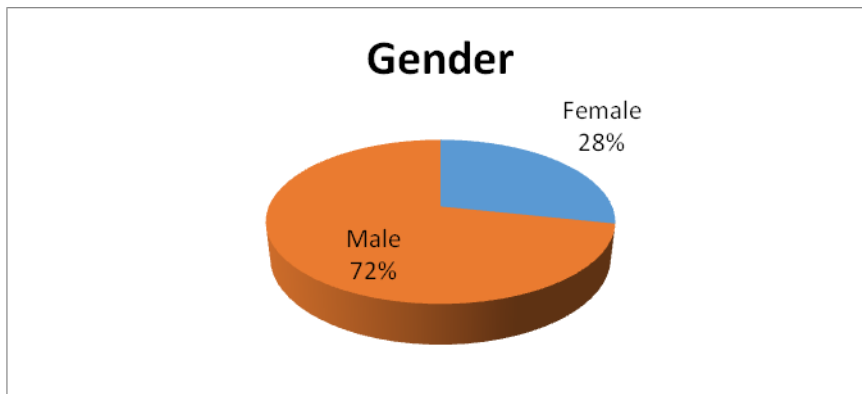


Figure 4.1: Gender of respondents

Results showed that the male were the majority at 72% while female were 28%. This showed that male were more dominating the small enterprise businesses in Nairobi which could be interpreted that they are more risk takers than the female.

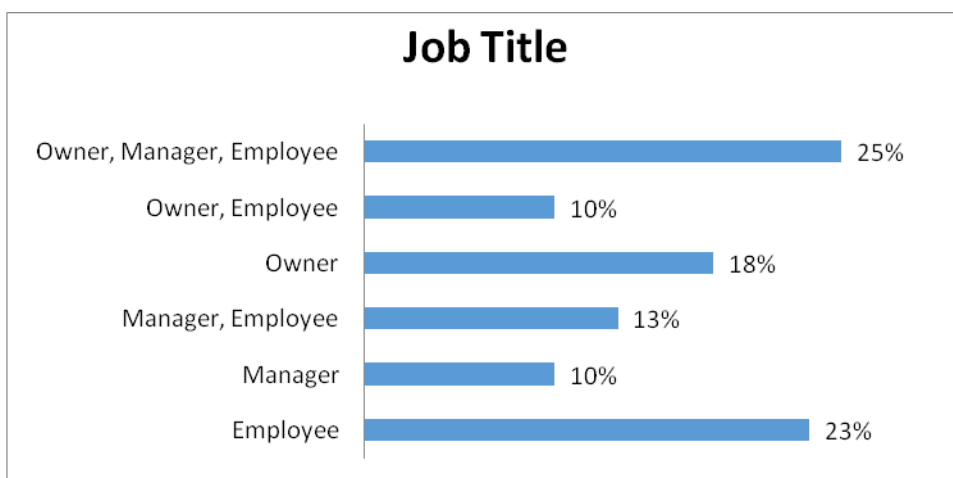


Figure 4.2: Job Title

The respondents were employee, managers, manager employee, owner, owner employee, or owner manager employee. The employees who participated in the study were 23%, managers were 10%, manager employees were 13% and the purely owners and were not working within the business premises were 18%, owners who were also employees were 10% while the owners who worked as managers and employees in the same business were 25%. These findings showed that there was a lot of multi-tasking in the SMEs business since an owner can perform both the managerial tasks and the employee tasks while an employee could do both the managerial tasks as well as carrying out the other employees tasks. This could be as a result of less skilled manpower, saving on costs or financial constraints experienced in the business.

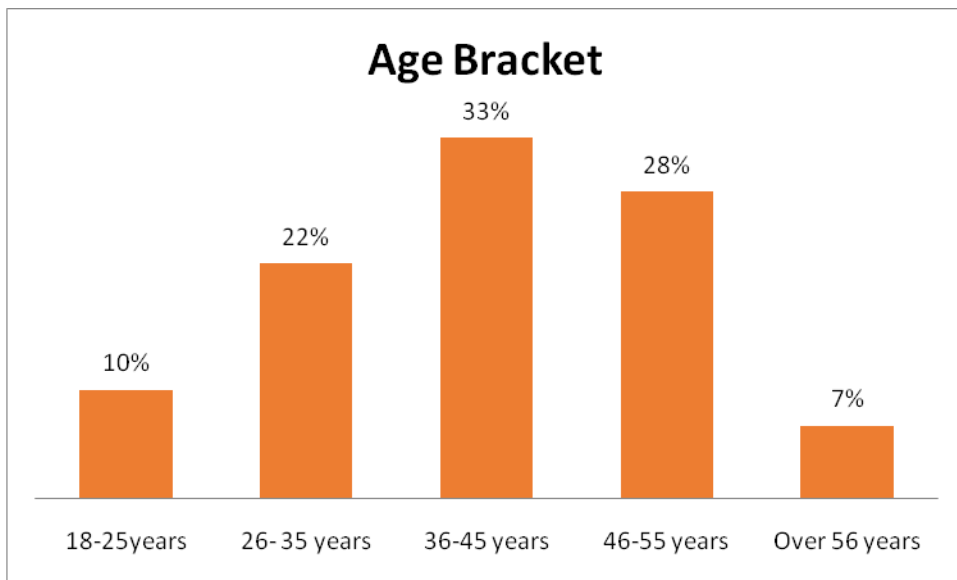


Figure 4.3: Age bracket

The age group of respondents with the highest number was the 36-45 years at 33% followed by the 46-55 years group at 28% and third were the 26-35 years at 22%. The least were the ‘over 56 years’ age group at 7% and the second from last was the 18-25 years group at 10%. The 18-25 years group is the post-secondary respondents who probably were both studying and doing business at the same time or some would have opted to carry out the business without first pursuing the post-secondary education. Those respondents in over 56 years were those who have retired or are waiting to retire in less than 5 years. This category assumed to have either practiced the SMEs business in their early age which reordered a small number of survival or they may have decided to engage into the business in await of

their retirement. Interestingly, the research showed that the majority of the business holders in SMEs were the intermediate class after the youth who are believed to have gained some business ideas and startup capital to engage in the business. The youth (26-35 years) were the second in numbers implying that they were passionate of business and due to the high startup capital in big businesses they settled in SMEs.

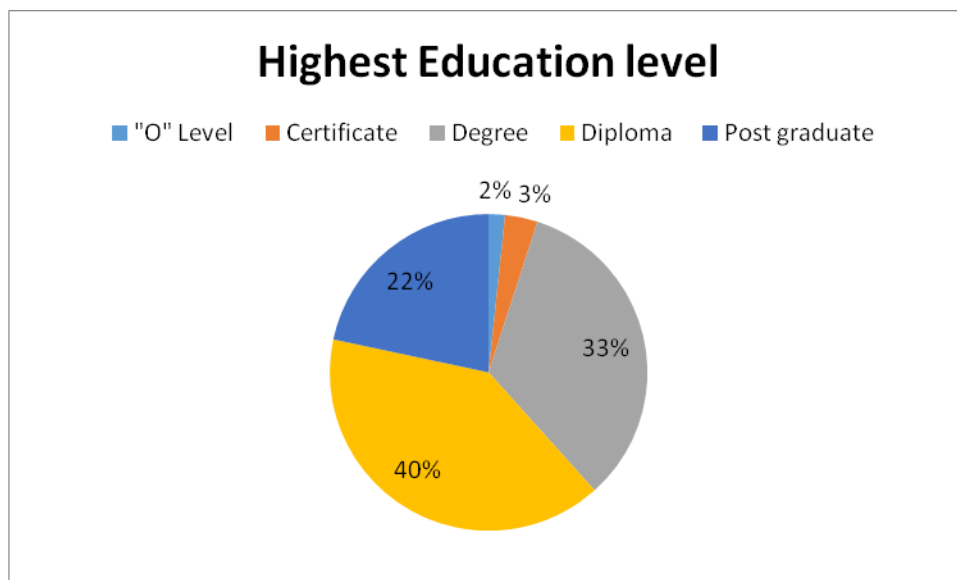


Figure 4.4: Highest Education levels

The respondents with diplomas were the majority at 40% followed by those with the degrees at 33% and post graduates were 22%. Of negligible percentage were the certificate holders and the "O" Level at 3% and 2% respectively. Education is perceived to make a major influence on business in terms of ideas and management.

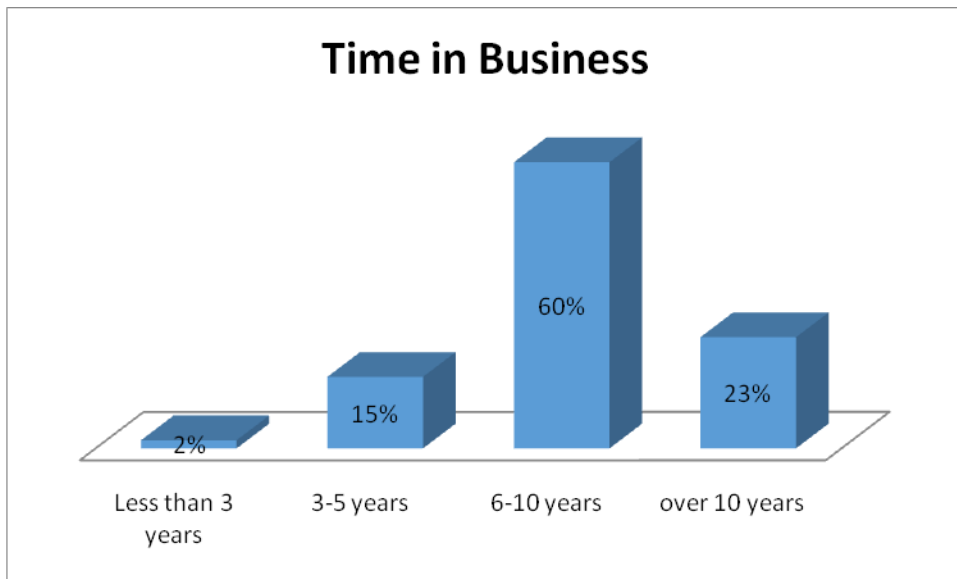


Figure 4.5: Length of time in the business

Least of the respondents were those with less than 3 years in operation followed by those within 3-5 years at 2% and 15% respectively, over 10 years were 23% while the majority (60%) had been operating for 6-10 years. If a business adopted proper ICT strategies in the business, there were high chances of succeeding in the business as evidenced by the majority who were those in operation for 6 years and above.

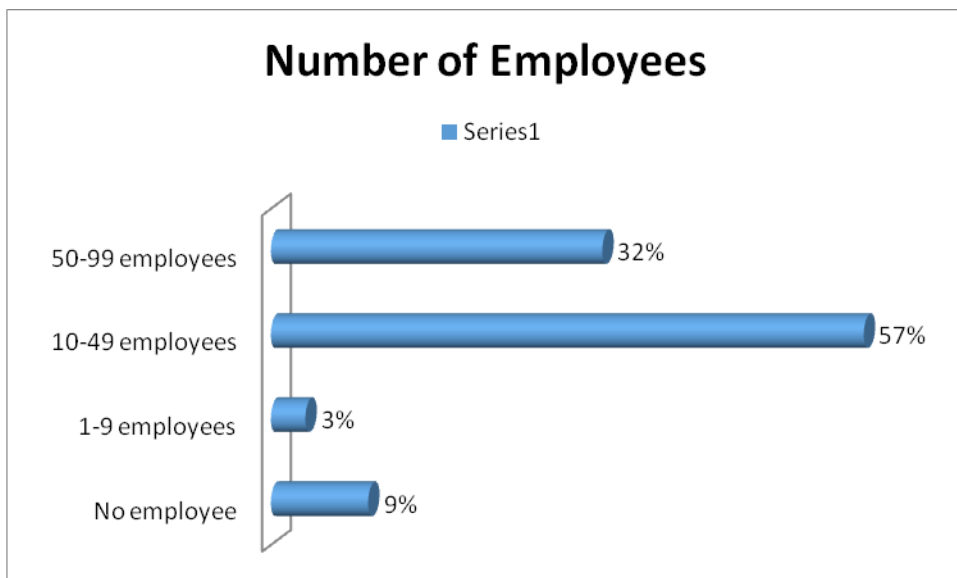


Figure 4.6: Number of employees

The business that had 10-49 employees were the leading at 57% followed by the 50-99 employees at 32% then those without any employee (the owner was carrying out all the tasks as the owner and the employee) were 9% and lastly the those with 1-9 employees at 3%.

4.2 Internet Usage

Results showed that all the business had technology access since they either had desktop computers, laptops or ipads and in addition they had varying means of internet connection.

Table 4.1: Mode of internet connection

	Frequency	Percent	Valid Percent	Cumulative Percent
LAN	5	8.3	8.3	8.3
Broad band	5	6.7	6.7	15.0
WAN	6	10.0	10.0	25.0
WAN, LAN	45	75.0	75.0	100.0
Total	60	100.0	100.0	

Out of the 60 respondents, 6.7% used the broadband for internet connectivity in their businesses, 8.3% used LAN, 10% WAN and 75.0% used both the WAN and the LAN as seen in the table 4.1 above.

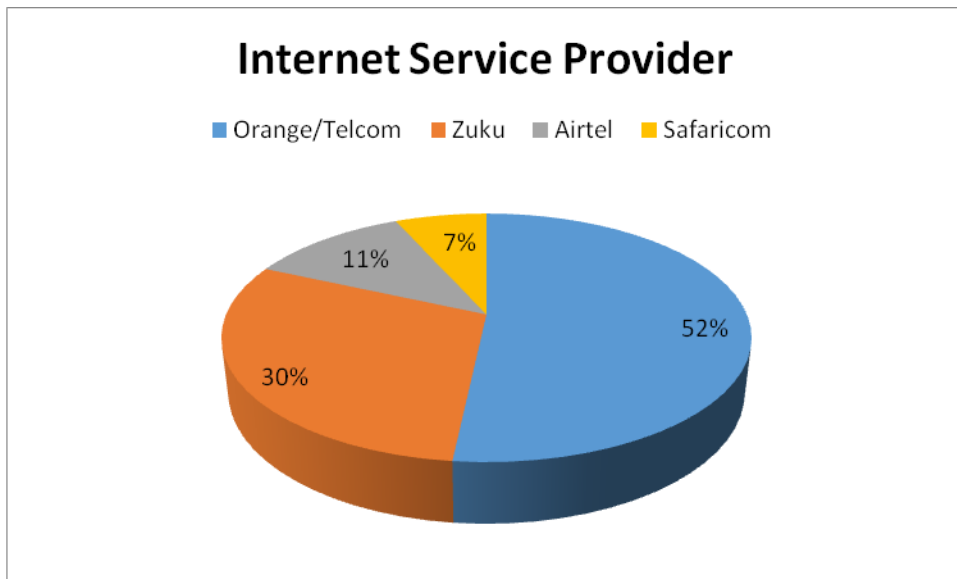


Figure 4.7: Internet service provider

The internet service providers were either Orange, Safaricom, Airtel or Zuku. Those who used the orange internet were 52% being the majority followed by the Zuku at 30%, Airtel were 11% and the Safaricom were 7%. Orange users argued that it was reliable and cost effective while the safaricom users argued that they were very expensive to use the safaricom bundle though reliable.

In a scale of 1-5 where 1- to very little extent, 2- to some extent, 3- moderate, 4- to a great extent and 5- to very great extent, the respondents were to rate the below statements to measure on the internet usage in their business and the response is as in the table 4.2 below.

Table 4.2: Internet usage statement

Statement	1	2	3	4	5	Mean
Reliability of the internet	0%	5%	9%	80%	6%	3.9
Speed of the internet	0%	20%	10%	70%	0%	3.7
Frequency of the internet use	4%	44%	14%	28%	10%	3.0
Cost effectiveness of the internet	24%	50%	22%	4%	0%	2.8

The reliability of the internet used by the respondents had a mean of 3.9 which was relatively good. Those whose internet reliability was to some extent were the least at 5% followed by the 6% who said that it was very reliable then to a moderate extent at 9% with

the leading majority saying that the internet was reliable to a great extent at 80%. The highest number of respondents said that the speed was good to a great extent at 70% while 20% said it was to some extent and 10% said it was of moderate speed with a mean of 3.7. The respondents had varying frequencies on the usage of the internet since some said they used it for emails, others for advertisement through social media and websites. To a very little extent had 4%, to some extent were 44%, to moderate extent were 14%, to great extent were 28% and to very great extent were 10% with a mean of 3.0. Cost effectiveness of the internet was tested and it was found that 24% said that it was not, 50% said it was effective to some little extent, 22% said it was to a moderate extent and only 4% said it was effective to a great extent with a mean of 2.8.

4.3 Communication Technology

All the respondents had VOIP with varying service providers as seen in the figure 4.8 below.

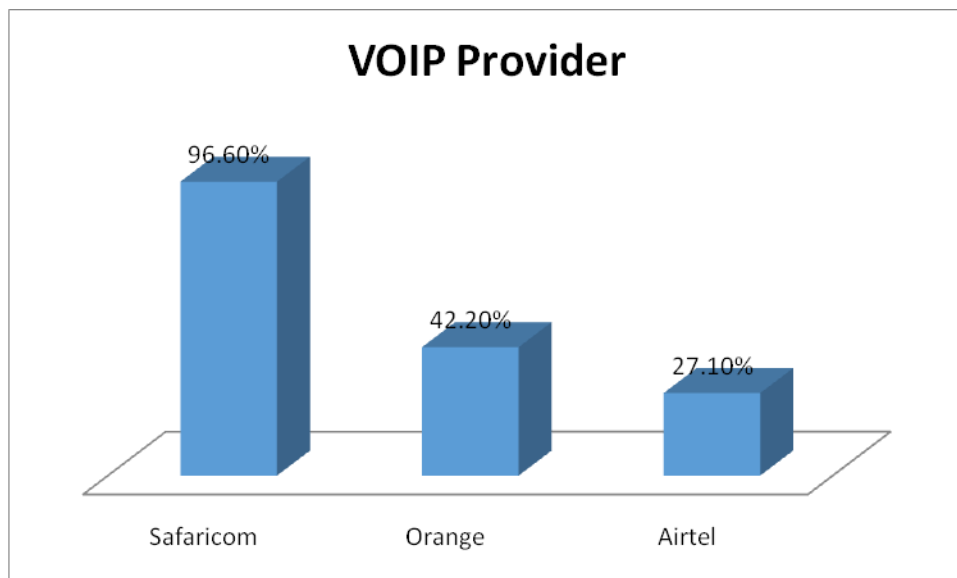


Figure 4.8: VOIP Service Provider

Data showed that Safaricom was the giant VOIP provider followed by Orange at 42.2% and Airtel had 27.1%. This implied that the businesses trusted Safaricom more than the others and also they used more than one VOIP for their businesses.

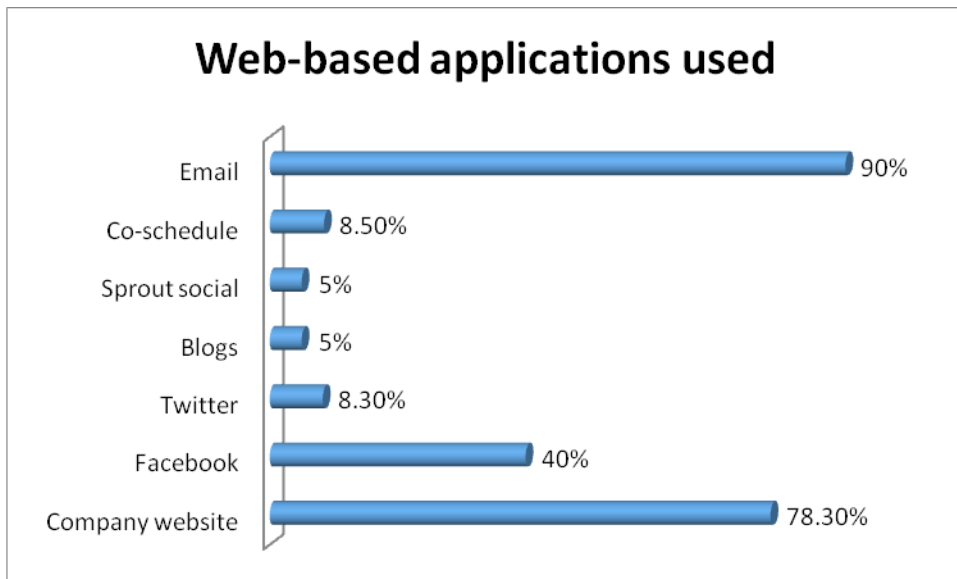


Figure 4.10: Web based application used in the business

Data collected showed that those who used the email as a method of communication were 90% being the majority followed by those who used company website at 78.3% and then facebook at 40%. The other web –based applications showed very small numbers with twitter at 8.3%, co-schedules at 8.5% and sprout social and blogs each at 5%. The businesses relied on technology to communicate to their suppliers and their customers majorly based on the type of business.

4.4: E-Commerce strategies

Out of the 60 respondents, only 22% used online invoicing as well as ticketing. Online invoicing requires your customer to also use internet so as to complete the communication. This method of communication is quite relevant to use in the current world as it minimizes chances of a customer complaining that they have not received invoices. Once a customer receives the invoice through an email or other methods, they can make payments and upon remitting the payments, the supplier/business can automatically send a receipt voucher to the client thus making work easier, traceable credible and transparent. All the respondents said that they used the mobile money payment platforms. The businesses relied on either Mpesa, Airtel money, Pesa pap, Cooperative payment, KCB Mtaani and Equitel modes of payment to either their suppliers or receiving payments from their customers as seen in the figure 4.9 below.

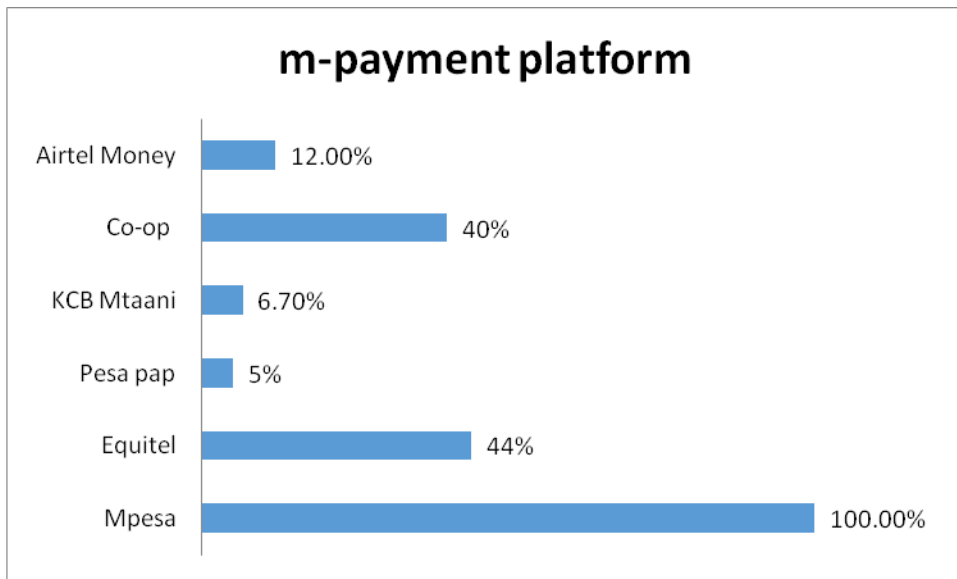


Figure 4.9: M-payment platform frequently used

MPesa was used by all the respondents followed by those who used the Equitel services at 44% and third were those who used Co-operative agents at 40%. Following the co-op was the Airtel Money transfer methods at 12% then KCB Mtaani at 6.7% and lastly the Pesa Pap at 5%. M-payment is simple to use and more importantly convenient since transactions are not affected by the fact of official days/ public holidays and working hours. Making deposits using all these methods are free, withdrawals are relatively cheap and sending money to other users as well as making payments to the suppliers are also relatively cheap. In addition, one is able to get a feedback on receivership of the payment and also track the transactions reference number that can be used in case of any dispute/problem.

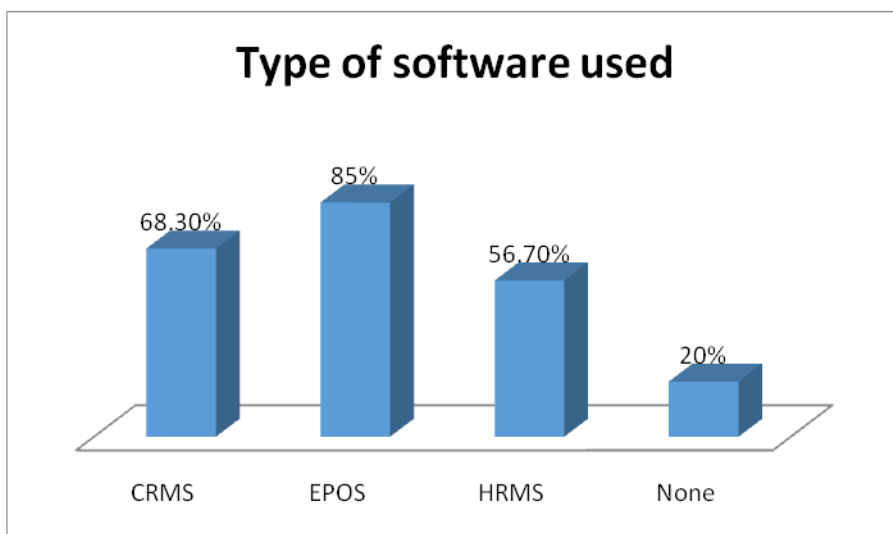


Figure 4.11: Type of software used

Respondents used various software in their business depending on various factors such as on the number of employees, the type of business and the management of the business. There were those who used the Customer Relationship Management System (CRMS) to manage the feedback from their customers and were 68.3%. These businesses were a proof of value for customer by the management in terms of addressing the comments, complains and compliments raised by the customers. The businesses that used the Electronic Point of Sale (EPOS) were 85%. This category was composed of larger businesses that used this system to handle the numerous sales and purchases. In using EPOS, one is able to track the purchases, the stock movement and the sales analysis for the business. For the businesses with more than 10 employees, it is advisable to use the payroll system contained in the Human Resource Management System (HRMS). The respondents who said that their businesses used this software were 56.7%. Using this software, employers are able to calculate the statutory payments such as P.AY.E, NHIF and NSSF and minimize errors on payrolls. However, there were 20% of the respondents who never had any software for their businesses.

4.5: Performance of SMEs

In a scale of 1-5 where 1- to very little extent, 2- to some extent, 3- moderate, 4- to a great extent and 5- to very great extent, the respondents were to rate the below statements to measure on the internet usage in their business and the response is as in the table 4.2 below.

Table 4.3: Performance of SMEs

Statement	1	2	3	4	5	Mean
Increased gross and net revenue		1.7%	0%	23.3%	75%	4.5
Cost reduction in doing business	0%	0%	1.7%	76.7%	21.7%	4.1
Rate of customer satisfaction and retention in the last 6 months	0%	1.7%	18.3%	76.7%	1.7%	3.9
Increased number of customers	0%	0%	5.0%	23.3%	72.9%	4.6
Improved process cycle	0%	1.7%	1.7%	20%	76.7%	4.7
Increased market share	0%	0%	6.6%	28.3%	65%	4.3

Respondents said that they had witnessed an increased gross and net revenue as a result of using ICT in their businesses as indicated by a mean of 4.5 and a majority of 75% 'to very great extent', 23.3% saying ICT influenced revenue growth to a 'great extent' and

only 1.7% saying to a ‘little extent’. In addition, costs of operations were reduced as 1.7% agreed to a ‘moderate extent’, 76.7% said to a ‘great extent’ being the majority and the 21.7% agreed to a ‘very great extent’ with a mean of 4.1. The rate of customer retention and satisfaction over the last 6 months had a mean of 3.9 with the majority saying that the influence of the ICT had 76.7% ‘great extent’ on customer retention, 18.3% were of moderate opinion, 1.7% were of ‘little extent’ and ‘very great extent’ opinion each. The study recorded a mean of 4.6 and 4.7 on increased number of customers and improved process cycle respectively as a result of adopting ICT on the SMEs operations. Improved process cycle would imply minimized losses and miscellaneous expenses thus improving on the performance. As a result of increased customer retention, there was an increased market share as recorded by the majority who greatly agreed at 65% followed by the ones who agreed at 28.3% then to a moderate extent were the least at 6.6% and a mean of 4.3.

4.6 Inferential Statistics

4.6.1 Regression Analysis.

A multi linear regression model was used for the analysis to determine the relationship between the dependent and independent variables. The multi linear regression model was

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_n x_{in} + \epsilon_i \text{ for } i = 1, 2, \dots, n.$$

The model summary is shown as below

Table 4.4 Model Summary

Model	R	R Square	Std. Error of the Estimate
1	.764 ^a	.5836	.13993

a. Predictors: (Constant), Internet Usage, Communication technology, e-Commerce strategy.

The R-Squared is the proportion of variance in the dependent variable and can be explained by the independent variables. The R-squared in this study was 0.5836 which shows that the three independent variables Internet Usage, Communication technology, e-Commerce strategy can explain 59.6% of the dependent variable, performance of the SMEs. This shows that the other factors not studied in this study explain 40% of the dependent variable (growth/ performance).

Table 4.5 Analysis of Variance(ANOVA)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	9.577	3	3.192	5.831	.002 ^b
Residual	24.090	44	.547		
Total	33.667	47			

a. Dependent Variable: Performance

b. Predictors: (Constant) Internet Usage, Communication technology, e-Commerce strategy

The analysis of variance in this study was used to determine whether the model is a good fit for the data. From the findings, the P-Value was 0.002 which is less than 0.05 and hence the model is good in predicting how the three independent variables (Internet Usage, Communication technology, e-Commerce strategy) influence performance of the Small & Medium Enterprises in Nairobi. Further the F- calculated (5.831) was more than the F critical (2.46) which shows that the model was fit in predicting the influence of the ICT strategies adopted on the performance of the SMEs.

4.6.2 Relationship between the performance of SMEs and the adoption of ICT Strategies

A multiple regression was carried out to determine the relationship between the dependent variable which in our case was the performance/growth of the SMEs in Nairobi and the ICT strategies which were Internet Usage, Communication technology, e-Commerce strategy as the independent variables.

4.6.3 Estimated Model Coefficients

The equation for the regression line is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where Y= Performance

β_0 = Constant factor

X1 - Internet Usage

X2- Communication technology

X3–e-Commerce

β_i = coefficient

ε = error term

$$Y = 0.301X_1 + 0.665X_2 + 1.092X_3 - 4.023$$

Predicted performance of SMEs(Y) = (0.301*internet usage) + (0.665*communication technology) + (1.092*e-commerce strategy) -4.023 (constant + error).

This is obtained from the Coefficients table, as shown below:

Table 4.6 Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-4.023	3.051		-1.319	.194	-10.172	2.126
Internet usage	.301	.209	.189	1.440	.157	-.120	.723
Communication technology	.665	.224	.394	2.972	.005	.214	1.115
e-Commerce Strategy	1.092	.754	.186	1.448	.155	-.428	2.612

a. Dependent Variable: Performance of SMEs

According to the intercept β_0 when the three independent variables are held constant, the value of performance of SMEs will be -4.023. In addition holding the other independent variables constant, a unit increase in internet usage would lead to 0.301 increases performance/growth of SMEs. The relationship was significant by the P value of 0.157. Further, holding on the other independent variables constant, a unit increase in communication technology would lead to a 0.665 increase in performance/growth of the SMEs. The relationship was significant as shown by the P-value of 0.005. In addition holding all other variables constant, a unit increase in e-Commerce strategies would lead to an increase of 1.092 to performance of the SMEs. From the findings it is clear that the e-Commerce strategies affect SMEs performance the most followed by communication technology and then the internet usage.

4.7 Challenges of using ICT in SMEs

Using a scale of 1-5 where 1-Not at all, 2- To some extent, 3- Moderately, 4- to a greater extent and 5- to a very great extent, the challenges facing the SMEs as a result of using the ICT were as below.

Table 4.7 Challenges in using ICT in SMEs

Statement	1	2	3	4	5	Mean
Have restrictions to Internet access	6.6%	54%	20%	19.4%	0%	2.3
Have access to internet Passwords	68%	12%	0%	12%	8%	1.8
Restrictions in access to social network	14%	78%	8%	0%	0%	2.0
Restrictions in time taken to use internet	88%	10%	2%	0%	0%	1.1

The respondents who had restrictions to internet access had a mean of 2.3 with a majority saying were restricted to accessing the internet to some extent at 54% followed by those with moderate access at 20% while 19.4% had great access and 6.6 were not allowed to access internet at all. The failure to access internet at all could be attributed to the fact that the type of work such an employee was tasked did not involve use of internet. Due to access the business emails and other communications, some were allowed to have the internet access as well as the passwords to the internet as well being the owners of the business, they were entitled to having the passwords. If one is not cautious on time spent on internet especially on social media which is believed to be addictive, one may waste a lot of time which when transformed to business may lead to massive losses. Those with no restrictions to accessing social network were 14% while those with little restrictions were 78% and 8% were those with moderate access to the social media. An alarming number of respondents at 88% said that they did not have any forms of restrictions in time taken to use internet while 10% said they had little restrictions and 2% to a moderate level with a mean of 1.1.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This is the final chapter in this study which gives the summary of the findings, the conclusions and recommendations of the study based on the objective of the study. The chapter finally presents the suggestions for further studies.

5.2 Summary of Findings

5.2.1 Use of ICT by SME's

The study results revealed that all the SMEs that participated in the study had computers. The results showed that most of the SMEs (67%) had two or three computers. The results however showed that most of the SMEs (33%) did not have their departments fully connected with networks. The results showed that 67% of the enterprises had their departments fully connected with networks. The results also showed that 58% of the enterprises had internet connection while all of them had access to mobile money transfer services with M-pesa and Equitel being the major mobile money transfer providers (56% and 37.3% respectively).

5.2.2 The Influence of ICT on Service Delivery Strategy by SMEs

The study established that to a large extent, ICT influenced service delivery to customers by the SMEs. Majority of the respondents (77.9%) indicated that ICT had enhanced service delivery to the customers as respondents explained that the time taken to serve customers has been reduced. The quality of the services according to the respondents had been improved and customers are able to give feedbacks on the service received. The result for instance showed that most of the respondents indicated that due to ICT customer records are to a large extent stored accurately and safely (mean score 3.37). Respondentsequally indicated that to a large extent, there was improved service rate or transaction cycle (mean score 4.22). Respondents also indicated that to a large extent, ICT had enhanced the generation of reports (mean score 3.61). The waiting time by the customers for the services by the enterprises had largely been reduced (mean score 3.83). The study established that there was to a large extent closer relationship between the enterprises and their customers (mean score 4.12) and further that the

enterprises are able to largely respond to customer queries fast (mean score 4.03). The results showed that 47% of the respondents indicated that ICT had enhanced the processing of payments to the suppliers. It was further revealed that the use of ICT had to a large extent improved the quality of goods and services as was indicated by 78% of the respondents. The results showed that ICT had enabled the enterprises to expand both regionally and internationally (97% and 78% respectively). The results of the study showed that 76.2% of the respondents indicated that to a large extent ICT had reduced the duration the business processes took to completion. The use of ICT had to a large extent affected the marketing of products and services. For instance 77.9% of the respondents indicated that to a large extent ICT had effect on business to business marketplace (mean score 3.36). The effect of ICT on marketing of products/services on the company website was also seen (mean score 4.05) and the social media (mean score 3.69). The study established that the two main modes of communication used by the enterprises were mobile phones (39%) and e-mails (47%). Majority of the respondents (85%) indicated that the use of ICT had reduced the cost of communication to a large extent.

5.2.3 Influence of ICT on Decision Making Process in SMEs

The study established that according to 44% of the respondents, the use of ICT had to a large extent provided the businesses with access to real time appropriate information. Majority of the respondents (90%) indicated that due to ICT the departments are to a large extent able to exchange data/information with ease. The results showed that 56% of the respondents indicated that the use of ICT to a large extent enhanced the processing of information for quick decision making. For instance ICT has to a large extent made the departments of the enterprises seamless (mean score 3.39). It has also enabled the management of the enterprises obtain timely information (mean score 4.12) while at the same time enhancing the data sharing in the departments (mean score 3.80). The respondents indicated that ICT has provided more consistent information for decision making (mean score 3.86) and the enterprises have been able to generate reports from a single database (mean score 3.93). According to majority of the respondents (80%), ICT had to a large extent enhanced the provision of information for planning and control. Finally, the study established that according to 64% of the respondents, ICT had to a large extent helped reduce the information asymmetry in the enterprises.

5.2.4 Direct and indirect effects of ICT on SMEs performance

Consoli (2012) summarized various indicators and suggested that ICT effects on performance could be structured and analyzed via such indicators as efficiency, effectiveness and competitiveness, innovative business and intangible benefits. Undoubtedly this study established that ICT has a powerful impact on the economic performance and could be characterized by a high degree of technological progress and productivity. Also it has an important social impact. A summary of the effects of ICT is represented below.

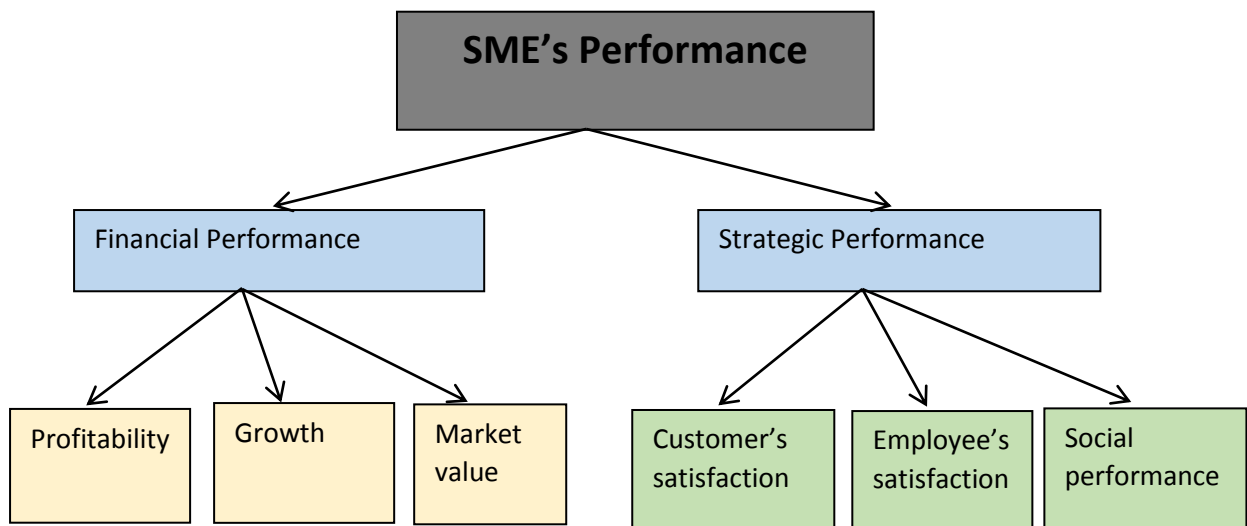


Figure 5.1: Indicators of performance dimensions

This study establishes that the performance indicators as follows:

Profitability: there was high return on Assets, Return on investment, Net income/Revenues, Return on equity, Economic value added Growth Earnings per share, Stock price improvement, Dividend yield, Stock price volatility, Market value added (market value / equity), Market value Market-share growth, Asset growth, Net revenue growth, Net income growth, Number of employees growth Employees satisfaction Turn-over, Investments in employees development and training, Wages and rewards policies, Career plans, Organizational climate, General employees' satisfaction Customers' satisfaction Mix of products and services, Number of complaints, Repurchase rate, New customer retention, General customers' satisfaction, Number of new products/services launched Environmental performance Number of projects to improve / recover the environment, Level of pollutants emission, Use of recyclable materials, Recycling level and reuse of residuals, Number of

environmental lawsuits Social performance Employment of minorities, Number of social and cultural projects, Number of lawsuits filed by employees, customers and regulatory agencies due to ICT implementation on SMEs of Nairobi County.

5.2.5 Discussion

This section comprises of discussion based on the specific research objectives of the study. The findings reveal that majority of the respondents were owners of the SMEs. The findings further reveal that half of the SMEs had operated for more than five years. The findings reveal that almost all the respondents agreed that use of ICT services has improved the performance of the SMEs. The study agrees with the statement that utilization of ICT tools has an important influence on organizations and all of its elements including people, culture, structure, process and tasks (Leavitt and Pondy,1964). The study findings reveal that majority of the respondents gave the following as ways in which ICT has improved efficiency in the SMEs: there is great access to new markets, increased volume of products and services, increased sales, improved supply chain, better connection to new partners, improved communication, great organizational expansion, improved quality of products and services, greater customer satisfaction, greater innovation, reduced transportation, security and communication costs and improved returns.

The findings further revealed that ICT has improved efficiency in the following ways; improved lead times in service delivery improved communication flow access to real time information; giving real time information thus helping in on time performance; they can now manipulate a cost related excel worksheet, they can save and resend documents wherever they are, without having to look for a laptop and modem or a cyber for that matter; effective use of the business process digitally automation of process; reporting incidences can be tracked and customer service measured easily; reduced communication costs; data accuracy through the use of industry standard communication platforms and using applications that validate against business rules; enables the flow of information within the organization; harnessing efficiencies such that more tasks can be done with fewer people; business modelling and simulations to see how a factor may impact a business; use of a website and related website technologies has assisted in increasing sales, reduced fraud cases, getting to know what our customers are saying about us and we in turn changing; paperless environment reduces costs robust systems to support operations; remote access redundancy; and it

has allowed for information to be shared across departments and stations which is required for decision making and other operations to be efficient.

The findings further show that majority of the respondents have mobile phones, computer applications, company laptops and desktops to perform their duties. The findings also reveal that the provision of SMEs mobile phones and communication networks has affected staff performance at the workplace.

The study found out that use of ICT led to better quality/ service in the business.

These findings concur with Van Leeuwen (2008) who linked ICT use and investment with firm performance and found that e-commerce and broadband use affect productivity significantly through their effect on innovation output. The study also found out that to a great extent use of information and communication technology has led to better quality of goods and services of your business by customer satisfaction

5.3 Conclusion

This research provides theoretical evidence on the direct and indirect effects of ICT on SMEs performance. In summary, the above literature review suggests that ICT can improve overall, financial and operational performance of SMEs if it is used appropriately. The study established that ICT had to a large extent positively influenced performance by the SMEs in the Nairobi County as it enhanced the storage of records, improved service rate or transaction cycle, enhanced the generation of reports, improved the relationship between the enterprises and their customers and enhanced the enterprises' ability to respond to customer queries. The study equally established that the use of ICT had enhanced the processing of payments to suppliers besides improving the quality of goods and services. Some empirical studies confirmed the positive effect of ICT on company performance in terms of productivity, profitability, market value and market share. Findings highlight that for best performances it is important to align ICT investments with internal capabilities and organizational processes. Therefore dimensions of strategic (operational) performance include indicators that measure not only changes in economic activities of the company but also improvements made, satisfaction etc. In summary ICTs has a significant impact on internal and external communication improvement, leading to improved operational performance and hence final performance.

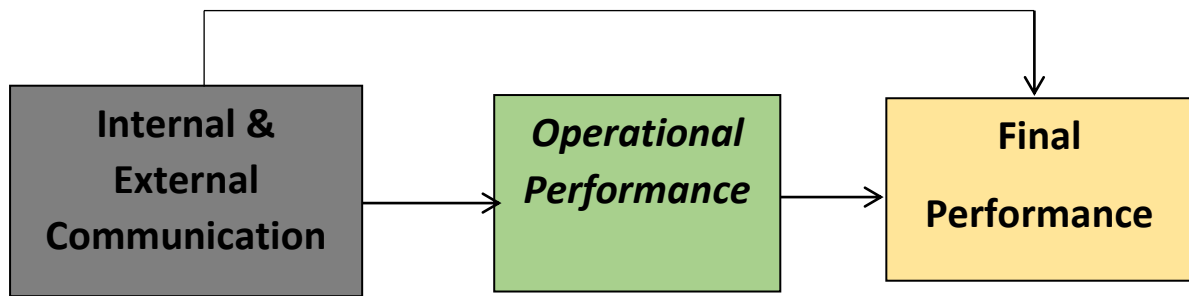


Figure 5.2: ICT on performance

This study provided new empirical evidence that that Information and Communication technology (ICT) is changing the way businesses operate, the process of creating products and services for their customers, and the way in which they compete.

5.4 Recommendations

Based on the findings and conclusions, the study recommends that the government of Kenya should consider mobilizing resources geared at creating awareness on and encouraging use of available information technologies at the disposal of the business people to the maximum possible extent in order to enhance business performance. This can be actualized through the government departments of finance, youth affairs, gender, and industrialization and Vision2030. It should also provide incentives to encourage the upcoming of business support services in the country and also for the young business people to develop ICT based solutions for the SMEs.

Business support services in the country should work closely with the SMEs to improve ICT resource utilization in their businesses. They should also consider the various recommendations put forth by the end users of the technologies to come up with more capable but neutral technologies that can be easily adapted to the SME environment. They should progressively expand the knowledge base of the SMEs owners and operators by organizing more workshops and open days. Small and Medium Enterprises (SME) management should consider scanning the environment to find the latest ICT equipment that could be useful in promoting service delivery efficiency and / or proper product mix / choice that suits customer needs. The management should also consider adopting variety of ICT equipment so as to be able to utilize available communication options.

5.5 Suggestion for Further Study

For future studies special attention should be given to obtaining a bigger sample preferably with a sample size of more than 300 prospects. Research should also find out what kind of ICT applications (basic or advanced) businesses use. Furthermore, future studies should investigate level of adoption, motivating factors as well as challenges being faced. This is because ICT is just taking its roots in the continent thus further research would be of interest. Lastly, continuation of the subject matter of this research could be based on case study in order to gain a richer and bigger picture of ICT use and impact in terms of performance.

REFERENCES:

- Alam S. & Noor, M. (2009). ICT Adoption in Small and Medium Enterprises an Among Small Businesses in Developing Countries.*
- Dawn, J., Podonik, P., and Dhaliwal, J. (2012) "Supporting the E-business Readiness of Small and Medium-Sized Enterprises.*
- diffusion.*
- Edwards, D.J. (2007). Industry-centric Benchmarking of Information Technology Benefits, Costs and Risks for Small-to-Medium Sized Enterprises in Construction, Automation in Construction.*
- Empirical Evidence of Services Sectors in Malaysia*
- Fink, D. and Disterer, G. (2013) "International Case Studies: To what extent is ICT infused into the Operations of SMEs?".*
- Implication Organization for Economic Co-operation and Development.*
- in East Africa.*
- information technology end-user satisfaction.*
- Koellinger, P. (2009) "Impact of ICT on Corporate Performance, Productivity and Employment Dynamics".*
- Lucchetti, R. and Sterlacchini, A. (2009). The Adoption of ICT among SMEs: Evidence from an Italian Survey. Small Business Economics.*
- Lucey, T. (2008): Management information systems, 9th Edition, London.*
- Mahmood M.A. Burn, J.M. Gemoets, L.A. & Jacquez, C. (2000). Variables affecting*
- Matambalya, F. and Wolf, S. (2002). The Role Of ICT For The Performance of SMEs*
- Meso P. & Musa, P.F.(2008). Extending the ICT technological culturation model:*
- Morikawa, M. (2009).Information Technology and the Performance of Japanese SMEs.Small Business Economics.*

Mugenda, O.M. & Mugenda A.G. (1999, 2003). Research Methods, Quantitative and Qualitative.

OECD. (2004). The Economic Impact of ICT Measurement, Evidence and relationships and management.

Ritchie, B. & Bridley, C. (2005). ICT adoption by SMEs: Implications for

Schindler P. Donald R. Cooper & Pamela, S. (2003). Business Research Methods.

Shiels, H., McIvor, R. and O'Reilly, D. (2010). Understanding the Implications of ICT adoption: Insights from SMEs", Logistics Information Management.

Stephen, M. (2007). ICT Skills Readiness for the Emerging Global Digital Economy

The role of accessibility and perceived socio-economic prospects on ICT

UNCTAD (2009) "ICT as an Enabler for Growth, Development and Competitiveness", Plenary session, June 17, [online], http://www.unctadxi.org/templates/Event____69.aspx [13 March 2008].

APPENDICES

Appendix I: Project Schedule

Time	Activity	Remarks
May, 2017	-Feasibility Planning	<ul style="list-style-type: none"> ▪ Identification of Viable research area was identified within the time frame
June, 2017	-Preparation of the proposal document	<ul style="list-style-type: none"> ▪ Research objectives and questions were developed. ▪ A methodology for research was selected. Descriptive
July, 2017	-Project Proposal	<ul style="list-style-type: none"> ▪ 7th July, 2017 Project proposal was tabled before the university examiners and was approved by 69%
July, 2017	-Examiners Comments -Data collection tool	<ul style="list-style-type: none"> ▪ Work on Comments of the examiners ▪ Design data collection tool
August, 2017	-Data collection and cleaning -Data analysis	<ul style="list-style-type: none"> ▪ Float questioners for data collection ▪ Subject collected data in to analysis Compile the analysis
September, 2017	-8 th September, 2017 Present WIP 1 -Examiner's Comments	<ul style="list-style-type: none"> ▪ WIP presentation ▪ Work on examiners comments
October, 2017	-13 th October, WIP 2 - Final report writing and recommendations	<ul style="list-style-type: none"> ▪ Presentation of WIP2 ▪ Defend the final project
With the Almighty God all things are possible		

Appendix II: Proposed budget of the research

ITEM	COST IN KSH
1. Stationeries	10,000
2. Printing and photocopying	10,000
3. Airtime	5,000
4. Internet	5,000
5. Transportation	10,000
6. Binding of documents	5,000
7. Data collection	10,000
8. Drinks and snacks	2,000
Total	67,000

AppendixIII: Interview/Questionnaire Covering Letter

Dear respondent,

Re: Request for interview

I am a fourth year research student at KCA University Main campus, pursuing a Master's degree on Information Systems Management.

I am currently carrying out a research on the effects of ICT on performance of SME's as my final year project. I therefore kindly request you to give me an appointment date and time to discuss about the effects ICT implementation and usage has on your enterprise. The interview will not take more than fifteen minutes.

The information that you will provide will be treated with ultimate confidentiality and will solely be used for the purpose of this research project.

Attached is an interview guide.

Thank you in advance

Yours Faithfully,

Hellen W. Karanja