

**ROLE OF INFORMATION COMMUNICATON TECHNOLOGY IN  
THE GROWTH AND DEVELOPMENT OF SMALL AND MEDIUM  
SCALE ENTERPRISES IN GHANA – CASE STUDY OF SOME  
SELECTED SMALL AND MEDIUM SCALE ENTERPRISES IN THE  
TEMA METROPOLIS**

**By**

**KNUST**

**Acquah Paul**

**(PG 4075810)**

**A Thesis to the Institute of Distance Learning, Kwame Nkrumah  
University of Science and Technology in partial fulfilment of the  
requirement for the degree of**

**COMMONWEALTH EXECUTIVE MASTER IN BUSINESS  
ADMINISTRATION**

**Institute of Distance Learning, KNUST.**

**September, 2012.**

## DECLARATION

I hereby declare this submission is my own work towards the Commonwealth Executive Masters of Business Administration and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

Certified by:

Paul Acquah

(Student ID: 20116342)

(Signature)

(Date)

Certified by:

Emmanuel Oheneba Acquah

(Supervisor)

(Signature)

(Date)

Certified by:

Prof. I.K. Duntwi

(Dean, IDL, KNUST)

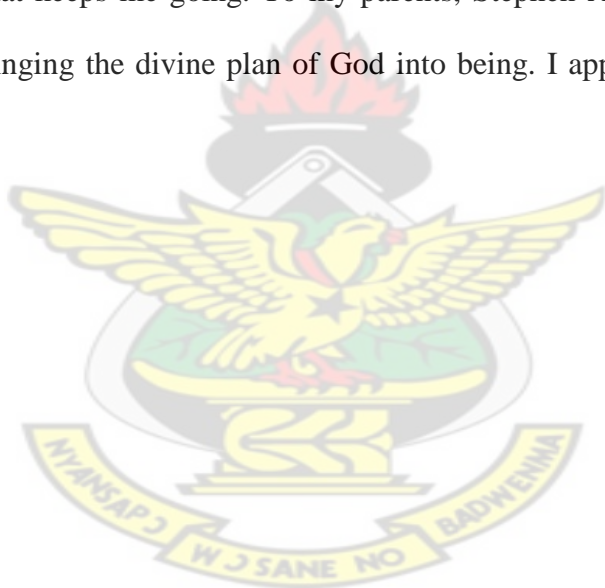
(Signature)

(Date)

## DEDICATION

‘I am able to do all things through Christ who strengthens me’. I am nobody but the handiwork of the almighty and derive all my energy and inspiration from him. I say this work is no exception and to Him alone I owe my existence on this earth to.

This work is dedicated to the memory of my late grandmother Madam Ama Amissah who though formally uneducated never relented in inculcating in me the value of education in my early childhood and ensured she does everything within her means to compel me to go to school. I say grandma though you are not alive to see this but your advice and admonishing is what keeps me going. To my parents, Stephen Acquah and Jane Obosu for your role in bringing the divine plan of God into being. I appreciate your care, love and support.



## **ABSTRACT**

This study identifies the roles of information communication technology (ICT) in the growth and development of small and medium scale enterprises (SMEs) in Ghana using case study of some selected SMEs in Tema metropolis in the Greater Accra region. The objectives of the study were to understand the current ICT usage in Ghana and how it has contributed to the growth and development of SMEs in Ghana; identify the preferred ICT tools for communication among SMEs and explored how ICT benefit SME relationships and interactions and find out why some SMEs are not using ICT in their business. SMEs were conveniently sampled using simple random sampling to ensure that at least they are using one of the major ICT tools – Mobile Phone, Fixed Line, Internet or Postal Box in its business. Most of the SMEs are dominated by men. Furthermore lots of the SMEs are found by people who are in their youthful stage indicating the inclination of the youth towards the adoption of information communication technology in their business. The study found out that ICT has contributed in the growth and development of SMEs by decreasing cost of communication and transaction, enhancing better relations among SMEs, their customers and fellow SMEs and enhancing SMEs to penetrate other markets without any geographical limitation. Furthermore, almost every SME owner in Ghana have a mobile phone and prefers to communicate to the customers and supplier via mobile telephony than fixed line or any other ICT tools mentioned in the study. Though ICT awareness and the benefit of the internet to the SMEs seem to be high among SMEs owners in Ghana, patronage and usage of ICT is still low. Perceived high cost of hardware and software infrastructure, lack of applicability of the technologies ICT offers to their work, and lack of end user adoption of technology are some of the reasons why some SMEs do not use ICT in doing their business.

## ACKNOWLEDGEMENT

One person may make discovery but it takes others to help it become an invention. I will not be worth dying for if I do not acknowledge the assistance given by others in making this work a reality.

I am grateful to Mr. Emmanuel Oheneba Acquah, my supervisor for his astute supervision of this work to completion. I would also like to acknowledge the contribution of Dr. Gabriel Ayisi of Brooklyn College, USA for his support in the form of reading part of the work, getting me some materials and useful websites for this work.

To Catherine Akorfa Klokou, I say your encouragement, support and being in the trenches for me to ensure that I complete this work is invaluable. I am forever grateful to you and words cannot express the quantum of my gratitude.

To Mr. Godfred Essandoh – Bondzie I say I am forever indebted to you for the role you played in shaping my future and selfless contributions and support till date

To my sweet angels, Nana, Maame Bassah, Maame, Kobby and Linda you are my pearls of life and my joy. To Winnifred, I say your support has been great and I appreciate it.

I am very grateful to Mrs. Patricia Osiakwa for her support during the course. My appreciation also goes to Prince Henry Coleman for the assistance he offered in the printing of this work.

# TABLE OF CONTENT

## Table of Contents

DECLARATION .....	ii
DEDICATION .....	iii
ABSTRACT.....	iv
ACKNOWLEDGEMENT .....	v
TABLE OF CONTENT .....	vi
LIST OF TABLES .....	ix
LIST OF FIGURES .....	x
LIST OF ABBREVIATIONS.....	xi
CHAPTER ONE .....	1
GENERAL INFORMATION.....	1
1.1 Introduction.....	1
1.2 Background of the Study .....	5
1.3 Research Problem/Statement of Problem .....	6
1.4 Objectives of the Study .....	6
1.4.1 General Objective .....	6
1.4.2 Specific Objective.....	6
1.5 Research Questions .....	7
1.6 Justification of the Study .....	7
1.7 Research Methodology .....	7
1.8 Scope of the Study .....	8
1.9 Limitations of the Study.....	9
1.10 Organisation of the Study .....	9
CHAPTER TWO .....	10
LITERATURE REVIEW .....	10
2.1 Introduction .....	10
2.2 What is ICT? .....	12
2.3 What are SME's? .....	13
2.4 Role and Characteristics of SMEs.....	16
2.5 SME Situation in Ghana.....	17
2.6 Policy Overview of SME's in Ghana.....	20
2.7 ICT Evolution in SME's in Ghana .....	21
2.8 Preferred ICT Tools for Communication among SMEs in Ghana.....	23
2.8.1 Mobile Phones .....	23

2.8.2	Fixed Lines.....	24
2.8.3	Internet usage .....	24
2.8.4	Postal Box .....	25
2.9	ICT Adoption and Firms Performance.....	26
2.10	How ICT Benefits SME Relationships and Interactions .....	26
2.11	Barriers to the Use of ICT among SME's .....	27
2.12	ICT in Growth and Development .....	28
2.13	Theoretical framework .....	32
2.13.1	Small firm characteristics .....	34
2.13.2	SME owner manager characteristics.....	36
CHAPTER THREE .....		42
METHODOLOGY .....		42
3.1	Introduction .....	42
3.2	Methodology .....	42
3.2.1	Research design .....	43
3.2.2	Target Population.....	44
3.2.3	Study Population.....	44
3.2.4	Sampling Frame .....	44
3.2.5	Sample Size.....	44
3.2.6	Sampling procedures for data collection.....	44
3.2.7	Methods of Data Collection.....	45
3.2.8	Data Handling .....	45
3.2.9	Ethical Consideration.....	46
3.2.10	Challenges Encountered.....	46
3.3	Organisational Framework.....	46
3.3.1	Narh Bitu Hospital. ....	47
3.3.2	Jofiko Pharmacy.....	47
CHAPTER FOUR.....		48
DATA ANALYSIS AND DISCUSSION OF FINDINGS.....		48
4.0	Introduction .....	48
4.1	Presentation of Data Analysis .....	48
4.1.1	Age of Respondents .....	48
4.1.2	Sex Distribution of Respondents .....	49
4.1.3	Educational Background of Respondents .....	50
4.1.4	SME Distribution by Sector.....	51
4.1.5	Categories of SMEs .....	52
4.1.6	ICT Usage among SMEs .....	53

4.1.7	ICT Tool Preference for Communication among SMEs and their Customers	56
4.1.8	ICT and Inter SME and SME and Customer relationships.....	58
4.1.9	ICT and Growth and Development of SME's .....	58
4.1.10	E-commerce Awareness among SME's .....	59
4.1.11	Barriers to the use of ICT among SMEs .....	60
4.2	Discussion of the Result.....	61
4.2.1	Demographics .....	61
4.2.2	ICT Usage in Ghana.....	62
4.2.3	How ICT has contributed to Growth and Development .....	62
4.2.4	Preferred ICT Tool for Communication .....	63
4.2.5	SME Relationships with Suppliers and Customers .....	63
4.2.6	E-commerce Awareness Level among SMEs.....	63
4.2.7	Barriers to ICT usage among SMEs in Ghana.....	64
CHAPTER FIVE .....		65
SUMMARY, CONCLUSIONS AND RECOMMENDATION.....		65
5.1	Introduction .....	65
5.2	Summary of the Findings .....	65
5.3	Conclusions .....	66
5.4	Recommendations .....	69
5.4.1	Promotion of ICT Education among SMEs .....	69
5.4.2	Outsourcing of ICT Functions .....	69
5.4.3	Development of SME Productivity Application for Mobile Phones .....	70
5.4.4	Creating Enabling Environment .....	70
5.4.5	Affordable Software and Hardware .....	70
5.5	Suggestions for Future Research.....	71
REFERENCES .....		72
APPENDIX 1 .....		76



## LIST OF TABLES

Table 4.1. Age of Respondents .....	49
Table 4.2. Gender Composition of Respondents .....	49
Table 4.3. SME categories by number of employees .....	52
Table 4.4. ICT usage frequency among SMEs .....	57
Table 4.5. Importance of ICT tools by SMEs .....	58

KNUST



## LIST OF FIGURES

Figure 1. Gender Composition of Respondents .....	50
Figure 2. Educational Background of Respondents .....	51
Figure 3. SMEs by Sectors distribution .....	52
Figure 4. Computer usage among SMEs .....	53
Figure 5. Main uses of computers by SMEs who use computers in their operations .....	54
Figure 6. Reasons for Non-Computer use among SMEs .....	55
Figure 7. Common ICT tools possessed by SMEs. ....	56
Figure 8. Preferred Mode of long distance communication by SMEs .....	57
Figure 9. How ICT has contributed to growth and development of SMEs. ....	59
Figure 10. E-commerce awareness level among SMEs .....	60
Figure 11. Barrier to ICT usage among SMEs .....	61



## LIST OF ABBREVIATIONS

B2B	Business to Business
B2C	Business to Consumer
CAD	Computer Aided Design
CAM	Computer Aided Manufacturing
CRM	Customer Relationship Management
EC	European Commission
ERP	Enterprise Resource Planning
ESCWA	Economic and Social Commission for Western Asia
GDP	Gross Domestic Product
GEDC	Ghana Enterprise Development Cooperation
GNI	Gross National Income
GSM	Global System for Mobile communications
GSS	Ghana Statistical Service
ICT	Information Communication Technology
IT	Information Technology
LAN	Local Area Network
NBSSI	National Board for Small Scale Industries
OECD	Organisation for Economic Co-operation and Development
SMEs	Small and Medium Scale Enterprises
SMS	Short Message Service
SPSS	Statistical Package for Social Sciences
UNCTAD	United Nations Conference of Trade and Development
VoIP	Voice over Internet Protocol (IP)
WAN	Wide Area Network

# **CHAPTER ONE**

## **GENERAL INFORMATION**

### **1.1 Introduction**

Information Communication Technology (ICT) refers to technologies that provide access to information through telecommunications. Beckinsale and Ram (2006) defined ICT as ‘any technology used to support information gathering, processing, distribution and use’. ICTs can be viewed as all form of technologies and product for a wide range of software, hardware, telecommunications and information management techniques, applications and devices, and are used to create, produce, analyze, process, package, distribute, retrieve, store and transmit or receive information electronically in a digital form such as computers, email, internet, websites, social networking and other wireless communications devices, networks, broadband, and as well as the various specialized devices and applications associated with them, such as satellite systems and videoconferencing (Porter and Millar, 1985; Brady et al., 2002, Nicol, 2003). ICT is an important tool that provides the opportunity for small to medium enterprises (SMEs) to improve their competitiveness in business arena. In the rapidly changing business environment of the twenty-first century, it is extremely important for SMEs to adopt ICT in order to maintain their competitive edge, develop a global network of product exchange and establish wider international network. The effective use of information system (IS) and information technology (IT) can provide SMEs with the opportunity to take advantage of ICT in order to enhance the way they conduct business and increase core competencies. Information and Communication Technology (ICT) has influenced the way in which business is conducted globally, resulting in, for example, a faster turnaround of products and production, smart products, and 24 hours of shopping around

the world. Businesses are re-engineering their processes and investing huge sums of money in ICT solutions such as Customer Relations Management (CRM) systems and Enterprise Resource Planning (ERP), in order to take advantage of the changing environment. Knowledge is the cornerstone of this new environment, normally referred to as the “knowledge economy”. Customers in this new economy demand knowledgeable products and want to buy knowledge. For example, cars today have more knowledge about their surroundings than in the past, being equipped with tools such as rain sensors, night vision or driver’s assistance to ensure safe and comfortable journeys. With their financial power, human capital (highly skilled staff) and resources (state-of-the-art equipment), big businesses have managed to take advantage of ICT to gain the edge over competitors, unlike small and medium enterprises (SMEs). According to Galloway and Mochrie (2005), there is evidence that ICT is the driver of economic growth, which explains the drive by many governments around the world for SMEs to adopt ICT. The main reason for this drive is that governments acknowledge the considerable contribution of SMEs towards gross domestic product (GDP) and employment figures. Information and Communication Technologies (ICT) are regarded to be powerful tools for socio-economic development. Effective ICT-utilization, appropriate applications, and individually tailored solutions can create cross-sectorial opportunities and, thus, ICT can play a substantial role to address a number of goals on the development agenda of many organizations. In an attempt to identify sectors that are likely to be responsive to technological change and promise high return on investment, Small and Medium Enterprises (SMEs) have materialized as one potential target sector to harness ICT for development and growth.

Usage of mobile telephony and the internet among Ghanaian organizations primarily the Small and Medium Scale enterprises are on the rise. More companies and firms are now fixing broad band internet at their office premises while many executives of these companies use mobile devices like tablets, laptops, modem (dongles), etc. on the move. All these are to ensure that the business man harness the benefits ICT bring in the development and growth of these enterprises. More companies are now providing smartphones to their employees to ensure they can respond to their mails wherever they are. All these ensure speed and productivity which the SME need.

Several recent studies have examined the effects of ICT investment on economic performance in varying regions throughout the world. One recent study, “Socio-economic Impact of Internet in Emerging and Developing Economies” estimates that when Internet penetration rises by 10 % in emerging economies, it correlates with an incremental GDP increase of one to two %. Similarly, another study found that the comparative GDP growth rate of a developing country can be boosted by 0.59 % per annum for every 10 mobile telephones added per 100 inhabitants. ICT is now known to be a harbinger of productivity and growth in developing nations. Leonard Waverman, Dean of the Haskayne School of Business at the University of Calgary, is of the view that ICT must be used to accelerate the global recovery since it is the key infrastructure of the 21<sup>st</sup> Century.

SMEs are often considered to be a key source of productivity, growth, and job creation and, hence, their performance and the environment, in which they perform, are seen as an important factor for economic development. Though the empirical evidence to support this view is not always clear, in most developing countries SMEs, in fact, account for the majority of firms and a large share of employment.

The potential impact of ICT on an enterprise’s efficiency and productivity explains why the utilization of technology presumably has strong linkages to the enterprise’s

competitiveness. This is applicable to different levels: improvement of internal business procedures, lowering of transaction costs, and a better understanding of the operating environment with regard to both demand and supply. Even beyond such traditional approaches, new business opportunities seem to appear, like the formation of new business platforms, creation of information-sharing and networking facilities, and prospects of cluster-building in emerging market segments.

However, in most cases such descriptions refer to the potential of SMEs, not their actual performances. They draw around a vision and offer a roadmap to pave the way for the road ahead. But to what extent do they reflect the situation on the ground? Are SMEs ready to take advantage of ICT or is it just wishful thinking of some IT enthusiasts?

ICT has become the foundation of every sector of every economy, everywhere. The reasons for this are information and communication technologies:

- Reduce transaction costs and thereby improve productivity
- Offer immediate connectivity – voice, data, visual – improving efficiency, transparency and accuracy.
- Substitute for other, more expensive means of communicating and transacting, such as physical travel.
- Increase choice in the marketplace and provide access to otherwise unavailable goods and services.
- Widen the geographic scope of potential markets and
- Channel knowledge and information of all kinds.

These attributes underlie the important part ICTs have played in firms and macro level growth. At the macro level, various studies have shown significant, positive impact on GDP from information technology, telecommunications, and mobile telecommunication



investment, in both developed and developing countries. At the level of the firm, World Banks surveys of approximately 50 developing countries suggest that “firms using ICT see faster sales growth, higher productivity and faster employment growth.

SMEs usually face a comparatively uncertain environment and entrepreneurs often have a short-term time horizon. Therefore the decision to implement ICT depends on the intuition of the entrepreneur which is subject to his training and experience as well as to his optimism or pessimism with respect to policy changes and economic conditions in the future. Therefore the adoption decision is determined not only by enterprise characteristics but also by characteristics of the entrepreneur and the environment the enterprise operates in. This explains why not all potential users introduce the different ICT technologies at the same time despite its advantages.

ICT is known to enable growth and development in many nations and large organisations. However whether SMEs also derive same benefits of ICT is what has precipitated this research. ICT infrastructure consisting of hardware, software and telecommunication requirement to enable connectivity involves capital investment which the returns on investment realisation are debatable. ICT and the IT Departments are seen as cost centres instead of a business driver or tool that can catalyse the growth and development of SMEs. It is against these backgrounds that the research seeks to find the role ICT plays in the growth and development of SMEs in Ghana.

## **1.2 Background of the Study**

Due to the huge capital investment that should be made into ICT Infrastructure projects, many organisation including SMEs have really questioned the returns on investment on budget allocated for such projects. These organisations see ICT and the IT department as



cost centre instead of a business driver or tool that can catalyse growth and development of their organisations. It is against this background that this study seeks to find the role ICT plays in the growth and development of SMEs in Ghana.

### **1.3 Research Problem/Statement of Problem**

ICT plays a very important role in the current knowledge economy. It is vital for SMEs to become a part of this economy in order to grow and develop in the future. The problem is that SMEs in Ghana are mainly using traditional tools to achieve this growth and development. They need to take advantage of the power of ICT in order to take on the competition that will propel them to growth and development, whether small, big or global. Both the traditional and the ICT tools are very important for the competitiveness of the business. There are number of reasons why an SME might not implement ICT tools, such as limited funds, lack of knowledge, lack of skilled staff, perceived lack of applicability to the business that the SME is engaged in etc.

### **1.4 Objectives of the Study**

#### **1.4.1 General Objective**

The study sets out to identify the role of ICT in the growth and development of small and medium scale enterprises.

#### **1.4.2 Specific Objective**

The key objectives of this research are therefore to:

1. Understand the current ICT usage in Ghana
2. Understand how ICT has contributed to the growth and development of SMEs in Ghana.
3. Identify the preferred ICT tools for communication by Ghanaian SMEs.
4. Explore how ICT benefit SME relationships and interactions

5. Understand the E-commerce awareness among SMEs in Ghana.
6. Identify barriers to the use of ICTs among SMEs;

### **1.5 Research Questions**

The research seeks to answer the following questions:

1. What is the current ICT usage among SMEs in Ghana?
2. How has ICT contributed to the growth and development of SME's in Ghana?
3. What is the preferred ICT tool for communication by Ghanaian SMEs?
4. How does ICT benefits SME relationships and Interactions?
5. What is the E-commerce awareness level among SMEs in Ghana?
6. What are the barriers to the use of ICT by SMEs in Ghana?

### **1.6 Justification of the Study**

The role of ICT in the growth and development of SME's has not been given much attention due to low research on it. However ICT is known to contribute about 2.5% of countries' GDP. As such a study to reveal the way ICT can facilitate the growth and development of SME's will have tremendous impact on how SME's can exploit information and communication technology to their advantage. The study will enable owners of SME's reap the benefit in reaching customers, accessing international market, reducing cost of transaction and facilitating transactions, reducing turnaround times etc.

### **1.7 Research Methodology**

The study will make use of interpretive research methodology in order to answer the research questions. This method is an action type of research that generally makes use of data collection methods such as case studies, interviews, or participation observation. Since there is no extensive research on the topic, this approach is the best one for obtaining information from Ghanaian contacts within the time frame. According to the

literature the owner-manager is the main decision maker within the SMEs; it is important to try and extract the information from him/her through the process of interviewing and interpreting the findings. This process does not guarantee that the information will be accurate or not biased, but it is the best way given that most of the knowledge would reside in the owner-manager's head. The study will involve a literature survey to determine the ICT needs of SMEs, the adoption rate of ICT in Ghana and also the approaches already used. The questions in the interviews are based on a questionnaire (see Appendix A) and have closed end questions with multiple choice answers and open-ended questions with the aim of giving respondents the freedom to express their own experiences. However to guide the research in delivering the objective some questions will have predefined answers in which respondent will choose. The respondents shall be selected at random within the selected SME's however an attempt will be made to ensure in each SME the owner of the firm is also interviewed. The study will mainly use quantitative as well as qualitative analysis to analyse the data.

### **1.8 Scope of the Study**

The study concentrates mainly on the role of ICT in growth and development of SMEs and – e.g., adoption of ICT and its relationship to customer service delivery, sales, cost savings, etc. The study was restricted to some selected SME's within the Tema Metropolis in Greater Accra Region. The area was selected due to proximity to the researcher and for convenience. It will be based on primary and secondary sources of data. In primary research, the study will survey some owners and employees of SMEs in the Tema Metropolis using a questionnaire. The researcher will use both open-ended questions in a semi-structured format and closed end question with possible answers in order to seek deeper understanding and interpretation.

Secondary data was collated using various published and unpublished articles and reading materials. These will be consists of business, management and ICT, journals, magazines and newspapers, thesis and related studies and the Internet. The details collated will be subjected to thorough secondary data analysis. The purpose of analyzing the information is to extract substantial concepts that will contribute to the breadth and depth of the study. The information was synthesized and then integrated to one another.

## **1.9 Limitations of the Study**

Due to the large population of SMEs in Ghana, the research should have been done with sample space all over the country; however, due to limited time associated with this research this could not be achieved. The research was also constrained by other factors such low awareness of ICT levels among owners of SME's, non-cooperation of some SMEs approached and general constraints that are associated with quantitative research. However, it should be noted that the study is a snapshot or cross-section in time and, to that extent, the data and statistics are subject to rapid change.

## **1.10 Organisation of the Study**

The research comprises of five chapters. The chapter one will give introduction of the research with definitions and explanation of certain key words and concept. The chapter two will explain and analyse the relevant literature relating to the research. The chapter three will discuss the methodology, organisational framework, etc. The result of the interviews and questionnaires will be discussed in chapter four whiles the chapter five summarizes and concludes the research with the necessary recommendations.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

Information Communication Technology (ICT) has a critical role to play as an enabler of socio- economic development, as well as providing a pivotal support for effective governance of the political system. It also plays an important role to enterprise development. The contributions of ICTs to business development have been pervasive to the extent that it is becoming increasingly difficult for companies to compete effectively in the world market without adequate ICT infrastructures. The reason is that ICTs are revolutionizing every activity in the global market, as the various components of ICTs have their significant roles in facilitating business promotion, efficiency and growth. The Internet, for example, has provided the platform for the development of electronic commerce (e-commerce) and offers potential for establishing low cost, open and ‘many to many’ trading systems (Humphrey et al, 2003). According to Labbè (2006) the Internet has become the global channel of unmatched scope for communication between people and between businesses, and at the moment, with over 80 million websites and over a billion internet users. Therefore, this provides an important medium for increased competition among businesses.

Again business processes such as ordering, transaction, delivery, inventory control and accounting can be streamlined and connected regardless of location through the use of network of computers (UNCTAD, 2005). The same UNCTAD report argues further that the Internet has the potential of improving customer management relationship and enable firms to customize their services to meet the needs of their different clients. The customized service, according to the UNCTAD report will allow companies to respond to

their customers in real time and thereby improving customer confidence. It also helps in monitoring customers preferences and lead to developing targeted marketing strategies. Invariably, the computer-mediated networks will allow these activities to be carried out quickly and efficiently, and contribute to efficiency in the operations of businesses. Further, computers supported by various types of business software can enhance information and knowledge management within a firm and result in an evolvement of better business processes and performance (OECD, 2004). The use of e-mail system and the Internet can support business communication within the context of business to customers (B2C) or business to business (B2B). Invariably transaction costs may be reduced.

Other ICT-mediated services such as e-banking and e-business are dramatically affecting the traditional ways of providing those services and have great implications for many economic activities. However, small firms may adopt e-business and e-commerce strategies when benefits outweigh investment and maintenance costs (OECD, 2004). The report argues further that the use of and investment in ICT requires complementary investments in skills, organisation and innovation and investment and change entails risks and costs. Therefore, effective adoption of ICT services by SME calls for the need for these issues to be addressed. For SMEs which are the dominant economic operatives in many countries, especially the developing ones, ICTs offer great potential for growth, profitability and competitiveness. Support for SMEs is buttressed by the Action Plan developed at the first World Summit of Information Society held in Geneva, 2003. The Action Plan calls on governments to develop strategies that will facilitate widespread use of ICTs to support the growth of micro, small and medium scale enterprises and boost e-business. The issue is to what extent does the SMEs in Ghana have access and use ICTs



to enhance their operations and competitiveness? How can SMEs utilise ICTs to facilitate their economic activities? It is important to address these issues since the country's business landscape is dominated by SMEs and they have great potential in achieving the developmental objectives of the country.

## **2.2 What is ICT?**

ICT stands for "Information and Communication Technologies." ICT refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums.

In the past few decades, information and communication technologies have provided society with a vast array of new communication capabilities. For example, people can communicate in real-time with others in different countries using technologies such as instant messaging, voice over IP (VoIP), and video-conferencing. Social networking websites like Facebook allow users from all over the world to remain in contact and communicate on a regular basis.

Modern information and communication technologies have created a "global village," in which people can communicate with others across the world as if they were living next door. For this reason, ICT is often studied in the context of how modern communication technologies affect society.

ICT (information and communications technology - or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television,

cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and electronic ordering system. ICT covers all forms of computer and communications equipment and software used to create, design, store, transmit, interpret and manipulate information in its various formats. Personal computers, laptops, tablets, mobile phones, transport systems, televisions, and network technologies are just some examples of the diverse array of ICT tools.

ICT occupies a very strategic place in the running of most businesses with the evolving global village phenomenon. While information communication technology's costs remain a recurring dilemma, its importance and unquestionable placing in the priority prism of the business makes a strong case in this research paper.

### **2.3 What are SME's?**

The issue of what constitutes a small or medium enterprise is a major concern in the literature.

Different authors have usually given different definitions to this category of business. SMEs have indeed not been spared with the definition problem that is usually associated with concepts which have many components. The definition of firms by size varies among researchers. Some attempt to use the capital assets while others use skill of labour and turnover level. Others define SMEs in terms of their legal status and method of production. Storey (1994) tries to sum up the danger of using size to define the status of a firm by stating that in some sectors all firms may be regarded as small, whilst in other sectors there are possibly no firms which are small. The Bolton Committee (1971) first formulated an "economic" and "statistical" definition of a small firm. Under the "economic" definition, a firm is said to be small if it meets the following three criteria:



- It has a relatively small share of their market place;
- It is managed by owners or part owners in a personalized way, and not through the medium of a formalized management structure;
- It is independent, in the sense of not forming part of a large enterprise.

Under the “statistical” definition, the Committee proposed the following criteria:

- The size of the small firm sector and its contribution to GDP, employment, exports, etc.;
- The extent to which the small firm sector’s economic contribution has changed over time;
- Applying the statistical definition in a cross-country comparison of the small firms’ economic contribution.

The Bolton Committee applied different definitions of the small firm to different sectors. Whereas firms in manufacturing, construction and mining were defined in terms of number of employees (in which case, 200 or less qualified the firm to be a small firm), those in the retail, services, wholesale, etc. were defined in terms of monetary turnover (in which case the range is 50,000-200,000 British Pounds to be classified as small firm). Firms in the road transport industry are classified as small if they have 5 or fewer vehicles. There have been criticisms of the Bolton definitions. These centre mainly on the apparent inconsistencies between defining characteristics based on number of employees and those based on managerial approach.

The European Commission (EC) in International Research Journal of Finance and Economics - Issue 39 (2010) defined SMEs largely in terms of the number of employees as follows:

- firms with 0 to 9 employees - micro enterprises;
- 10 to 99 employees - small enterprises;

- 100 to 499 employees - medium enterprises.

Thus, the SME sector is comprised of enterprises (except agriculture, hunting, forestry and fishing) which employ less than 500 workers. In effect, the EC definitions are based solely on employment rather than a multiplicity of criteria. Secondly, the use of 100 employees as the small firm's upper limit is more appropriate, given the increase in productivity over the last two decades (Storey, 1994). Finally, the EC definition did not assume the SME group is homogenous; that is, the definition makes a distinction between micro, small, and medium-sized enterprises. However, the EC definition is too all-embracing to be applied to a number of countries. Researchers would have to use definitions for small firms which are more appropriate to their particular "target" group (an operational definition). It must be emphasized that debates on definitions turn out to be sterile, unless size is a factor which influences performance. For instance, the relationship between size and performance matters when assessing the impact of a credit programme on a target group (Storey, 1994). Van der Wijst (1989) considers small and medium businesses as privately held firms with 1 – 9 and 10 – 99 people employed, respectively. Jordan et al (1998) define SMEs as firms with fewer than 100 employees and less than €15 million turnover. Michaelas et al (1999) consider small independent private limited companies with fewer than 200 employees and López and Aybar (2000) considered companies with sales below €15 million as small. According to the British Department of Trade and Industry, the best description of a small firm remains that used by the Bolton Committee in its 1971 Report on small firms. This stated that a small firm is an independent business, managed by its owner or part-owners and having a small market share (Department of Trade and Industry, 2001).

The UNIDO also defines SMEs in terms of number of employees by giving different classifications for industrialized and developing countries (see Elaian, 1996). The definition for industrialized countries is given as follows:

- Large - firms with 500 or more workers;
- Medium - firms with 100-499 workers;
- Small - firms with 99 or less workers.

The classification given for developing countries is as follows:

- Large - firms with 100 or more workers;
- Medium - firms with 20-99 workers;
- Small - firms with 5-19 workers;
- Micro - firms with less than 5 workers.

It is clear from the various definitions that there is not a general consensus over what constitutes an SME. Definitions vary across industries and also across countries. It is important now to examine definitions of SMEs given in the context of Ghana.

## **2.4 Role and Characteristics of SMEs**

Small-scale rural and urban enterprises have been one of the major areas of concern to many policy makers in an attempt to accelerate the rate of growth in low income countries. These enterprises have been recognised as the engines through which the growth objectives of developing countries can be achieved. They are potential sources of employment and income in many developing countries. It is estimated that SMEs employ 22% of the adult population in developing countries (Daniels, 1994; Daniels & Ngwira, 1992; Daniels & Fisseha, 1992; Fisseha, 1992; Fisseha & McPherson, 1991; Gallagher & Robson, 1995).

However, some authors have contended that the job creating impact of small scale enterprises is a statistical flaw; it does not take into account offsetting factors that makes the net impact more modest (Biggs, Grindle & Snodgrass, 1988). It is argued that increases in employment by small and medium scale enterprises is not always associated with increases in productivity. Nevertheless, the important role performed by these enterprises cannot be overlooked. Small firms have advantages over their large-scale competitors. They are able to adapt more easily to market conditions given their broadly skilled technologies. However, narrowing the analysis down to developing countries raises the following puzzle: Do small scale enterprises have a dynamic economic role?

Due to their flexible nature, SMEs are able to withstand adverse economic conditions. They are more labour intensive than larger firms and therefore, have lower capital costs associated with job creation (Anheier & Seibel, 1987; Liedholm & Mead, 1987; Schmitz, 1995). SMEs perform useful roles in ensuring income stability, growth and employment. Since SMEs are labour intensive, they are more likely to succeed in smaller urban centres and rural areas, where they can contribute to the more even distribution of economic activity in a region and can help to slow the flow of migration to large cities. Because of their regional dispersion and their labour intensity, the argument goes, small scale production units can promote a more equitable distribution of income than large firms. They also improve the efficiency of domestic markets and make productive use of scarce resources, thus, facilitating long term economic growth.

## **2.5 SME Situation in Ghana**

There have been various definitions given for small-scale enterprises in Ghana but the most commonly used criterion is the number of employees of the enterprise (Kayanula and Quartey, 2000). In applying this definition, confusion often arises in respect of the

arbitrariness and cut off points used by the various official sources. In its Industrial Statistics, the Ghana Statistical Service (GSS) considers firms with fewer than 10 employees as small-scale enterprises and their counterparts with more than 10 employees as medium and large-sized enterprises. Ironically, the GSS in its national accounts considered companies with up to 9 employees as SMEs (Kayanula and Quartey, 2000). The value of fixed assets in the firm has also been used as an alternative criterion for defining SMEs. However, the National Board for Small Scale Industries (NBSSI) in Ghana applies both the “fixed asset and number of employees” criteria. It defines a small-scale enterprise as a firm with not more than 9 workers, and has plant and machinery (excluding land, buildings and vehicles) not exceeding 10 million Ghanaian cedi. The Ghana Enterprise Development Commission (GEDC), on the other hand, uses a 10 million Ghanaian cedis upper limit definition for plant and machinery. It is important to caution that the process of valuing fixed assets poses a problem. Secondly, the continuous depreciation of the local currency as against major trading currencies often makes such definitions outdated (Kayanula and Quartey, 2000). In defining small-scale enterprises in Ghana, Steel and Webster (1991), and Osei *et al* (1993) used an employment cut-off point of 30 employees. Osei *et al* (1993), however, classified small-scale enterprises into three categories. These are: (i) micro - employing less than 6 people; (ii) very small - employing 6-9 people; (iii) small - between 10 and 29 employees. A more recent definition is the one given by the Regional Project on Enterprise Development Ghana manufacturing survey paper. The survey report classified firms into: (i) micro enterprise, less than 5 employees; (ii) small enterprise, 5 - 29 employees; (iii) medium enterprise, 30 – 99 employees; (iv) large enterprise, 100 and more employees (see Teal, 2002).

Whatever definition is used it is clear that SMEs and particularly micro businesses constitute the vast majority of businesses in Ghana. For example 85% of manufacturing enterprises are in the category 0-9 employees and a further 11% in the category 10-29 employees. Another perspective is that 68% of the labour force consists of self-employed with no employees and 5% self-employed with employees. In addition the informal private sector is estimated to employ 80% of the total workforce. Therefore most jobs and most businesses are in the informal sector primarily in one person self-employed businesses with no employees. This structure puts severe constraint on the growth prospects of the economy since it is highly unlikely that many growth oriented businesses will emerge from these informal one-person businesses, mainly concentrated in sectors such as farming, distributive trades and small scale manufacturing. A better target may be to increase the growth and development prospects of the 5% of self-employed with employees.

A high proportion SMEs are female-owned businesses, which more often than not are home-based compared to those owned by males and are even more unlikely to be formally registered than male owned businesses. Informal status of the vast majority of businesses clearly affects their chances of gaining access to financing schemes, as does the difficulty in providing collateral. The prime sources of funds used by informal businesses are informal sources of family and friends plus the micro-credit schemes operating in the country. The problems of access finance of informal businesses are also reflected in the difficulties faced in raising finance by small registered businesses. Current interest rates start at 22% and are normally for 1-2 year periods. In the absence of credit reference agencies banks are normally requiring collateral of 2 to 3 times the money borrowed.



A number of surveys have indicated that many registered SMEs suffer from very low levels of management capacity in planning, strategy, human resource development, financial management, international awareness, quality standards and the ability to compete for public contracts. It is also difficult to build the basic infrastructure for a developing business because of problems in accessing suitable land, affordable premises (many require pre-payment of substantial amounts to cover several years rent), reliable electricity supply, telecommunications and internet connections, appropriate machinery, suitably trained and qualified labour, sources of information, know-how, R&D etc. There are also constraints due to the dominance of the distribution channels by a few large players and the prevalence of corruption and red tape within the trade related infrastructure.

## **2.6 Policy Overview of SME's in Ghana**

The contributions of SMEs to employment and wealth creation as well as poverty reduction are pronounced. This is buttressed by the fact that the industrial and business sector in Ghana is dominated by SMEs, especially the small enterprises. For example, about 70% of the Ghanaian enterprises are micro to small sized and it is estimated that nearly 40% of Ghana's GNI is attributable to informal sector activity (Ghana Government, 2002). It is believed that these small firms can easily propel growth in the economy than the large ones due to their numbers and niches they occupy in the national economy. Therefore, the effective development of SMEs has become paramount and should feature prominently on government's development agenda. Ghana government has a national policy on private sector development with the general objective of strengthening the private sector through undertaking market reforms to support private sector development and sector-specific measures for strategic exports (Ghana

Government, 2003a). The private sector development policy is largely to create an enabling environment for business to thrive and this should not be limited to the large businesses but to the SMEs which form the greater %age of enterprises in the country.

## **2.7 ICT Evolution in SME's in Ghana**

Though Information Communication Technology has been with us for some time, its usage in organization and firms within the country did not become so popular until the last two decades. Though individuals and organizations were using faxes, telegraphs etc. most organizations relied on hard copy files documents which usually takes days and months to arrive through the postal mails. These only did not introduce delays but sometimes bring a whole activity or deals to a halt. However with advent of modern telecommunication and its associated benefits like faster emails, electronic faxes, social networks etc. time to deliver a service or offer a deliverable or support has been decreased tremendously leading to enhanced customer satisfaction, leading to repeated business and growth and development of firms. Example before the advent of ICT lovers of music would have to travel extensively to look for the Compact Disc of their favorite artiste. However with today's modern ICT people can purchase the music of their favorite artiste online and download them to PC's, tablets, and smartphones instantly independent of the geographic location of the artiste or the individual. In this given example the barriers to market for the artiste are removed whiles the customer also gets what he want when he wants it. Similarly with modern day ICT user of goods and services that are tangible for instance can track the location of their goods at any point in time.

ICT usage in Ghana have undergone through many evolution. In the early 90's ownership of desktop computers were the reserved privileges of the few affluent in the society and bigger firms. Digital phones were almost nonexistent and smart phones not heard of. Only



the top class and the middle class could boast of fixed lines popularly called 'land lines' and these were purely used in offices for voice communications and faxes. This restricted the business man or the SME's to doing business based on physical location. Business could not cross markets. Relevant information distributions among SME's were restricted to when the person is available in the office. These led business to not realize optimal profits because certain vital business information was not received on time. These inadvertently affected the growth and development of many SME's.

Then came the popularity of desktop computers and mobile phones. Desktop computers became so popular in business establishments solely for secretarial purposes namely word processing and spreadsheet management. Many businesses were not utilizing the full benefits of telecommunication together with computers in connectivity until the early 2000. Mobile phones that came in the late nineties were not of much functionality beyond voice communication, short messaging service (SMS), and gaming.

The advent of telecommunication and data communication over telephone lines brought a revolution in how business and organization transact business. With the power of data communication over fixed lines, individuals are now able to connect their computers and communicate with the rest of the world. This brought about the age of modern day ICT where people can exchange information, product and services electronically without physical presence.

The age of smartphones, notebooks and tablets have completely revolutionized how these technologies are used. The comings of social networks have changed how businesses are done from today compared to the late 80's and 90's. Now people are able to access their

emails on their phones, send relevant document and transact business whiles on the move. Businesses and SME's are empowering their staff through provision of smartphones such as blackberries, iPhones, windows phones etc. These enable individuals to work from everywhere. These indisputably have enhanced the growth and development of many SME's in the ways goods and services are provided. Customers are able to obtain after sales support, and businesses are able to reach their clients instantly without any geographic limitations. Though all these are possible many SME's in Ghana are still not utilizing the full benefits of these due to cost of the infrastructure needed for ICT setups among others, ICT illiteracy among many owners of these SME's among others.

## **2.8 Preferred ICT Tools for Communication among SMEs in Ghana**

Esselaar, Stork, Ndiwalana and Deen-Swarrray on their research on ICT adoption and usage among 13 African countries in 2008, selected 280 SME's from each of these countries including Ghana. They categorized ICT tools usage among SMEs into mobile phones, fixed lines, internet, and postal mail.

### **2.8.1 Mobile Phones**

The role of mobile phones in maintaining customer relationships is clear from the survey. Mobile phones are used more often for keeping in contact with customers and clients compared to any other form of communication. Seventy-six % of SMEs in the sample used the mobile phone for this purpose compared to 48% using fixed -line telephones (of those who owned it). The difference is not so dramatic when ordering supplies, something that can be done using a fixed-line phone more easily since this can be an occasional occurrence. Nevertheless, there is a difference with 48% of SMEs using mobile phones compared to 36% using fixed lines, which again speaks to the increasing importance of mobility and low start-up costs associated with mobile phones (Esselaar et al, 2007).

The crossover between business and personal is also more pronounced among mobile phone users compared to fixed-line phone users. A quarter of SMEs use the fixed-line phone for personal use, compared to 53% of SMEs that use a work mobile phone for personal use. Comparing fixed-line phones and mobile phones in terms of desirability, mobile phones are rated as significantly more important than any other category, including fixed-line phones. As much as 95% of SMEs that own a mobile phone rate it as important or very important compared to the next highest category, which was fixed-line phones, at 82% (Esselaar et al, 2007).

### **2.8.2 Fixed Lines**

60% of those SMEs that do not have a fixed-line phone consider it important or very important. When SMEs were asked why they did not have a fixed-line phone, 46% state that they have no need for a fixed-line phone, 31% say that fixed-line phones are too expensive, and 17% say that fixed-line phones are not available. Clearly, the mobile phone is easily fulfilling the role that fixed line phones used to play with the added convenience of mobility and lower incremental payments. Of course, adding to the impression that there is no need for fixed-line phones is the fact that the vast majority have no access to fixed-line telephony in any case. Yet 83% of SMEs rate it as important and the conclusion that can be drawn from this is that there is an unmet demand for fixed line, even with its associated high cost and lack of availability (Esselaar et al, 2007)..

### **2.8.3 Internet usage**

Of those SMEs that do not own a computer, there is a nearly even split between those that believe there is no need and those that believe that computers are too expensive. The remaining reasons for not owning a computer are insignificant, including a lack of

knowledge of computers. The split remains nearly the same when computers with Internet connections are included. Forty-five per cent of SMEs state that the reason they do not have a computer with an Internet connection is because it is too expensive; 45% state that there is no need to own a computer. Pointedly, of the 45% of SMEs that state that they do not have a computer because it is too expensive, 89% are in the informal and semiformal sector. This would seem to emphasize the importance of educating SMEs on the benefits of computers, for example, inventory control (an application that is not available on mobile phones at present) as well as the importance of bringing down costs, through initiatives such as the Simputer.

It seems likely that there is some confusion between those that say that computers are too expensive and those that say there is no need for the technology, but this would have to be further investigated. Also, the role that cyber cafés play in replacing computers and Internet connections is underscored by the fact that 20% of SMEs that do not have an internet connection do use cyber cafés. Seventy-two per cent of SMEs in general rate a computer as important to very important, but this drops when rating the importance of an Internet connection; 52% believe that an Internet connection is important to very important. This speaks to the possibility that computer and Internet usage compared to mobile phone usage is a question of cost and accessibility rather than usefulness (Esselaar et al, 2007)..

#### **2.8.4 Postal Box**

Even in an environment where mobile phones are the preferred communication tool, the postal box still has a role to play. In the sample, 35% of SMEs continue to use a postal box to communicate with customers and clients, most likely for more formal

communication compared to a mobile phone, and 20% of SMEs use the postal service to order supplies (Esselaar et al, 2007)..

## **2.9 ICT Adoption and Firms Performance**

Despite the potential benefits of ICT and e-commerce, there is debate about whether and how their adoption improves firm performance. Use of and investment in ICT requires complementary investments in skills, organization and innovation and investment and change entails risks and costs as well as bringing potential benefits. While many studies point to the possibility of market expansion as a major benefit for SMEs, larger businesses can also expand into areas in which SMEs dominated. Moreover, it is not easy for SMEs to implement and operate an on-line business, as this involves complementary costs for training and organizational changes as well as direct costs of investing in hardware and software solutions.

While many studies provide evidence of the positive effects of ICT adoption on firm performance, others have shown no relation between computer use and firm performance. A study of Canadian manufacturing establishments (plants) with ten or more employees (excluding food processing establishments) drawn from Statistics Canada's Business Register, shows that those with high productivity growth are more likely to be using greater numbers of advanced ICTs (Baldwin, 2002). Between 1988 and 1997, advanced technology users grew more in terms of both productivity and profitability than non-ICT users, especially when they used communication technologies, including company-wide and/or inter-company computer networks.

## **2.10 How ICT Benefits SME Relationships and Interactions**

Another way of looking at the benefits of ICT is to see it in terms of how it enhances SME relationships and functions with itself, with other SMEs, and with its consumers.

To the SME itself:

- Makes communications within the firm faster
- Helps to make management of the firms resources more efficient

- Allows firms to store, share and use acquired knowledge and know-how within the firm Example: Customer databases with a history of client specific correspondence help managers and employees to respond more effectively to customers.

Among SMEs (Inter-firm level):

- Reduces transaction costs while increasing the speed and reliability of transactions Example: Real-time interaction reduces the time it takes to negotiate, purchase and deliver orders.

Business to Consumer (B2C):

- Provides easier access both to the firm and to information about its services and products
- Allows geographic expansion of the market. For those in different time zones, ICT enables 24-hour availability of contact. Example: A corporate web site provides information on products, services or technologies that enhance the quality of an SME's services to customers and attracts new customers. And, if the web site is a bit more sophisticated, it can even collect data on customer needs, which can be used not only to provide even better service, but also for product development or innovation.

## **2.11 Barriers to the Use of ICT among SME's**

There is a wide range of reasons why SME's do not make more active use of the ICT. Reasons vary widely among sectors and countries and are most commonly related to lack of applicability to the business, preferences for established business models, and the kinds of electronic transactions SMEs are involved in or wish to introduce (B2B or B2C). Common barriers include: unsuitability for the type of business; enabling factors (availability of ICT skills, qualified personnel, network infrastructure); cost factors (costs



of ICT equipment and networks, software and re-organization, and ongoing costs); and security and trust factors (security and reliability of e-commerce systems, uncertainty of payment methods, legal frameworks) (Kapurubandara & Lawson, 2009).

## **2.12 ICT in Growth and Development**

Measuring the economic impact of ICTs on growth and productivity has been a subject of intense investigation during the last decade. The interest was mainly stirred by the unusually long period of expansion experienced in the United States (1992-2000). One approach was to focus on the ICT sector and measure its productivity gains within the GDP of the country using aggregate-level data (Jorgenson, Ho and Stiroh, 2005). The hypothesis here is that the greater the size of the sector producing ICT goods and services, the larger the positive impact of ICT on growth. ICT-producing countries also have relatively better paid ICT-related jobs, which contribute significantly to value added, relative to the other economic sectors. Positive effects of ICTs on growth are also justified by rapid technological progress and very strong demand typical of the ICT sector in most OECD countries. Estimation results show that the largest contributions of ICT manufacturing were achieved in Finland, Ireland and the Republic of Korea, with almost 1 percentage point added to aggregate multi-factor productivity growth during the period 1995-2001 (OECD, 2003). The analysis shows the biggest producers of new technologies to be at the forefront of economic expansion. This type of analysis identifies a strong causal relationship, but it has the disadvantage of only focusing on ICT producing countries. Also, it ignores to a large extent the differences in the use of ICTs as inputs to other industries. In addition, it does not provide suggestions on how non-ICT-producing countries should proceed to catch up with the information economy leaders.

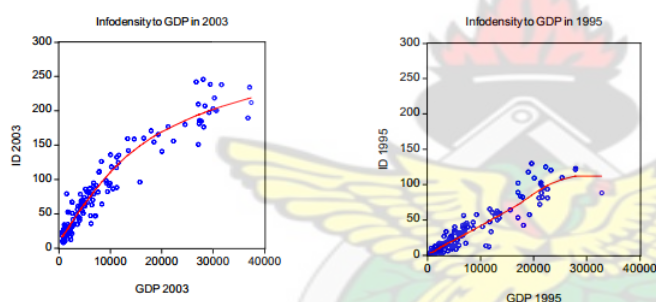
Another common approach to measuring ICT and growth focuses on ICT inputs and the role of the ICT-using sector. It estimates the impact of ICT-related capital investments on overall capital deepening and the corresponding increases in labour productivity (Waverman, Meschi and Fuss, 2005). It is expected that the higher the ICT-related capital investment, the higher the gains in per capita GDP. The theoretical background of this type of models is based on the Solow growth model (Solow, 1957) and compares the impact on growth of ICT-related capital investment with that of non ICT capital investments. National studies based on this approach have estimated the impact of ICT investments on per capita GDP growth at a magnitude between 0.2 per cent for France and Japan and 1.4 per cent for the Republic of Korea. The main challenge of this analysis is related to the differences between countries' national accounts statistical data with regard to ICT and non-ICT capital investments. Also, the analysis cannot be reproduced in a global context as the data are not available for developing countries. Moreover, the approach has been criticized for underestimating ICT contribution to growth by ignoring the potential network effects and the knowledge spill-over generated by ICT technologies. Finally, aggregate-level data provide little insights into the underlying causes that affect firm performance.

To extend the work on ICT impact measurement to developing countries, UNCTAD carried out empirical research with a special focus on developing countries and using the Orbicom Infodensity index and model as a basis (Orbicom-ITU, 2005). The choice of this index over other available indexes was motivated primarily by the fact that it includes not only ICT capital, but also a proxy for measuring ICT skills, which are considered critical to a country's ability to absorb and use ICTs effectively. The analysis examines whether an increase in the stock of ICT capital and labour helps boost economic growth through



the efficiency gains generated by network and spill-over effects. The results from this analysis also illustrate the positive impact of ICTs on economic growth in developing countries. A 1 per cent increase in the Infodensity index of a country resulted on average in a 0.1 per cent increase in per capita GDP in 1996 and in a 0.3 per cent increase in 2003. When the analysis also takes into account that economic growth has not been equally sensitive to changes in the ICT indicators across different levels of ICT performance, more moderate results are obtained for the least ICT-endowed countries. This is a potential indicator of the need to accumulate first a critical level of ICT adoption before being able to benefit from sizeable network effects.

Chart 1. The relationship between per capita gross domestic product and Infodensity in 1995 and 2003



Source: Orbicom-ITU (2005).

Note: Infodensity "represents the ICT productive function of an economy" and is composed of ICT-enhancing capital and labour (Orbicom, 2003).

Furthermore, market deficiencies could hinder more efficient incorporation of ICTs into the production process of some countries and thus might prevent them from taking full advantage of their ICT-related investments. Results also give an indication of the degree to which ICT-related inputs have been incorporated into the production processes over time. Since human capital is a central component of the Infodensity index, the results also reflect the level of skills and education available in the countries and its importance as a key determinant for the impact of ICTs on development.

A recent empirical study on Latin American countries estimated that higher fixed and mobile phone penetration rates brought about between 0.1 and 0.3 %age growth increases

Campos, 2006). This study finds that it is the decision to improve ICT uptake that leads to GDP growth and not the opposite.

With the increasing availability of data at the firm level, more and more studies try to capture the extent to which the efficient use of ICTs by firms contributes to multi-factor productivity growth and firm performance more generally. OECD (2004) finds that ICT assets can be used more or less efficiently depending on the regulatory environment, the structure of the industry sector, and the degree of competition in the market. In a sample of 13 OECD countries, firm-level data showed that the use of ICTs can help firms increase their market share, expand their product range, better adapt their products to demand, reduce inventories and help firms integrate activities throughout the value chain (OECD, 2003). Some of the key findings emerging from these firm-level studies are that:

- Among ICTs, networking technologies have the highest positive impact on firm performance;
- ICT impacts emerge over time; and
- Effective ICT use is closely linked to innovation, skills and organizational change;

Research results from a Canadian study using micro-data suggest that when proceeding to new e-business stages, firms undergo additional sales fluctuations and therefore larger firms move more easily up the e-business ladder than SMEs (Statistics Canada, 2006). A recent Finnish study on ICT impact in firms found that a computer increases average workers' productivity by 24 per cent and that computer portability and LAN connections add additional important effects (32 per cent and 14 per cent respectively) (Maliranta and Rouvinen, 2006). The impact was found to be much larger in younger compared to older companies.

The impact of broadband on productivity has been subject to a number of recent studies which revealed positive and significant links. While enterprises with access to the Internet see improved connectivity with suppliers and clients, and thus a wider market, broadband increases the capacity of enterprises to deliver through the Internet. Corporate analysts estimated that broadband could contribute hundreds of billions of dollars annually to the GDP of developed countries in the next few years, and liken it to water and electricity as "the next great utility" (Whisler and Saksena, 2003). There is growing recognition that broadband can help enterprises maximize the benefits of ICT and conduct e-business (including optimizing internal business processes). Other studies in the UK indicate that enterprises that use broadband are more likely to have multiple business links, and enterprises with more links tend to have higher labour productivity (Clayton and Goodridge, 2004). A study with US data shows that communities with broadband underwent faster growth in employment and in the number of business establishments through a higher share of IT-intensive sectors in the local industry mix (Gillett et al., 2006). However, in certain developing regions, most enterprises still need to become aware of the potential of broadband and related applications, and of the offers of application service providers (ESCWA, 2005). Internet has become one of the pervasive ICT services which is radically changing the traditional forms of trade and providing windows of opportunities which enterprises, especially those from developing countries could exploit. It is becoming increasingly important that internet usage should form an integral part of the operations of the SMEs (Frempong, 2005).

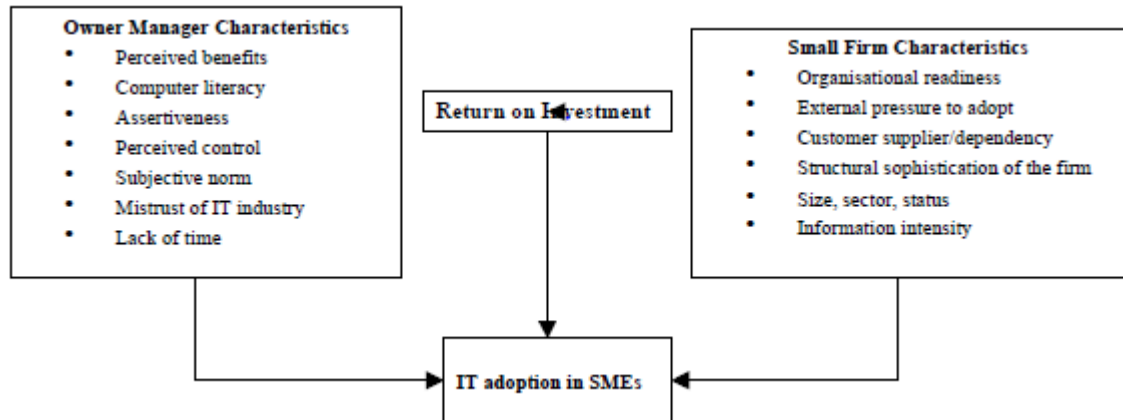
### **2.13 Theoretical framework**

Small firms are found in various sectors of the economy. Understanding of the distinctiveness and behavioural characteristics of SMEs is important for explaining ICT

adoption patterns in the small firm sectors which are, for example, particularly of interest to policy-makers, support agencies and researchers. Accordingly, some researchers revealed that:

“Entrepreneurs and owner-managers come from different genders and/or a wide range of ethnic, cultural and educational backgrounds and from every age group. While some start their own businesses from scratch, others inherit or buy an on-going business. Some are sole owners while others run their businesses with partners or other directors. Some are family businesses with owners, partners or fellow directors and even employees linked by blood or marriage. Others are run by people who have come together solely because they share common goals, complementary skills or access to capital”, (Curran and Blackburn, 2001).

The insights from the behavioural and distinctive characteristics of SMEs and the relevant existing theories are discussed with a view to subsequently offering a strong basis for analysing the key ICT adoption drivers and inhibitors from the case study data collected. It is important to bear in mind that the ICT adoption factors, as drivers or attributes, may also play a role in inhibiting ICT uptake in SMEs (Beckinsale and Ram, 2006). Other previous studies (Manueli et al., 2007; Van Akkeren and Cavaye, 1999) identified and classified key ICT adoption attributes in SMEs into owner manager characteristics and small firm characteristics as shown in Figure 3.1 below:



**Figure 3.1: Factors affecting ICT adoption by SMEs**

(Source: Van Akkeren and Cavaye, 1999, cited in Manuelli et al., 2007)

### 2.13.1 Small firm characteristics

As shown in Figure 2.1 above, the small firm characteristics include organisation's ICT readiness (Zappala and Gray, 2006); external pressure from customers, suppliers and competitors. The business structure; size; sector; status and information intensity are also key characteristics of SMEs which can influence the technological needs and capacity for ICT adoption. According to Manuelli et al. (2007, p177), "little or no technology use reflects low ICT readiness and a strong reluctance for ICT adoption." The source suggested business size as key in determining the structure and internal ICT requirements for the operations. In terms of information intensity, the existing theories suggested that SMEs that handle large amounts of information are most likely to adopt more ICT solutions to improve efficiency, effectiveness and competitiveness (Windrum and de Berranger, 2002; Manuelli et al., 2007).

Distinctively, SMEs are more likely to experience several ICT adoption and implementation challenges given their relatively small sizes; simple structures; shortage of resources and lack of capacity to view ICT strategically (Beckinsale and

Ram, 2006). Such distinctive characteristics of SMEs may bring in other several factors which tend to inhibit ICT adoption in the small firm sector. For this reason, in this study we discuss through the use of case studies, the key ICT adoption attributes presented in the Gibbs et al. (2007) model, by making specific reference to other relevant existing theories (Van Akkeren and Cavaye, 1999; Manuelli et al., 2007).

Based on previous studies, ICT adoption in SMEs can be driven or inhibited by government intervention, which is also viewed as an external source of pressure apart from the suppliers, customers and competitors. Government's primary role is to articulate vision and policy (Howell and Terziovski, 2005), as these are considered the two development drivers for any regional or national ICT development initiatives to promote e-business among SMEs. In their research, the findings viewed the role of government as leader and facilitator in technology adoption in SMEs. A facilitating government works with other stakeholders to leverage resources. In view of these roles, the government is therefore crucial as a standard setting and knowledge dispersing body (Seyal and Rahman, 2003). According to Howell and Terziovski (2005), weaker SME demands for intervention and support for ICT adoption and development of e-business may indicate that policy-makers are playing more of a leadership role whereas stronger needs for support and ICT access may indicate that policy-makers' role could be more facilitative. If there is a strong demand for ICT in any given business environment, SMEs and the broader community are likely to adopt ICT as initiators, centres of influence or champions of change.

Smallbone and Welter (2001) argued that "direct support measures are not the main role for government." Government is expected to create the framework conditions for



private sector development with a view to supporting the growth and sustainability, particularly in ICT adoption and development of e-business. Based on survey evidence from the Ukraine, Belarus and Moldova, Smallbone and Welter (2001) suggested that many enterprises could be set up, survive and even grow without government direct intervention. This could be attributed to the commitment and creativity of owner managers (Smallbone, Leigh and North, 1995) in mobilising resources and flexibility in adapting to hostile external environments. However, the source argued that the number of firms could remain small in size and contribution to economic development rather limited under such inhibiting conditions.

#### **2.13.2 SME owner manager characteristics**

The owner manager characteristics include perceived benefits of ICT adoption; ICT literacy; level of assertiveness in terms of business decision processes, perceived control over requirements for opportunities and resources as well as mistrust of ICT and lack of time (Zappala and Gray, 2006; Van Akkeren and Cavaye, 1999; Manuelli et al., 2007). According to Beckinsale and Ram (2006), the perceived benefits of ICT adoption often include focus on improving business efficiency; operational effectiveness and the need to reach out for new markets and opportunities (Poon and Swatman, 1999; Mehrtens et al., 2001). In addition, the existing theories suggested a strong tendency to adopt ICT in small businesses if owner managers and employees have ICT literacy, skills and expertise. Moreover, access to internal and external support and motivation from ICT experts is crucial for ICT adoption and e-business success in SMEs (Windrum and de Berranger, 2002). SME owner managers viewed as ‘more entrepreneurial, risk-takers, innovative and invariably creative’ are considered to be critical to the organisational readiness for ICT adoption (Zappala and Gray, 2006; Beckinsale and Ram, 2006). Furthermore, Manuelli et al. (2007)



suggested that business action is driven from the key decision-makers responsible for defining appropriate ICT goals and identifying critical ICT business needs and allocating financial resources to facilitate ICT adoption. According to Gray (2006), “SMEs planning to invest are also much more likely to provide training and development to their staff and managers.” The source further suggested that SME owner managers with technical and vocational qualifications are more likely to engage in more innovation activities that include ICT adoption and development of e-business. In addition, the source argued that small business owners with appropriate qualifications and ICT skills are more growth-oriented while those without these prerequisite characteristics are more likely to be growth averse.

Further review of literature revealed that age and experience of owner managers are some of the distinctive characteristics which influence on ICT adoption in small businesses (Manueli et al. 2007; Windrum and de Berranger, 2002). In terms of age, the second generation (youthful) business owners are more likely to be receptive to ICT than their first generation (elderly) counterparts (Beckinsale and Ram, 2006). Clearly, this view carries an assumption that 2nd and 3rd generation (youthful) business owners, born and educated in recent years characterised by advanced technologies and applications in daily activities, have greater awareness of ICT than the 1st generation (elderly) counterparts. However, such studies are mainly looking at Western developed economies and this view may be different in less developed economies such as those found in the West Africa regions. According to Gray (2006), resources and capabilities of SMEs, which are both linked to the age and experience of owner manager as well as age and size of the firm, are viewed as important attributes for effective innovation and growth (Smallbone et al., 1995). The source

argued that SMEs that are oriented towards competition and growth may lack the resources and personal capabilities to adopt ICT and manage growth successfully, perhaps due to age, cultural and educational background of the owner.

Social networks of business owners also play a crucial role in driving or inhibiting ICT adoption in SMEs. For example, in communities where culture is viewed as a key factor, particular cultural traits, beliefs and values attached to resources and investment may influence ICT adoption in several different ways (Beckinsale and Ram, 2006; Straub et al., 2002; Yap et al., 1992). In addition, the size and type of social structures as well as the nature of social links and preference for personal friendships and contacts (Beckinsale and Ram, 2006) may have positive or negative influence on ICT adoption in SMEs.

In terms of positive influence, social networks are crucial to small business owners for sharing information, business experience and technical knowledge especially if the SMEs are experiencing resource constraints which inhibit ICT adoption, formal training and effective innovation as well as growth (Gray, 2006). Increased ICT adoption and connectivity might be expected to help in developing absorptive capacity and reduce the traditional constraints on the ability of SMEs to innovate, while leveraging their flexibility and responsiveness (Gray, 2006). Internet and website adoption, for example, may help SMEs to participate in useful business and social linkages ‘without a strong need for spatial proximity’ (Gray, 2006).

Manueli et al. (2007) further added that “Information filters through the networks and depending on the nature of the networks and the roles of its opinion leaders, new innovations are either adopted or rejected.” Opinion leaders can be the small business

owner managers, friends other members of the social network who can explain the advantages, disadvantages and benefits of ICT adoption through personal contact. On the other hand, change agents and gatekeepers include government and private sector representatives. These are viewed as intermediaries who can effectively communicate the benefits of ICT adoption and applications in small businesses (Gibbs et al., 2007; Forman and Goldfarb, 2006). According to Manuelli et al. (2007), change agents and gatekeepers “deliberately set out to promote ICT adoption to small businesses by offering unbiased advice on the need to adopt ICT and how to go about doing it.”

In another relevant study involving ICT and social networks, Braun (2004) argued that tourism networks are dynamic relationships with ever-changing actors and contextual innovation factors. The findings suggested that understanding the change processes which take place in tourism networks has the potential to benchmark change, speed up ICT adoption and create effective collaborative network outcomes. While the study provided some useful insights into ICT uptake and network relationships, the researcher suggested the need for further empirical evidence on tourism network research and e-business development. Further evidence on social networks (Windrum and de Berranger, 2002) suggested that trust and external company culture are also considered as important factors that can influence SME owner managers’ decisions to use their social networks as sources of business information, knowledge acquisition and adoption of ICT. In addition, increased network density and interconnectivity within network externalities are widely viewed as vital in influencing small businesses to adopt ICT (Gibbs et al., 2007). Given the importance of key decision-makers in ICT adoption decisions at organisational level, it is therefore crucial for small business managers to recognise possible links and

partnerships in their social networks (Gibbs et al., 2007; Manuelli et al., 2007; Braun, 2004; Rogers, 1995) as these can bring opportunities and success ventures.

Some previous studies (Bandiera and Rasul, 2002) argued that SMEs which choose not to adopt ICT do so because they may be unfamiliar with the technology and lack organisational readiness (Zappala and Gray, 2006). The organisational readiness can be reflected in the size, type, nature of business as well as ICT expertise and the perceived benefits upheld by management and employees (Gibbs et al., 2007; van Akkeren and Cavaye, 1999; Manuelli et al., 2007). According to Thong (1999), the change agents for ICT adoption at organisational level may include the support and attitude (Scupola, 2006; Gibbs et al., 2007) of key decision makers such as owner managers and chief executive officers (CEO). These key decision-makers have a vital role to play in purchasing, planning and ICT adoption decisions in small business. They are, therefore, expected to have the capacity to respond accordingly to the changing needs of a dynamic e-business environment.

Zappala and Gray (2006) investigated factors that distinguish small business adopters and non-adopters of ICT and also confirmed the importance of organisational support of key decision-makers such as owner managers in ICT adoption process. The early adopters also identified as change agents or innovation champions (Poon and Swatman, 1999) and access to financial resources are among the key organisational characteristics that influence ICT adoption in small businesses (van Akkeren and Cavaye, 1999; Manuelli et al., 2007; Gibbs et al., 2007). In addition, Seyal and Rahman (2003) argued that SMEs adopt ICT due to the decreasing cost and

availability of software as well as the overall benefits and opportunities brought by ICT adoption.

KNUST



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

The Chapter includes the study area, research design, target population, study population, sampling frame, sample size, sampling techniques and procedures, methods of data collection, data handling, ethical consideration and challenges encountered

#### **3.2 Methodology**

The total sample size of this study was 30 small and medium scale enterprises. Response of the subjects was collected through the questionnaires distributed among them. Questionnaires were distributed among the SME's operating in Community 1, Community 4, Community 6, Community 7 and Community 9 in Tema, the metropolitan capital of the Tema Metropolis. Random, purposive and convenient sampling technique was used. Five points likert scale was used to measure the responses - one is strongly agree and five strongly disagree or to ascertain the extent in which respondent saw certain factors to be barriers to the usage of ICT among SMEs; or to identify the level of importance of some ICT tools to the SMEs. Some of the question also required Yes or No answer where these were coded and analysed to answer the relevant question. Total of 40 questionnaires were distributed. Only 30 respondents filled the questionnaires and returned them. In this research data was collected from both males and females, as both are the part of SMEs and have equal contribution towards the success of their respective SMEs. SPSS software was used for analysis. Data was collected from the following classes of the SMEs i.e. finance, hardware, retail, manufacturing, clothing, stationery and service providers (mechanics, electricians, restaurants, etc.).

### **3.2.1 Research design**

The following tasks were undertaken to conduct the study on the role of ICT in the growth and development of SMEs in Ghana

1. A questionnaire was prepared based on the review of current literature and the research questions to determine the role of ICT in the growth and development of SMEs ,
2. The questionnaire contained 29 questions related to demographic details of the organization, how ICT has affected and can affect growth and development of SMEs, how ICT affect business to business interaction, and barriers to ICT adoption among SMEs.
3. The questionnaire was distributed to a number of SMEs in Community 1, 4, 6, 7 and 9 of Tema Municipality. These communities are selected because they are five of the most busiest communities where most of the SME's can be located. Thirty completed surveys were received from the respondents. SMEs that do not use at least one of the ICT tool mentioned are not included in the study. The questionnaires were completed by the owner, caretaker or senior employee in charge of the SME or any other person involved in the decision making process of the SME because of their ability and understanding of the issues being investigated in the questionnaire. In very few cases more than one individual representing the enterprise filled out the questionnaire - this actually ensured preciseness.
4. Based on the 30 completed survey questionnaires, simple statistics were carried and logical inferences were made to determine the general usages of ICT and the role ICT plays in the growth and development of SMEs.



### **3.2.2 Target Population**

The target population comprised of all SMEs within the Tema Metropolis.

### **3.2.3 Study Population**

The study population encompassed all owners of SMEs, managers or any person involved with the decision making process of SMEs in Community 1, 4, 6, 7 and 9 since they can be easily accessed.

### **3.2.4 Sampling Frame**

The sample frame for this study consisted of a list of the following categories of SMEs; SME who are employing at least one ICT tool in their everyday business operation who are situated in Community 1, 4, 6, 7 and 9 of Tema metropolis.

### **3.2.5 Sample Size**

The sample size for the study consisted of 30 respondents. This comprised of SMEs in the areas of finance, hardware, retail, manufacturing, clothing, stationery etc. List of SMEs within Community 1, 4, 6, 7 and 9 were generated and 6 respondents were selected from each community. The researcher chose this sample size of 30 in order to effectively manage the responses due to time and resource constraints and also to ensure a critical analysis of the phenomenon under study.

### **3.2.6 Sampling procedures for data collection**

Random, Convenience and Purposive sampling were utilized in this study. First, random sampling was used to select the SMEs within the Tema Metropolis to ensure that all SMEs that have the attributes being investigated have equal chances of being selected. Then convenience sampling was used to select respondents (owners or the decision makers of the SMEs) in Community 1, 4, 6, 7 and 9. This was to ensure that only respondents with the characteristics that the researcher requires are chosen for

the study. Purposive sampling was employed to ensure that all the firms selected employ at least one ICT tool in their business.

### **3.2.7 Methods of Data Collection**

Collection of data for the purpose of the study was sourced from two avenues comprising Primary and Secondary sources.

#### **3.2.7.1 Primary Data**

Primary data for this study was solicited from respondents within Communities 1, 4, 6, 7 and 9 in the Tema Municipality. Their responses formed the basis for the analysis and subsequent discussions. Quantitative data was solicited through the distribution of self-administered questionnaires to six respondents each from Communities 1, 4, 6, 7 and 9. However, when the need arose, the researcher offered face-to-face interviews especially with respondents who experienced constraints in answering the questionnaires.

#### **3.2.7.2 Secondary Data**

Secondary data was used to complement the information solicited by the researcher to discuss the topic under study and to draw valid conclusions. Sources for the secondary data was obtained from existing journals, articles, internet, newspapers, published and non-published works of scholars in the area of study.

### **3.2.8 Data Handling**

Both qualitative and quantitative data were obtained from respondent through the administered questionnaires. Quantitative data from respondents was edited, coded and processed with Statistical Package for Social Sciences (SPSS). The data was analysed using descriptive statistics as that allowed the researcher to make relevant interpretations and discussions about the topic under study.

### **3.2.9 Ethical Consideration**

The prime ethical requirements in the conduct of the study were strictly upheld without any infringements as the study was carried out only after the expressed consent of participants (informed consent). Respondents were also duly informed of the fact that the study was basically for academic purpose and that they were under no compulsion to respond to the questionnaire. Furthermore, the respondents participated voluntarily whilst assuring them of anonymity and confidentiality on the information given. In order to avoid plagiarism, all sources of information were duly acknowledged.

### **3.2.10 Challenges Encountered**

As common in all research works, there were certain constraints in the pursuit of the study. First, it was quite an ordeal getting respondents to respond to the questionnaire due to fear of strangers, or not knowing the researcher. Furthermore, due to time and resource constraints, the targeted range of respondents in the study was not covered. Again, some of the questionnaires distributed for completion for onward submission by the respondents were not made available as out of the forty questionnaires thirty were successfully retrieved. However, the challenges were surmounted as strategic intervention was adopted to eliminate the challenges one after the other.

## **3.3 Organisational Framework**

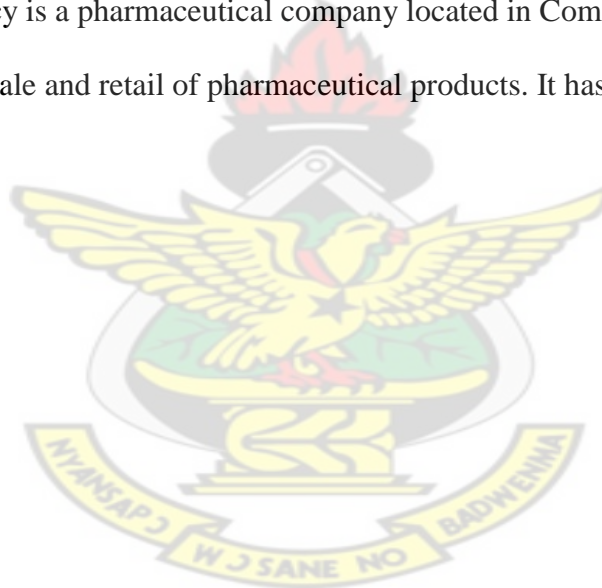
Thirty SMEs were sampled for this study. Most of them are micro enterprise with two medium ones. The two medium ones are as Narh Bitra Hospital and Joeфикo Pharmacy. Most of these SMEs are usually one man owned and have fewer than ten employees. Two of these SMEs are profiled below.

### **3.3.1 Narh Bitá Hospital.**

The Narh Bitá Hospital was established over 3 decades ago, and has grown to be one of the leading health service Providers in the country. It is located in Tema. Narh-Bita Hospital is a private institution owned by Dr. Edward A. Narh, a physician and his wife Mrs. Beatrice A. Narh, a nurse. It was duly registered with the Ghana Medical and Dental Council and incorporated under the company's code of Act 168 of 1961. The focus is to provide comprehensive health-care services to all our patients in a cost effective manner.

### **3.3.2 Jofiko Pharmacy**

Jofiko Pharmacy is a pharmaceutical company located in Community 4 of Tema that deals in wholesale and retail of pharmaceutical products. It has about ten employees.



## **CHAPTER FOUR**

### **DATA ANALYSIS AND DISCUSSION OF FINDINGS**

#### **4.0 Introduction**

This chapter is devoted to the presentation of analysed field data and the discussion of findings. The Statistical Package for Social Science (S.P.S.S) enabled the researcher make relevant interpretations and discussions about the phenomenon under study in relation to the objectives. The main focus of the study is to find the role of information communication technology in the growth and development of SMEs. To aid in the clarity of presentation, this chapter is divided into two main sections. The first section presents the analysis and interpretation of the findings, whilst the second section details the discussions of the relevant findings from the study.

#### **4.1 Presentation of Data Analysis**

##### **4.1.1 Age of Respondents**

The table 4.1 below indicates the age range of respondents. Out of the total number of respondents, 3 representing 10 % were aged less than 25years, 13 representing 43.3 % were aged between 25 and 35years, 7 which represents 23.3 % of respondents were aged between 36 and 45years, 5 which represents 16.7 % were aged between 46 and 55years and 2 which represents 6.7 % were aged 55 years and above.

**Table 4.1. Age of Respondents**

Age Distribution	Number of Respondents	% age (%)
Less than 25	3	10.0
25 - 35	13	43.3
36 - 45	7	23.3
46 - 55	5	16.7
Above 55	2	6.7
Total	30	100.0

Source: Field Data, June 2012.

This shows that the youth are more inclined to venture into SMEs and also embrace ICT than their older counterparts.

#### 4.1.2 Sex Distribution of Respondents

As seen from table 4.2, 19 of the respondent representing 63.3 % of the respondents are males whiles 11 representing the remaining 36.7 % of the respondents are females.

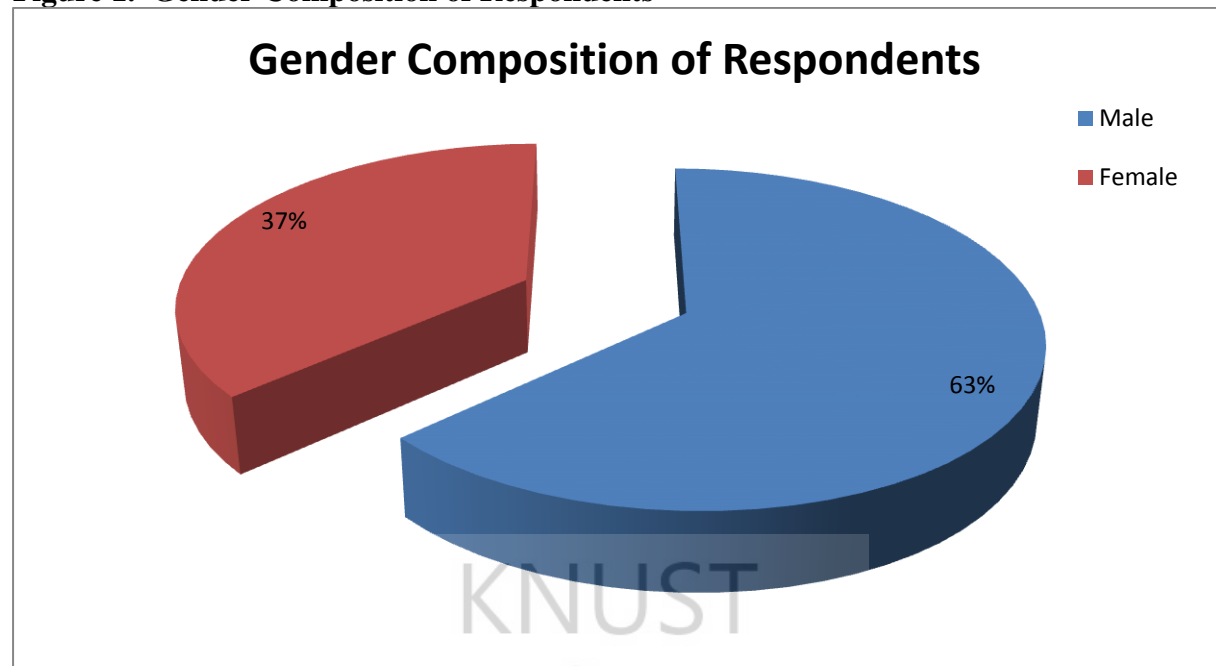
**Table 4.2. Gender Composition of Respondents**

Gender	Number of Respondents	Percentage (%)
Male	19	63.3
Female	11	36.7
Total	30	100.0

Source: Field Data, June 2012.



**Figure 1. Gender Composition of Respondents**

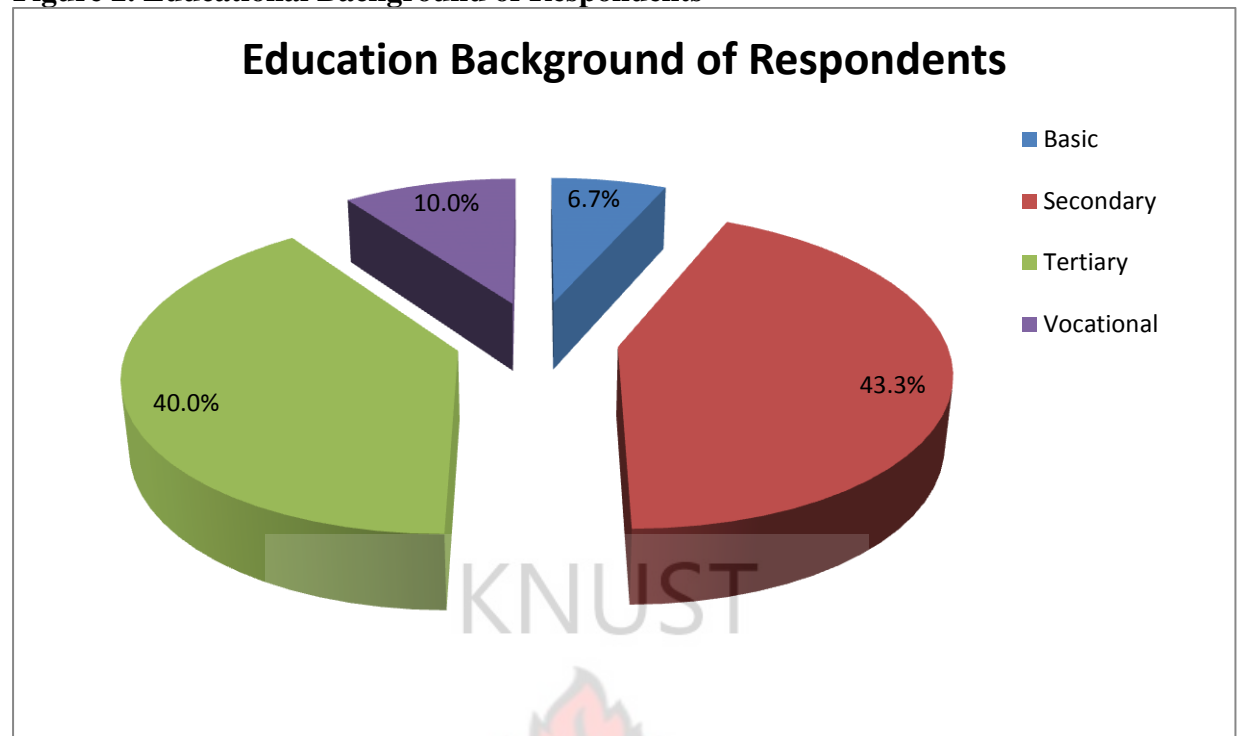


*Source: Field Data, June 2012*

#### **4.1.3 Educational Background of Respondents**

Out of the total respondents, 2 representing 6.7 % had obtained formal basic education, 13 making up 43.3 % had obtained secondary education and 12 representing 40 % of the respondent had acquired tertiary level education. 3 representing 10 % of the respondent had some vocational training. The data is represented by a pie chart in figure 3.

**Figure 2. Educational Background of Respondents**

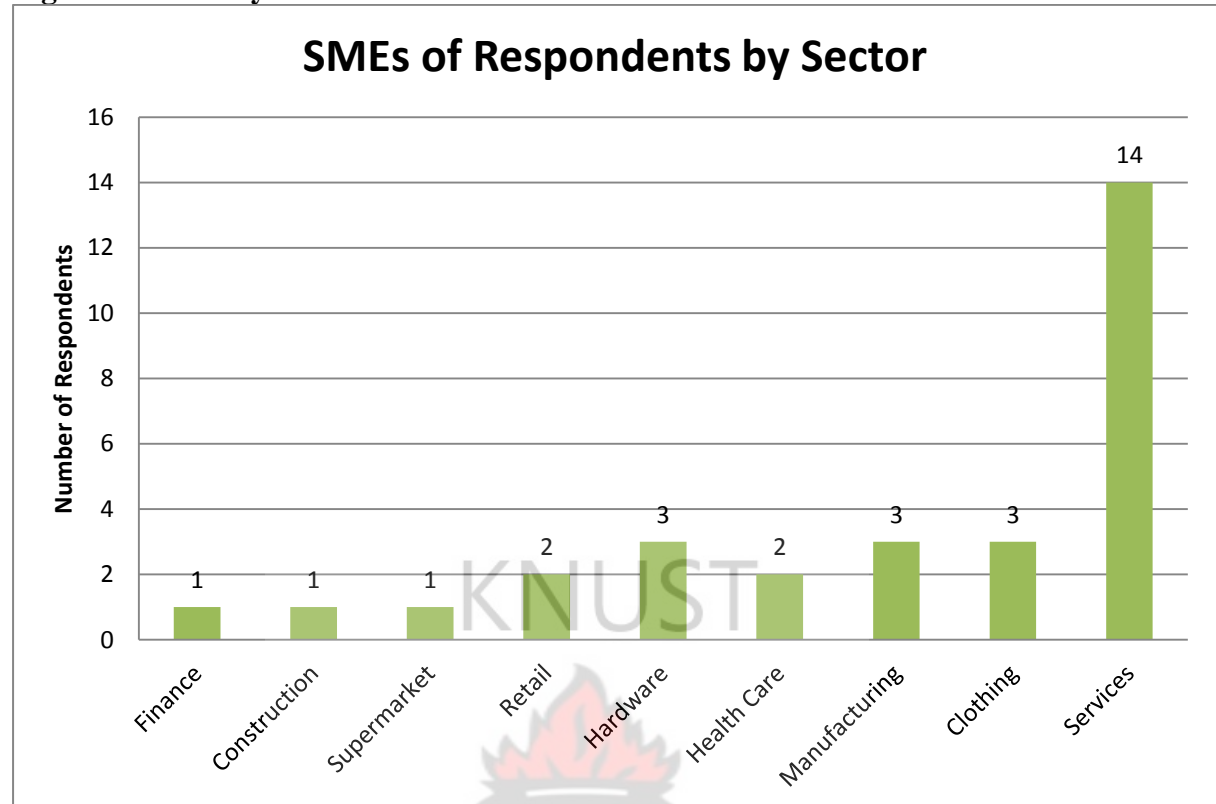


*Source: Field Data, June 2012*

#### **4.1.4 SME Distribution by Sector**

SMEs were selected randomly from the survey area. Analysis revealed that 14 making 46.7 % were in the services sector, 2 making 6.7 % of the respondents each from health care and retail. 3 of the respondents which is 10 % of the total respondents were from clothing, manufacturing and hardware. Graphical representation of the various sectors of SMEs that were sampled is shown in figure 4..

**Figure 3. SMEs by Sectors distribution**



*Source: Field Data, June 2012.*

#### **4.1.5 Categories of SMEs**

SMEs can be categorised into micro, small and medium scale enterprises based on the number of employees. The table below shows the respondents SMEs and the range of number of employees. From the table below, it indicates that 16 (53.3%) of the SMEs sampled are micro enterprises, 9 (30%) are small scale and 5 (16.7%) are medium scale enterprises.

**Table 4.3. SME categories by number of employees**

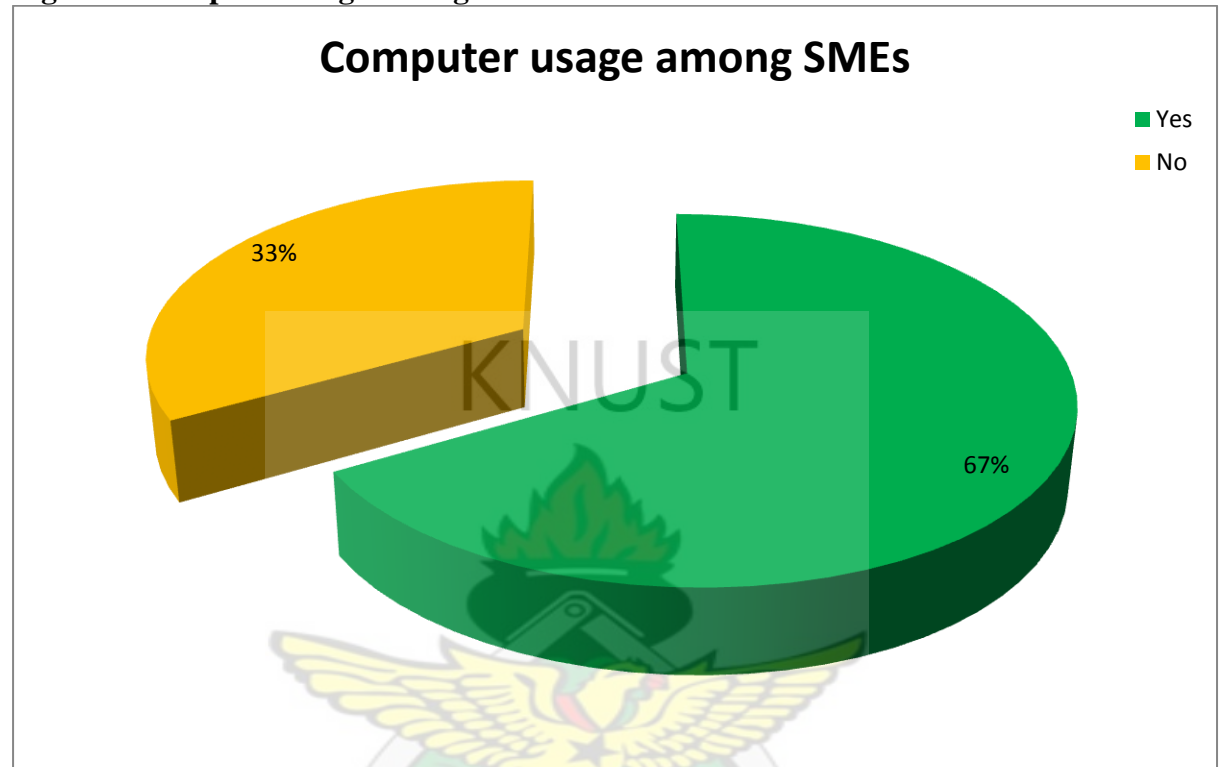
Number of Employees	Frequency	Percentage (%)
Less than 5	16	53.3
5 - 29	9	30.0
30 - 99	5	16.7
Total	30	100.0

*Source: Field Data, June 2012.*

#### 4.1.6 ICT Usage among SMEs

Among the list of respondents, 20 representing 67 % use computers as against 10 who do not use computers in their business. This is shown in the pie chart below.

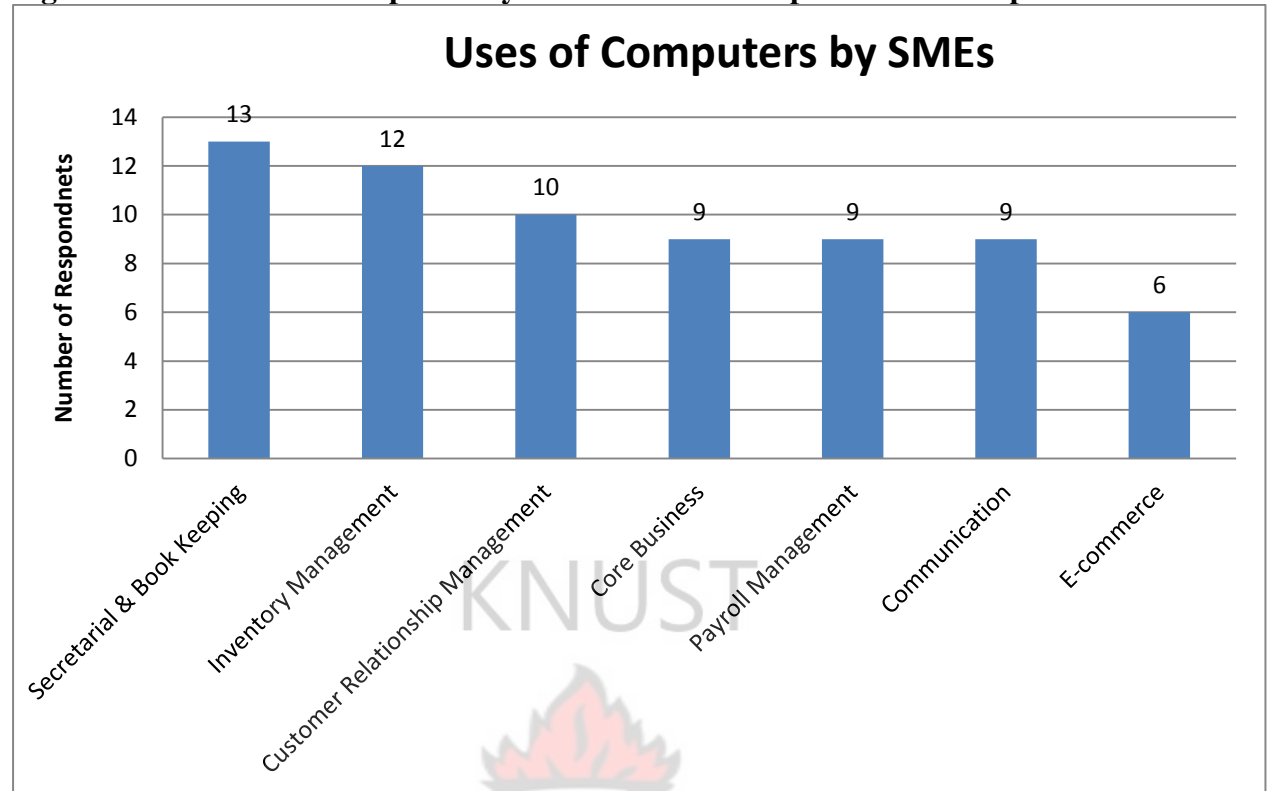
**Figure 4. Computer usage among SMEs**



*Source: Field Data, June 2012.*

Figure 6 shows the main uses of the computer among the respondents who use computers. Secretarial and book keeping and inventory management were some of the most common uses of computers by the SMEs. It is worth noting that about two SMEs who solely used the computer for inventory management the rest showed multi uses of the computer.

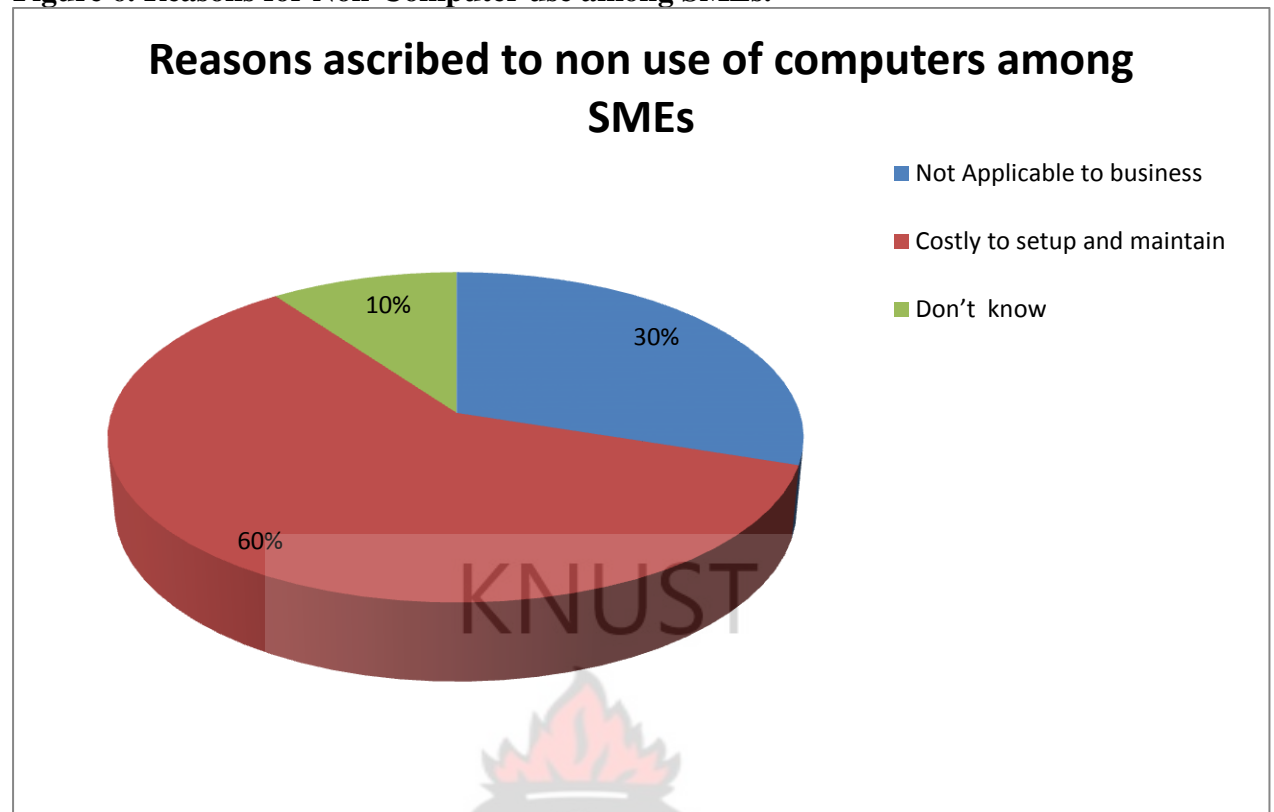
**Figure 5. Main uses of computers by SMEs who use computers in their operations**



*Source: Field Data, June 2012.*

Among the ten respondents who said they do not use a computer in their business, with exception of one respondent who does not know why his SME does not use computer, the two main reasons given are non-applicability to their business and high cost of computers. The percentage compositions of the reasons are shown in figure 7.

**Figure 6. Reasons for Non-Computer use among SMEs.**



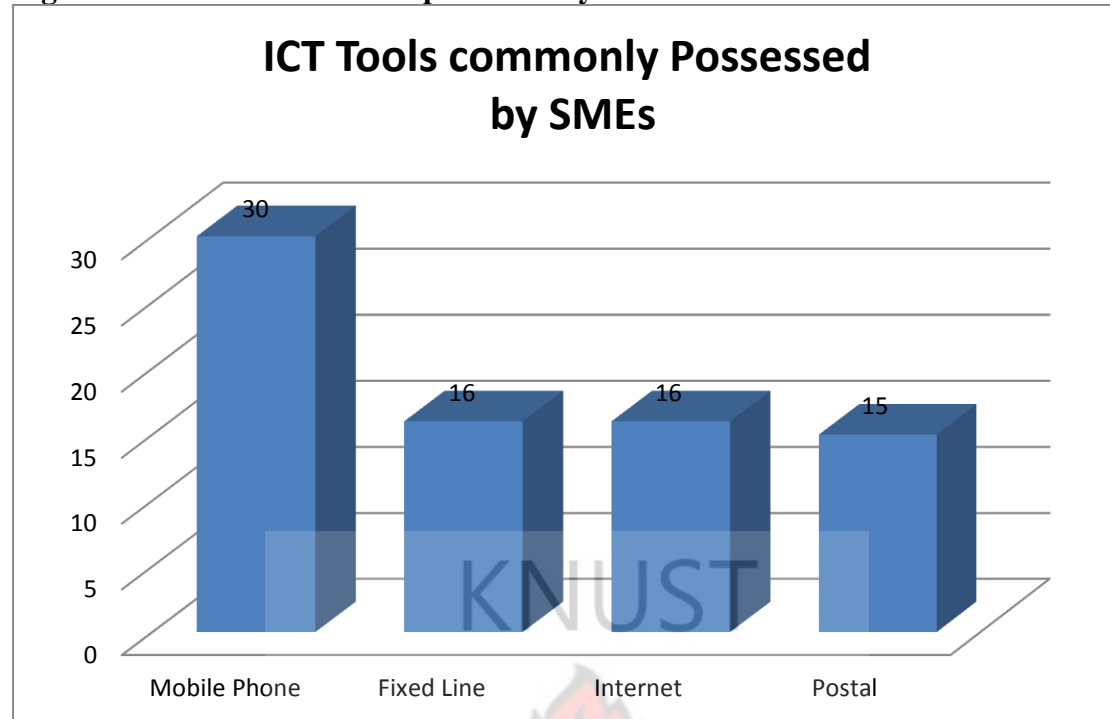
*Source: Field Data, June 2012.*

ICT usage in the areas of other ICT tools such as the mobile phone, fixed lines, the internet and postal box were investigated to know the possession of these facilities by SMEs, and the preferred tool for communicating to customers and suppliers inland and outside the countries.

Figure 8 shows the four common ICT tools possessed or employed by SMEs in Ghana



**Figure 7. Common ICT tools possessed by SMEs.**



*Source: Field Data, June 2012.*

The figure above shows that 100 % of the SMEs surveyed are using mobile phones to communicate to their clients and suppliers. Of all the respondents, only 16 representing 53.3 % have fixed line. Same percentage for those having internet. When it comes to postal box, only 50 % of the respondent have post office box. This shows how popular mobile phones are among SMEs in Ghana and how the postal system has lost its grips in the market as tool for communication among SMEs.

#### **4.1.7 ICT Tool Preference for Communication among SMEs and their Customers**

The research further sought to answer the question on preferred tool(s) for communication among SMEs and their customers by investigating the frequency of use of these ICT tools and to know whether same preferred tool is the one preferred for long distance communication and the responses were tabulated below in table 4.4 below.

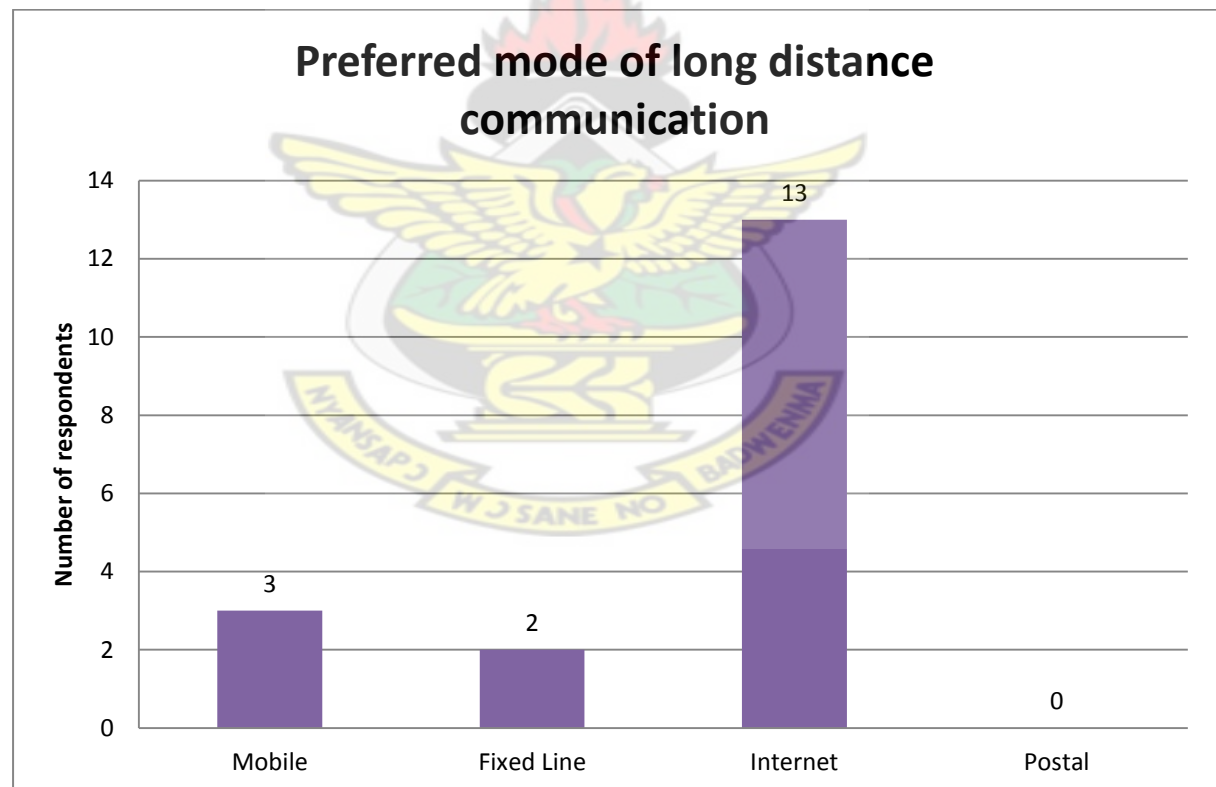
**Table 4.4. ICT usage frequency among SMEs**

	Response on Respondents Usage of ICT Tools						Total
	Not at All	Percentage (%)	At Times	Percentage (%)	Most Times	Percentage (%)	
Mobile Phones	0	0.0	2	6.7	28	93.3	30
Fixed Lines	15	50.0	6	20.0	9	30.0	30
Internet	7	23.3	8	26.7	15	50.0	30
<b>Postal Box</b>	<b>15</b>	<b>50.0</b>	<b>9</b>	<b>30.0</b>	<b>6</b>	<b>20.0</b>	<b>30</b>

Source: Field Data, June 2012.

The chart below represent the SME preference level for the four ICT tools mentioned above. Among these mobile phone ranked as the most preferred tool. On long distance communication the preference of the respondents are as shown in the figure below.

**Figure 8. Preferred Mode of long distance communication by SMEs**



Source: Field Data, June 2012.

Respondent were also asked how important they think the four tools are to the operations of the SMEs and the result were shown in table 4.5

**Table 4.5. Importance of ICT tools by SMEs**

	Response on Importance of SME Tools to SMEs						Total
	Unimportant	Percentage (%)	Neutral	Percentage (%)	Important	Percentage (%)	
Mobile Phones	0	0.0	0	0.0	30	100.0	30
Fixed Lines	9	30.0	1	3.3	20	66.7	30
Internet	2	6.7	0	0.0	28	93.3	30
Postal Box	10	33.3	2	6.7	18	60.0	30

*Source: Field Data, June 2012.*

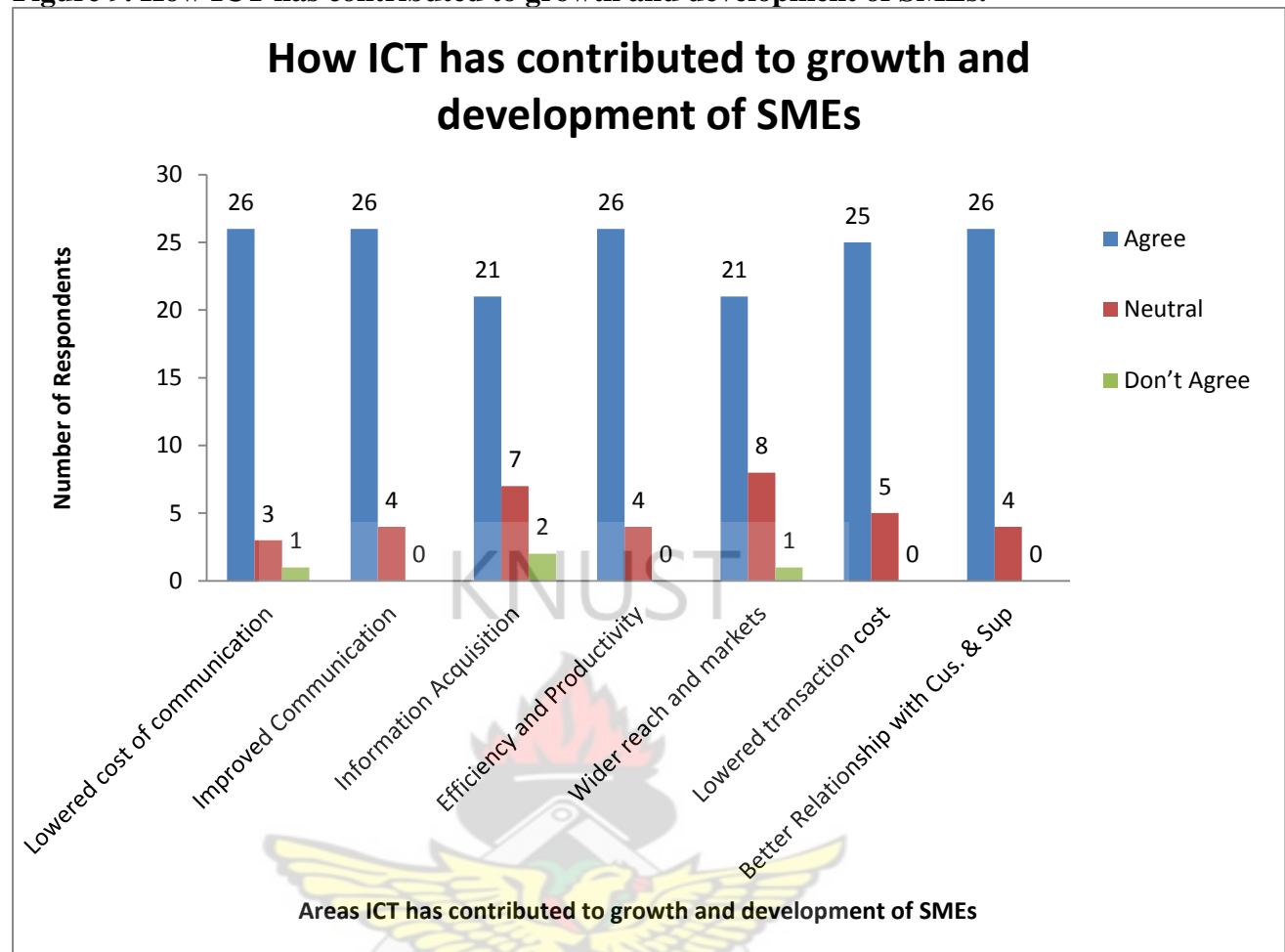
#### **4.1.8 ICT and Inter SME and SME and Customer relationships**

From the graph shown in figure 7, it is clear that 86.7 % of the respondents agreed that SMEs have had better relationship with other SMEs as well as customers through ICT. This was found solely to be in connection with mobile telephony. More than 73 % of the respondents use the mobile phone in either contacting the customers or suppliers. Furthermore, among the respondent who use the internet, all of them agreed that the internet has lowered their transaction cost.

#### **4.1.9 ICT and Growth and Development of SME's**

On identifying how SMEs has contributed to the growth and development of SMEs, from the review of the relevant literature, respondents were asked to specify their level of agreement to how ICT has contributed in the growth and development of SMEs in terms of lowering transaction cost, improving communication among customers and suppliers, information acquisition on time, efficiency and productivity, wider presence and increase in market share, and better relationship with suppliers and customers. The chart below represents the responses from the respondents.

**Figure 9. How ICT has contributed to growth and development of SMEs.**

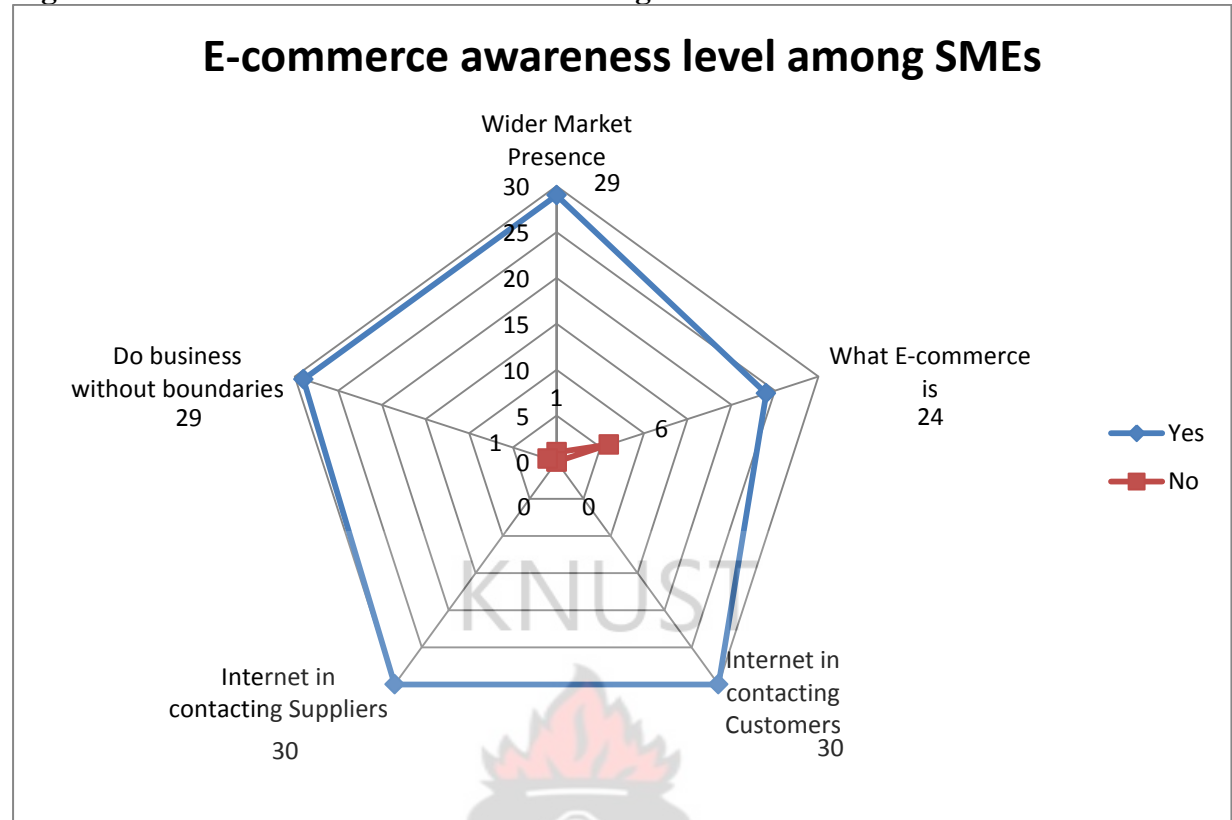


Source: Field Data, June 2012.

#### **4.1.10 E-commerce Awareness among SME's**

Basic E-commerce awareness level among these SMEs were also assessed by asking some pertinent question on e-commerce awareness namely the term e-commerce, possible wider market e-commerce offer, doing business without geographical boundaries and enhance way of communicating to both suppliers and customers. The responses of the awareness level as shown in the radar chart below

**Figure 10. E-commerce awareness level among SMEs**



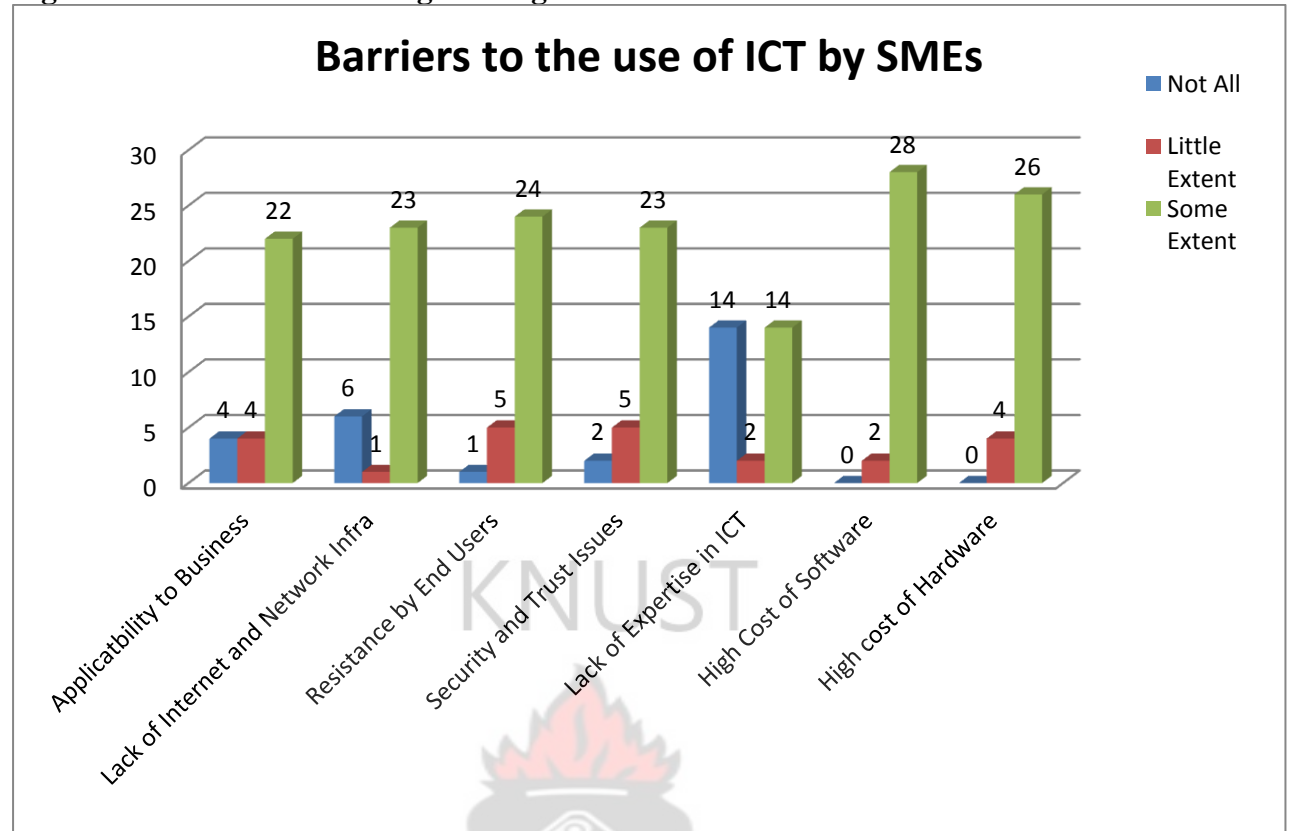
*Source: Field Data, June 2012.*

#### **4.1.11 Barriers to the use of ICT among SMEs**

ICT usage among SMEs is still low compared to the nation's population of SMEs.

Reasons were sought on why SMEs are not using ICT and the result is represented in the chart below in figure 12.

**Figure 11. Barrier to ICT usage among SMEs**



Source: Field Data, June 2012.

## 4.2 Discussion of the Result

### 4.2.1 Demographics

From the demographic data collected, it is indicative that about 46.7% of SMEs in Ghana are in the services sector. However this does not necessarily reflect the general figures in the country as SMEs were selected based on whether they are using at least one ICT tool. It was also found that 63.3% of the SMEs are owned by men contrary to what Quartey (2000) said that most SMEs in Ghana are female owned. Registration of the businesses was ascertained and it was found out that 86.7% of the SMEs are registered against the 13.3% who were not registered. Among the ones which were not registered all of them were home based and mostly owned by women. This seem to posit the earlier assertion by Quartey et al. The survey also showed that the educational background of most of the SME owners, managers or senior employees in



charge of managing these SMEs ranged from basic to tertiary level. More than 50 % of these were in the secondary education bracket. However this seem to be lower as one goes into the rural areas as general education levels in these areas are generally known to be low.

#### **4.2.2 ICT Usage in Ghana**

From the data above shown in figure 9 and figure 7, 67% of the SMEs surveyed indicated they are using computers against their counterparts of 33 % who are not using computers. The survey also revealed that all the SMEs surveyed are using mobile phones. This figure seem to decrease sharply when it comes to fixed lines and internet as 53.3% indicated they have fixed lines and internet for their SMEs. 50% of the respondents indicated they have postal box. This confirms with Esselaar et al (2007) on their findings that over 48% of SMEs were using mobile phones compared to 36% using fixed lines. The figure has increased tremendously due to popularity of mobile phones and low start-up cost associated with mobile phones. Of those who are having mobile phones, all of them said that the mobile phone is important to their business. This validates the observation by Esselaar et al that 95% of those who possessed mobile phones said it is very important to their business. In general we can say that most Ghanaian SMEs are using ICT but not to the same extent.

#### **4.2.3 How ICT has contributed to Growth and Development**

On questions used to ascertain growth and development in the SME's, 86.7% of the respondents said that ICT has lowered the cost of communication, improved communication and has made them more productive and efficient. 83.3% of the respondents said that ICT has lowered transaction cost, whiles 70% of the respondents said that ICT enables them to get more information about their job and same

percentage agree that it gives them access to wider markets. Furthermore over 93% of the respondents agreed that ICT has lowered their communication cost. These are the areas in which ICT has significantly contributed to the growth of SMEs.

#### **4.2.4 Preferred ICT Tool for Communication**

From figure 7, all the 30 respondents have mobile phone. When respondents were asked to attach level of importance to the four ICT tools i.e. Phone, Fixed Line, Internet and Postal Box, the all the respondents said that mobile phones are important to every SME. Out of the total number of respondents who said it is important, over 93% use the mobile phone most of the times in contacting their suppliers and customers. However among businesses whose everyday activity involved making long distance calls (calls to overseas) the internet is preferred probably due to its cost effectiveness.

#### **4.2.5 SME Relationships with Suppliers and Customers**

From the chart in figure 8, 86.7% of the respondent said that ICT tools like mobile phones and the internet has enabled them have better relationship with their customers and suppliers. These respondents argued that it has simplified and improved their communication as well as lowered the cost of contacting them. For instance in the previous ages before phone, SMEs owners would have to travel to their suppliers or customers who need their services but this has been reduced among those SMEs who are employing ICT in their work.

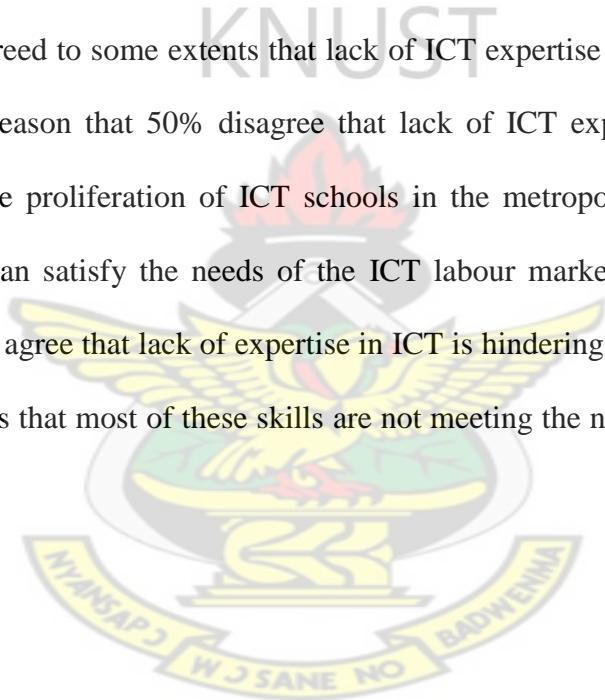
#### **4.2.6 E-commerce Awareness Level among SMEs**

On the basis of the five questions to see the awareness level of E-commerce from the radar chart shown above in figure 10. From the chart it shows that there is a wide spread from the origin indicating that most of the respondents are aware of e-

commerce. For instance with exception of 80% who understand what e-commerce is, over 93% the respondents know that the internet can help them reach wider markets and suppliers.

#### **4.2.7 Barriers to ICT usage among SMEs in Ghana**

From the bar graph in figure 9, high cost of software and hardware were ranked first and second by 93.3% and 86.7% respectively of the respondents. 76.7% of the respondents agree to some extent that lack of internet infrastructure and security issues are some of the barriers to the use of ICT among SMEs. Though 50 % of the respondents agreed to some extents that lack of ICT expertise the other half disagree. The probable reason that 50% disagree that lack of ICT expertise disagree can be attributed to the proliferation of ICT schools in the metropolis hence churning out students who can satisfy the needs of the ICT labour market for these SMEs. The other 50% who agree that lack of expertise in ICT is hindering the use of ICT premise that on the basis that most of these skills are not meeting the needs of the modern day SME owner.



## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATION**

#### **5.1 Introduction**

This chapter is the final part of the study. It is divided into three sections. The first section is devoted to the summary of the entire research work. The second section captures in synopsis the major findings of the study and the final section details the various recommendations made by the researcher to identify the role of ICT in growth and development of small and medium scale enterprises in Ghana.

#### **5.2 Summary of the Findings**

The study looked into the role of ICT in the growth and development of SMEs in Ghana and the major findings are as follows:

Most Ghanaian SMEs are employing at least one of the following ICT tools in their business, i.e. mobile phones, fixed line, internet or postal box. While mobile phone usage seems to be high, internet and fixed lines usage are still low. Mobile phones popularity among Ghanaian SMEs could be attributed to its mobile nature and easiness of use. Most of these SMEs use these mobile phones primarily for making voice communications and short messaging service (SMS). However the use of computer and the internet by SMEs are still low as only 30% among the respondents use computers in their business.

On the basis of relationships among SMEs and how ICT has facilitated that, 87 % of the respondents agreed that ICT especially mobile telephony has enhanced their relationships with their customers as well as suppliers.

ICT has contributed enormously to the growth and development of SMEs by lowering transaction cost, increasing employee efficiency, decreasing the cost of communication between SMEs and their customers, improving business communication, help firms obtain more information about their work, expanded markets and have better relationship with and their suppliers. These responses varied among individuals but over 90% of the respondents agreed that ICT has contributed to growth and development in the areas mentioned.

Though ICT awareness level as in the potential of the e-commerce is known to most SMEs that participated in the survey, most of them over 95% are not fully utilising this potential. This is known by the 6 respondents who represent 20% who use the computer for E-commerce. Computer usage among SMEs is also known from the study to be so low among Ghanaian SMEs. Whiles about 30% of the respondents use computers most of these few use the computer for secretarial functions and inventory management.

In finding the barriers that impede the usage of ICT among SMEs in Ghana, it was found out that high cost of software and hardware is ranked as the number one factor why SMEs do not use ICT like their western counterpart. Other reasons attributed are resistance of end users to new technology, lack of applicability to their business model or type, lack of infrastructure and internet and security and trust issues.

### **5.3 Conclusions**

The research tries to answer the question:

“What is the role of ICT in the growth and development of SMEs in Ghana?”

The research is based on the assumption we are in the new economy known as the knowledge economy”, with ICT as the lifeblood. The most important asset in this new economy is knowledge, which is what we sell and buy. The products are more knowledgeable and the customer demands smart products. Businesses have invested a lot of money in ICT and have been exploiting it to be ahead of their competitors.

ICT is an enormous subject which covers, amongst others, normal telephones, cell phones, mobile technologies, point-of-sale systems, ERP solutions, CRM solutions, the Internet, PCs and networks. ICT is an enabler for global networking and can be used in different ways, such as:

- **General-user**

With the general user, ICT is mainly used for administrative purposes such as secretarial and book keeping.

- **Production-integrating**

In production integrating, ICT is used to support business processes and the production of goods and services

- **Market-oriented**

ICT is mainly employed for marketing purposes and increasing the company presence on the web.

There are two schools of thought when it comes to the value of ICT. One school believes that ICT is a commodity and does not add any competitive advantage to the business or SME, while the other believes that ICT does add value to the business and can give a company a competitive advantage. Both beliefs could be correct, depending from which angle you view them. When implemented haphazardly without aligning it with the

business strategy and companies line of business, ICT might not add any value and probably will not lead to any competitive advantage for the business, but when ICT is implemented as part of the business strategy to support the business processes it will probably lead to a growth and development and competitive advantage. Thus the manner in which SMEs adopt and implement ICT is important as this will determine whether they will gain competitive advantage or not.

SMEs play an important role in the global economy: they contribute to the GDP and reduction of unemployment, especially in developing countries. Many governments around the world are pushing for SMEs to adopt ICT in order for them to survive in the knowledge economy. The Ghana Government is no exception. The need for SMEs to adopt ICT is driven by governments, globalisation, innovation, flexibility and competitive advantage.

The adoption of ICT should take into consideration that SMEs are different and thus have different needs for ICT. It is important for an SME to adopt ICT solutions that are specific to its needs. A number of barriers make it difficult for SMEs to adopt ICT, such as a lack of knowledge about the strategic use of ICT, a lack of necessary IT skills, perceived high setup cost, the constantly changing ICT environment, and geographical factors such as current power rationing in some parts of the country among others. Geographical factors were not examined here.

The ICT problems in Ghana are both socio-economic and technological ranging from connectivity problems to ICT-skills needs. Ghanaian SMEs should take advantage of various emerging technologies. Even though the problem in rural areas is bandwidth and availability of networks, however, mobile technologies have helped to close the gap. The



number of cell phones with 3G and 2G internet has increased though most of these internet speeds are slow and put SMEs off from adopting it. This is a market which the SMEs could be exploiting, whether for marketing purposes or for delivering products or services.

## **5.4 Recommendations**

In summary, the recommendations for SMEs to overcome barriers and improve implementation of ICT in their businesses for growth and development are as follows:

### **5.4.1 Promotion of ICT Education among SMEs**

SMEs should invest in educating their staff and management about ICT and its benefits. As training cost is known to be of the impediments towards the developing of ICT skills, this will help these SMEs acquire these skills and use them in their work. Training agencies responsible for providing ICT training to SME owners must understand not only how this group of adults learn, but also what the obstacles are that they usually face in learning technology related subjects. The government can also come out as form of its adult literacy program with programs in ICT for the owners of these SMEs must increase its effort to create awareness among SMEs regarding the potential benefits of ICT to small- and medium-sized businesses.

### **5.4.2 Outsourcing of ICT Functions**

SMEs should invest in recruiting or outsourcing knowledgeable ICT specialists or consider outsourcing their ICT function to expert to enable them realise the full benefit of ICT. This is impeded by low start-up capital of most of these SMEs. However, IT Entrepreneurs can come out with easy and cheaper ways that some of these SMEs can access their services. The government through its technology

parks and community ICT initiatives can offer some of these services to the SMEs at very low fees. This in turn can generate some revenue for the government.

#### **5.4.3 Development of SME Productivity Application for Mobile Phones**

Software developers have developed applications that mostly are compatible on computers. However some of these SMEs are not even using computers. Since all the respondents own and use mobile phone, software developers should develop applications that are compatible with mobiles phones that can help these SMEs. This is a huge unexploited market for software developers.

#### **5.4.4 Creating Enabling Environment**

SMEs and their owners (management) should build a culture that is favourable to technology and innovative. SMEs owners should align technology to their business strategy and seek how technology can give them competitive advantage. The government can also come out with some policy that will encourage the usage of ICT among these SMEs. Example registration of SMEs should be made mandatory online, declaring of tax returns and sometimes softcopy submission of tax returns and declarations, e-procurement among SMEs who do business with the government among others. This will precipitate the ICT revolution among SMEs and compel them to adopt and realise the benefit of ICT to their growth and development.

#### **5.4.5 Affordable Software and Hardware**

The government, universities, and other institutions in the country must device a mechanism for coming out cheaper software and computers but of durable quality to support these SMEs. Computer science and other ICT related students at the

various higher institutions of learning can be tasked to develop applications and hardware that meet the needs of the Ghanaian SME. The Universities and other higher institutions of learning can corroborate with the National Board on Small and Medium Scale Industries in championing this.

## **5.5 Suggestions for Future Research**

It is recommended that future research be done to investigate what has contributed to the poor ICT skills of SME owners in Ghana, an investigation of learning barriers in this group, and an examination of the relationship between the IT skills of SME owners and the IT infrastructure and IT budget of their respective companies. Further research can also be undertaken on the technology adoption among Ghanaian SMEs. More research will need to be done to ascertain how geographical factors such as power rationing impede the adoption of ICT by Ghanaian SMEs.



## REFERENCES

- Alam Syed S, & Noor M.K. Mohd. ICT Adoption in Small and Medium enterprises: an Empirical Evidence of Service Sectors in Malaysia. *International Journal of Business Management*, volume 4 No 2
- Ayyagari, M., Beck, T., & Demirgüç-Kunt, A., 2007. 'Small and medium enterprises across the globe', *Small Business Economics* 29(4), 415-434.
- Beckinsale, M., Ram, M. (2006). Delivering ICT to ethnic minority businesses: an action research approach. *Environment and Planning C: Government & Policy*, 24(6), 847- 867.
- Berry, A., von Blottnitz, M., Cassim, R., et al. (2002). TIPS Workshop Series, 2003. The SMME Economy in South Africa. Available online at [www.tips.org.za](http://www.tips.org.za). Accessed 2009, June 19.
- Brady, M.K, Cronin J.J, Brand R, R. (2002) Performance-only measurement of service quality: a replication and extension. *A Journal of Business Research*, Vol 55, 17 – 31.
- Breschi, S. & Lissoni, F. 2001. Localised knowledge spillovers vs innovative milieux: Knowledge "tacitness" reconsidered. *Papers in Regional Science*, 80: 255-273.
- Brynjolfsson, E & Hitt, L.M. 1996. Paradox lost? Firm-level evidence on the returns to information systems spending. *Management Science*, 42(4) 541-558
- Brynjolfsson, E. And Yang, S. (1996) Information technology and productivity: a review of the literature. *Advances in Computers* 43: 179-214.
- Calderia, M.M. & Ward, J.M. 2002. Understanding the successful adoption and use of IS/IT in SMEs: an explanation from Portuguese manufacturing industries. *Information Systems Journal*, 12: 121-152.
- Chowdhury, S., & Wolf, S. (2003). Use of ICTs and economic performance of small and medium enterprises in East Africa. *Discussion Paper No.2003/06*, WIDER, United Nations University.
- Daniel, E. M., & Grimshaw, D. J. (2002). An exploratory comparison of electronic commerce adoption in large and small enterprises. *Journal of Information Technology*, 17, 133–147.

Esselaar S. et al, 2007. ICT Usage and Its Impact on Profitability of SMEs in 13 African Countries. *Journal of Information Technologies and International Development*. Volume 4, No 1, 88 – 100.

Frempong, G (2005). Trends in ICT Usage by Small and Medium Scale Enterprises in Ghana, *ATDF Journal* Volume 4 Issue 1.

Fulantelli, G. & Allegra, M. 2003. Small company attitude towards ICT based solutions: some key-elements to improve it. *Educational Technology & Society*, 6(1): 45–49

Fundación CAATEC, 2009. Information and Communication Technologies and Small and Medium Enterprises (SMEs) Performance in Costa Rica: A Randomized Controlled Experiment, Research proposal to Inter-American Development Bank, pp. 1 – 3.

Galloway, L. & Mochrie, R. 2005. The use of ICT in rural firms: a policy-orientated literature review. *Info*, 7(3): 33–46.

Kanyanula D & Quartey P, 2000. The policy environment for promoting small and medium –sized enterprises in Ghana and Malawi, Working paper series, paper no. 15, Institute for Development Policy and Management, University of Manchester.

Kapurubandara, M & Lawson R, 2006. Barriers to Adopting ICT and e-commerce with SMEs in Developing Countries: An Exploratory study in Sri Lanka, Mahesha, and Robyn

Kazanjian, R. (1988). Relation of dominant problems to stages of growth in technology-based new ventures. *Academy of Management Journal*, 31, 257-279.

Klas G, 'Formative Infrastructure for ICT – adoption in SMEs- A study of conditions for progress' Access at <http://is2.lse.ac.uk/asp/aspecis/20080092.pdf> on 2nd August 2012

Kim, M-K, & Jee, K-Y. (2007). Factors influencing strategic use of information technology and its impact on business performance of SMEs. *ETRI Journal*, 29, 497-506.

Kimberly, J., & Miles, R. (Eds.), *The organizational life cycle* (pp. 184-207). San Francisco: Jossey-Bass Publishers.

Labbé, M (2006) Internet and Trade. Paper presented at Web Marketing for Organic & Natural Products Workshop held in June, Accra, Ghana.

Lal, K. (2007) Consequences of the Adoption of Information and Communication Technologies in SME's in Jamaica. *The Icfai Journal of Knowledge Management*, Vol. 5, No. 4, pp. 27-53.

Lamburg, J-A., & Pajunen, K. (2005). Beyond the metaphor: The morphology of organizational decline and turnaround. *Human Relations*, 58, 947-980.

Lester, D., Parnell, J., & Carraher, S. (2003). Organizational life cycle: A five-stage empirical scale. *International Journal of Organizational Analysis*, 11(4), 339-354.

Lester, D., & Parnell, J. (2006). The complete life cycle of a family business. *Journal of Applied Management and Entrepreneurship*, 11 (3), 3-22.

Lohdal, T., & Mitchell, S. (1980). Drift in the development of innovative organizations. In, Kimberly, J., & Miles, R. (Eds.), *The organizational life cycle* (pp. 184-207). San Francisco: Jossey-Bass Publishers.

Matambalya F., Wolf S. (2001), The Role of ICT for the Performance of SMEs in East Africa Empirical Evidence from Kenya and Tanzania. ZEF – Discussion Papers on Development Policy, Number 42, 4 – 19.

NDPC (2005) Growth and Poverty Reduction Strategy (GPRS II) (2006 – 2009), Vol. 1, Accra.

Pool, P., Parnell, J., Spillan, J., Carraher, S., & Lester, D. (2006). Are Smes Meeting The Challenge Of Integrating E-Commerce Into Their Businesses? A Review of The Development, Challenges And Opportunities. *International Journal of Information Technology and Management*. 5(2/3), 97-113.

Porter M, Millar VE (1985): How information gives you competitive advantage Harvard Business Review Vol 63 Issue 4 Jun/July 1985 pp 149-160

Premkumar, G. (2003). A meta-analysis of research on information technology implementation in small business. *Journal of Organizational Computing and Electronic Commerce*, 13, 91-121.

Smallbone, D., Leigh, R., & North, D. (1995) "The characteristics and strategies of high growth SMEs" *International Journal of Entrepreneurial Behaviour & Research* 1, 3, 44-62



Tim S., 2012. How the state and private sector can partner to boost support to SMEs: Lessons from Chile & Malaysia. Available online at <http://www.tips.org.za/paper/how-state-and-private-sector-can-partner-boost-support-smes-lessons-chile-malaysia>. Accessed on 2<sup>nd</sup> August 2012.

UNCTAD, (2005) E-Commerce and development Report 2004, Geneva.

Van Akkeren, J. and Cavaye, A.L.M. (1999) "Factors affecting entry-level internet technology adoption by small business in Australia: an empirical study" Proceedings of the 10th Australasian conference on information systems.

Wolf, S. (2001). Determinants and impact of ICT use for African SMEs: Implications for rural South Africa. Centre for Development Research (ZEF Bonn), Bonn University, TIPS (Trade and Industrial Policy Strategies), Annual Forum.

World Bank. (2006). The role of ICT in doing business. In *Information and Communications for Development: Global Trends and Policies*. Washington, DC: World Bank.





## APPENDIX 1

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND  
TECHNOLOGY  
INSTITUTE OF DISTANCE LEARNING  
COMMONWEALTH EXECUTIVE MASTERS IN BUSINESS  
ADMINISTRATION**

*Dear Respondent,*

*I am an Executive MBA student of Kwame Nkrumah University of Science and Technology researching on the topic: **The Role of ICT in growth and Development of Small and Medium Scale Enterprises in Ghana - Case study of some selected SMEs in the Tema Metropolis.** This questionnaire is to gather data for my thesis in partial fulfillment of the requirement for the award of Executive Masters in Business Administration. You will be contributing immensely towards the success of this study by responding to this question. Kindly give adequate information to the under listed questions. You are ensured of absolute confidentiality. Thank you for your cooperation.*

Please tick or write to the space provide below

### **SECTION A (DEMOGRAPHIC DETAILS)**

1. Name of

SME:.....  
.....

2. Location:

.....

3. Type of business

Retail [ ☐ ] Services [ ☐ ] Manufacturing [ ☐ ] Clothing [ ☐ ] Finance [ ☐ ]

Construction [ ☐ ] Hardware [ ☐ ] Supermarket [ ☐ ] Education [ ☐ ]

Other [ ☐ ],

Specify.....

...

4. Your Age

Less than 25 [ ☐ ] 25 – 35 years [ ☐ ] 36 – 45 years [ ☐ ] 46 – 55 years [ ☐ ]

Above 55 years [ ☐ ]

5. Sex Male [ ☐ ] Female [ ☐ ]

6. Highest form of Education attained by Owner/Manager

Primary [ ] Secondary [ ] Tertiary [ ] Vocational [ ] Self Study [ ]

7. Position Owner [ ] Manager [ ] Employee [ ] Supplier[ ]

Part Owner [ ] Other [ ]

Specify.....

8. How would you rate your ICT and Internet Literacy

No Knowledge [ ] Basic [ ] Intermediate [ ] Advanced [ ] Super User[ ]

9. Number of Employees

Less than 5 [ ] 5 - 29 [ ] 30 – 99 [ ] 100 and Above [ ]

10. How many of your employees have formal written contract?.....

11. Is your business registered? Yes [ ] No [ ]

### **SECTION B (ICT USAGE AMONG SMEs)**

12. Do you have mobile phone for your business? Yes [ ] No [ ]

13. Do you have Fixed Line you use for your business? Yes [ ] No [ ]

14. Do you have internet connectivity? Yes [ ] No [ ]

15. Do you have Postal Box you use for your business? Yes [ ] No [ ]

16. Kindly tick (✓) the appropriate response to the following questions?

		Please tick (✓) the appropriate response for the question in the boxes below				
		1- Not At all	2-Sometimes	3-At times	4 - Many times	5-Most time
a	To what degree do you use mobile phone in you business?					
b	To what degree do you use Fixed Lines in your business?					
c	To what degree do you use the Internet in your business?					
d	To what degree do you use Postal Box in your business?					

17. Do you employ computers in your business operation? Yes [ ] No [ ]

*If you answered Yes to question 17, please answer question 18 only. If you answered No to*

*question 17, please skip question 18 and continue from question 19.*

18. If Yes what are the main uses of it? Tick all that apply.

Secretarial & Book keeping [ ]

Inventory Management [ ]

Core business [ ]

Payroll Management [ ]

Customer Relationship Mgmt [ ]

Contacting Vendors and Suppliers [ ]

Electronic Commerce [ ]

Other , [ ]

Specify.....

19. If your response to (17) is No, why? Tick all that may apply

Not Applicable to my work [ ]

Is costly to setup and maintain [ ]

I don't have any knowledge in it [ ]

Do not know [ ]

Other , [ ]

Specify.....

20. Do you use electronic money system such Airtel Money, Mobile Money by MTN and Glo etc in your business? Yes [ ] No [ ]

21. Tick the most appropriate response on the following ICT tools in order of importance.

ICT Tool	1-Very Unimportant	2-Somewhat Unimportant	3-Neither important nor unimportant	4-Somewhat Important	5-Very Important
Mobile Phone					
Fixed Line					
Internet					
Postal Box					

### **SECTION C (PREFERRED ICT TOOLS)**

22. What is your preferred mode of communication between you and you customers?

Mobile Phone [ ] Fixed Line [ ] Internet [ ] Post [ ]

23. What is your preferred mode of communication between you and you suppliers?

Mobile Phone [ ] Fixed Line [ ] Internet [ ] Post [ ]

24. Does your business require you to communicate to others outside the country?

Yes [ ] No [ ]

25. If Yes, what is your preferred mode of communication?

Mobile Phone [ ] Fixed Line [ ] Internet [ ] Post [ ]

#### **SECTION D (E-COMMERCE AWARENESS AMONG SMEs)**

26. Kindly respond Yes or No to the following questions below.

- a) Are you aware that ICT can give you wider presence Yes [ ☐ ] No [ ☐ ]
- b) Are you aware of what E-commerce is? Yes [ ☐ ] No [ ☐ ]
- c) Are you aware that the internet can help you contact your Yes [ ☐ ] No [ ☐ ]  
customers?
- d) Are you aware that the internet can help you contact your Yes [ ☐ ] No [ ☐ ]  
suppliers?
- e) Are you aware that the internet can help you do business Yes [ ☐ ] No [ ☐ ]  
with the rest of the world without geographical limitation ?

#### **SECTION E (HOW ICT HAS CONTRIBUTED TO GROWTH AND DEVELOPMENT OF SMEs)**

27. State your level of agreement with the following statements.

Question	1-Strongly Agree	2-Agree	3-Neither Agree nor Disagree	4 - Disagree	5-Strongly Disagree
Mobile telephony has decreased the cost of contacting suppliers and customers					
ICT has improved my business communication					
The internet enables me to obtain more information about my work than before					
ICT has enabled me be more efficient and productive					
ICT has enabled me to reach more customers and have better relationship with existing ones					
ICT has lowered my transaction cost					
ICT has enabled me have better relationship with my suppliers and other SMEs.					

**SECTION F (HOW ICT CAN CONTRIBUTE TO GROWTH AND DEVELOPMENT)**

28. State your level of agreement with the following statement

Question	1-Strongly Agree	2-Agree	3-Neither Agree nor Disagree	4 - Disagree	5-Strongly Disagree
ICT can decrease the cost of doing business					
ICT can improve my business communication					
The internet can enable me get information that will be relevant to my business					
ICT can help me become more productive and efficient					
ICT can enable me reach a wider market					
ICT can enable me have better relationship with my customers and suppliers					
ICT can help me survive the competition among SMEs					

**SECTION G (BARRIERS TO ICT USAGE AMONG SMEs)**

29. To what extent you think that the following factors are barriers to ICT usage in Ghana?

Factor	1-Not At All	2-To Little Extent	3-To Some Extent	4-To a Moderate Extent	5-To a Large Extent
Lack of applicability to business					
Lack of availability of internet and network infrastructure					
Resistance of end-users to new technology					
Security and Trust Issues					
Lack of expertise in the areas of ICT in the country					
High Cost of software applications					
High Cost of ICT					

equipment and networks					
---------------------------	--	--	--	--	--

KNUST

