

UNIVERSITY OF CAPE COAST

ASSESSING INFORMATION AND COMMUNICATION TECHNOLOGY
AMONG SMALL AND MEDIUM- SIZED ENTERPRISES IN THE BIRIM
CENTRAL MUNICIPALITY

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:..... Date:

Name: Richard Mongson

Supervisor's Declaration

I hereby declare that the preparation and presentation of this dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature:..... Date:

Name: Prof. F.O. Boachie-Mensah

ABSTRACT

Unlike Small and Medium-Sized Enterprises (SMEs), large enterprises have continued enjoying the benefits of the use of Information Communication Technologies (ICTs). This is one situation that has affected SMEs development including those in the Birim Central Municipality. It was based on this rationale that a study was undertaken mainly to assess ICTs in SMEs activities in the Birim Central Municipality. The specific objectives of the study were to examine the preferred type of ICTs which are used by the SMEs, analyse the main uses of ICTs in the SMEs operations and examine the barriers and drivers of ICT use by the SMEs. A sample size of 240 SME respondents operating under four different economic sectors were targeted for data collection. Four research questions were formulated to guide data collection which was done using a questionnaire and an interview schedule. Microsoft Excel was used to do the data analysis and it produced frequency tables and percentages. Data collected was presented and discussed both qualitatively and quantitatively. The findings indicated that, Mobile Phones were the most preferred and used ICTs by the SMEs. Also, SME operators who use ICTs in their businesses operations mostly tend to use it as their core business. Furthermore, the SMEs generally face a number of barriers which preclude ICTs use in their business operations. The key barrier that came up was the perception by the SMEs that ICTs are not applicable to their business operations. Finally, ICT literacy skills emerged as the dominant factor in driving SMEs to incorporate ICTs in their businesses. Based on the results, it is recommended that SMEs should be provided with regular training in order to expose them to the benefits of ICT use in SME operations.

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DEDICATION

To my lovely wife Claudia Hayford and my children Joycelyn, Richard and
Christabel.

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LIST OF ACRONYMS

SMEs	Small and Medium-Sized Enterprises
SMB	Small and Medium-Sized Business
ICT	Information and Communication Technology
GSS	Ghana Statistical Service
NBSSI	National Board for Small Scale Industries
IT	Information Technology
ICT4D	Information and Communication Technology for Development
ICT4AD	Information and Communication Technology for Accelerated Development
E-Mail	Electronic Mail
INIIT	International Institute for Information Technology
ITU	International Telecommunications Union
DMTDP	District Medium Term Development Plan
EC	European Commission
SMEDAN	Small and Medium Sized Development Agency of Nigeria
USD	United States of America Dollar
GPRS	Ghana Poverty Reduction Strategy
OECD	Organisation for Economic Co-operation and Development
UNCTAD	United Nations Conference on Trade and Development
LI	Legislative Instrument
ISPs	Internet Service Providers
PC	Personal Computer
PHC	Population and Housing Census
SMIDEC	Small and Medium Industries Development Corporation
TAM	Technology Acceptance Model

CHAPTER ONE

INTRODUCTION

Information and Communication Technology (ICT) has the capacity to provide all types of businesses with the capability to grow within and across borders to a seemingly unbelievable extent. Despite the high potential of ICT adoption, Small and Medium-Sized Enterprises (SMEs) in Ghana are still reluctant to embrace it into their business processes. SMEs dominate the industrial setting in Ghana and they exhibit abundant potential in accelerating economic development which will lead to wealth creation and poverty reduction. These SMEs have their unique developmental challenges and operate in a competitive business environment. Previous studies on ICT adoption by SMEs have focused more on SMEs in the developed countries. Hence, this study will increase understanding of the barriers, main uses and other related issues in this context. Also, it will add to the few pile of studies with a focus on SMEs in developing countries.

Background to the Study

The development in telecommunications has impacted very much on the use of ICTs. As a result, the level of technologies available in today's marketplace is enormous. According to Galloway and Mochrie (2005), there is evidence that ICT is the driver of economic growth. This explains the drive by many governments around the world for all organisations including SMEs to adopt ICT. Various studies have established the potential and actual benefits of ICT on the operational performance of businesses. For instance, Mutula and Van Brakel (2006) report on the potential benefits of use of ICT by SMEs as

assisting in the reduction of production cost, improving efficiency, performance, relationship with customers and suppliers as well as the provision of valuable information. Although according to Schubert and Leimstoll (2007), there are two schools of thought (Porter's & Millar's theories) with regard to the issue of ICT value to SMEs, yet, they agree that competitiveness of an SME depends on the ways in which ICT is used to support business processes.

Mahemba and Bruijn (2000) cite the fact that SMEs make up more than 90% of all business establishments worldwide. SMEs have played and continue to play a key role in the economies of both developed and developing countries. This can be seen, more especially, in terms of their contributions to income and level of employment (Acquah, 2012; Kanyanula & Quartey, 2000). As a result, they have a huge potential to contribute more meaningfully to the growth and development of an economy. Other contributions include contribution to Gross Domestic Product and generation of foreign exchange. For example, about 70% of the Ghanaian enterprises are micro to small sized and it is estimated that nearly 40% of Ghana's Gross National Income is attributable to informal sector activity (Ghana Government, 2003). It is for these reasons, governments, the world over, spend their time developing the SMEs sector to promote economic growth.

Despite the various contributions by SMEs to the development and growth of national economies, most of these SMEs are yet to realize their full potentials. This is because they face a number of challenges which tend to affect their development. Key among these challenges is their inability to capitalize on technological developments to extend their businesses beyond traditional borders. ICT use by organisations in the developed world is on a

steep rise in contrast with the developing and underdeveloped world (Shemi & Procter, 2013; Humphrey, Mansell, Pare, & Schmitz, 2003).

As a means of bridging the digital divide, the United Nations has formulated the ICT for Development (ICT4D) policy. Accordingly, Ghana being a member of the United Nations has since 2003 formulated and launched the Ghana ICT for accelerated development (ICT4AD) policy. Hence, SMEs in Ghana should be aware of the benefits from using these technologies to enhance the growth of their businesses.

It is without doubt that the benefits of use of ICT have brought to the fore the important role that ICT can play in facilitating the growth of SMEs. As observed by Gagnon and Toulouse (1996), any individual who intends to make it to the top must, of necessity and survival, incorporate ICTs use in their business operations. The current study therefore seeks to assess ICT among SMEs operations in the Birim Central municipality.

Statement of the Problem

Despite advances in ICT and the acceptance of such technologies by large organizations, the same level of adoption is not evident among SMEs in the developing world, including Ghana (Shemi & Procter, 2013; Humphrey et al., 2003). Okwuonu, (2013) asserts that many SME operators are unfamiliar with operating a computer and become skeptical of the benefits and value its gives to the business and have the notion that ICT is only for larger companies even when they have the will and financial resources to integrate ICT into their core business.

SME operators are often at a loss when the need arises to choose the most appropriate and cost efficient product. Most SMEs could not participate in the international markets from the comfort of their offices and rooms due to dearth of adequate ICT facilities, skills and knowledge. Low participation in international market means low transactions and contribution to the global economy. But with the use of ICT, weak players in the economy can be empowered by providing them with information, communication and knowledge they could not access before. This enhances the competitiveness of SMEs and can enable them establish their presence on the Internet and use it to communicate with suppliers and customers, to search for business information and to advertise their products (Okwuonu, 2013).

The Birim Central municipal economy is dominated by SMEs which are yet to realise their full potentials partly as a result of the SMEs mainly using traditional tools to stay competitive (birimcentral.ghanadistricts.gov.gh). Furthermore, the 2010 Population and Housing Census (PHC) reveal a litany of important indicators that generally have development implications for the Birim Central Municipality. These indicators are required to guide policy making and ensure that the human resource potentials in the Municipality are fully harnessed and utilized for the progress of the economy. One of these notable indicators is the youthfulness of the population who are invariably owner-managers of SMEs and are ICT illiterates (GSS, 2013). Also, report from the Birim Central Municipal office of the Business Advisory Centre of the National Board for Small Scale Industries shows that SMEs in the Municipality, generally, have not integrated ICTs in their business activities.

In the light of the above discussion, it is imperative to undertake an in-depth assessment of the relevant issues concerning ICT use by SMEs in the Municipality.

Objectives of the Study

The overall objective of this study was to assess ICTs among SME operators in their business operations in the Birim Central Municipality.

Specific objectives

The specific objectives of the study were to:

1. Analyse the preferred types of ICT facilities used by SME operators in their business operations in the Birim Central Municipality.
2. Examine the main uses of ICTs in the business activities of SMEs in the Birim Central Municipality.
3. Analyse the barriers to the use of ICTs by SME operators in their business operations in the Birim Central Municipality.
4. Assess the factors responsible for driving SME operators to integrate ICTs into their business operations.

Research Questions

This study sought to find answers to the following questions:

1. What are the preferred types of ICT facilities used by SME operators in their business operations in the Birim Central Municipality?
2. What are the main uses of ICTs in the business activities of SMEs in the Birim Central Municipality?

3. What are the barriers to the use of ICTs by SME operators in their businesses operations in the Birim Central Municipality?
5. What are the factors responsible for driving SME operators to integrate ICTs into their business operations?

Significance of the Study

The importance of the outcome and impact of the use of ICTs by SMEs cannot be overstated. Owing to this assertion, anything that affects the integration of ICTs by SMEs in their operations cannot be overlooked. For this reason, the outcome of this study shall have the following significance:

In the first place, this study shall offer other researchers and academicians, possible areas for further research. Secondly, policy makers will find the findings of this study useful for future decisions regarding factors impeding and driving the use of ICTs by SME Operators in the Birim Central Municipality. Moreover, the general public, existing and potential entrepreneurs alike can use the recommendations of this research project to overcome existing and potential hindrances in the area of ICT use among SME operators. Also, since Ghana's ICT4AD policy was launched in the year 2003, this project finding will provide a clue pertaining to the outcome and impact of the policy. Last, but not least, this study will serve to add on to the few pile of research studies in the area of ICT use by SMEs in the developing world. This is because there are very few studies about ICT adoption by SMEs in developing countries (Mutula et al., 2006).

Delimitations

The research was delimited to Two Hundred and Forty existing SMEs in the four zonal council areas of the Birim Central Municipality across various economic sectors. More specifically, the study areas covered were the Akim Oda, Akim Akroso, Akim Manso and Akim Aboabo-Asene Zonal Areas. The zonal council areas are characterised by different economic and demographic profiles. The economic sectors were Agriculture, Trade and Commerce, Industry and Services sectors. This distinction stems from the fact that SMEs in the Municipality operate predominantly under these sectors. The economic sectors also differ quite sharply in terms of the number of SMEs operating under them. Therefore, different numbers of SMEs were targeted to be sampled from each economic sector for the study.

Limitations

The major limitation of the study was time. The limited academic time did not allow the researcher to spend so much time on the field. Also, out of the two hundred and forty questionnaires which were administered only 183 were retrieved for the study. This came about as a result of some of the respondents failing to return the questionnaire. Again, the study at times used a close-ended questionnaire for data collection and this has a weakness of limiting the amount of data collected. There is likelihood that relevant data may not have been captured because of the use of close-ended questionnaire.

Organisation of the Study

The study report comprises five chapters. Chapter one provides introductory notes with respect to the background of the study, statement of the research problem, and objectives of the study. The rest are significance of the study, scope of the study, and limitations of the study. Chapter two explains and reviews the relevant literature as regards the research topic. Chapter three discusses the details of the research methodology, organisational framework, just to name a few. The results or findings of the study have been presented in chapter four. It includes the results from the questionnaires as well as the interviews conducted, while chapter five summarizes and concludes the study with the necessary recommendations.

Chapter Summary

Chapter one of this study has presented information on the importance of the integration of ICTs to the development of all social units, more particularly SMEs in the developing world. It also highlighted the level of use of ICTs by SMEs in the developing world with a focus on the situation in the Birim Central municipality. The rest are objectives, significance, delimitations, limitations and organisation of the study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The overall objective of this study was to assess ICTs among SME operators in their business operations in the Birim Central Municipality. This chapter discusses the literature review for this study. The review has been divided into four major sections. The first section deals with the meanings of SME and ICT, their relative importance, ICT evolution in SMEs in Ghana, among others. The second part examines the theoretical literatures that explain the relationship between the variables of the study. The third section focuses on reviewing works that relates to the study on the basis of the research objectives. The last section describes the conceptual framework of the study based on the theoretical framework and the research objectives.

Meaning of SME

The term “Small and medium-sized enterprise” (SME) is sometimes known as small and medium enterprise or small and medium-sized businesses (SMB). What constitute the meaning of the term SME is yet to receive a worldwide acceptance. This is because different individuals, organisations and countries tend to opine different meanings to the term. These social units often employ different indicators in their definitions of the term. Some either use a single or multiple indicators in an attempt to define the term. At times, even within a particular country different organisations tend to assign different meanings to the term. 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 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.

In consequence, 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. Furthermore, 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).

The National Council of Industries in Nigeria refers to SMEs as business enterprises whose total fixed costs, excluding land, are not more than two hundred million naira (₦200, 000,000.00) (Onugu, 2005). On the other hand, the Small and Medium Sized Development Agency of Nigeria (SMEDAN) as cited in International Journal of Academic Research in Economics and Management Sciences defines SMEs as businesses with 1-199 people with an annual turnover not exceeding ₦499, 000,000.00. The indicators used in the above definitions ranges from a firm’s number of employees, asset value, and turnover level. In these definitions by the Nigerian organisations, although both are based in one country, yet they define SMEs

differently. Each organization either uses a single or multiple indicators for defining the term. Once more, even where the same indicators were used, they tend to differ in terms of the definitions assigned to them.

In Ghana, we have two public institutions, namely the National Board for Small Scale Industries (NBSSI) and the Ghana Statistical Service (GSS), also coming out with their definitions of SMEs. The NBSSI is the apex public institution mandated to promote the development and growth of Micro and Small Scale Enterprises. They defined Micro enterprises as those that employ between 1 to 5 people with fixed assets not exceeding the cedi equivalent of 10,000 USD excluding vehicles, land and buildings. Small enterprises employ between 6 and 29 with fixed assets not exceeding the cedi equivalent of 10,000 USD. Medium enterprises employ between 30 and 99 with fixed assets not greater than the cedi equivalent of 1,000, 000 USD. Hence, SMEs constitute enterprises with fixed assets not greater than the cedi equivalent of 1,000, 000 USD and employ between 6 and 99 workers.

The major challenge associated with this definition is the use of the Ghana Cedis as the unit of measurement relative to the United States of America Dollar. The problem is that the value of the Ghana Cedi relative to the Dollar tends to be unstable. Since the Ghana Cedis is invariably unstable relative to the Dollar, there is the tendency to also have an unstable value as regards determining the value of assets of SMEs at any point in time. In the same way as the NBSSI, GSS also employs the “number of employees” and “value of fixed assets of businesses” indicators in defining an SME.

GSS considers firms with fewer than 10 employees and has plant and machinery (excluding land, buildings and vehicles) not exceeding 10 million

Ghana Cedis as small-scale enterprises and their counterparts with more as medium and large-sized enterprises. Therefore, according to the GSS, a business organization is considered as an SME if its workers and value of fixed assets are not less than 10 workers and 10 million Ghana Cedis. This definition presents a picture which is in sharp contrast with that of the NBSSI. This picture, again, shares similar characteristics with the outcomes of the definitions by the Nigerian organizations.

Guided by the above information, there is no dispute about the fact that the SME defies a universally accepted definition. Despite the varying perspectives in the above definitions, researchers are in agreement in indicating that SMEs are defined in terms of size or market share; capital base; numbers of employees; turnover and asset value among others.

However, this study in particular employs the definition given within the Ghanaian context so as to make a justifiable premise in the selection of targeted participants for the study. Hence, for the purpose of this study, the definition by NBSSI in terms of number of employees of an SME is used. This is because the value of fixed assets criterion is fraught with the problem of frequent changes in the United States of America dollar value relative to the Ghana Cedi. Secondly, the NBSSI is the apex government institution mandated to promote the development and growth of SMEs.

Meaning of ICT

Information and Communication Technology (ICT) is often used as an extended synonym for Information Technology (IT). IT can be defined as technology that is used to handle data, information and knowledge. It involves

the use computer hardware, software and telecommunications of devices to store, manipulate, convert, protect, send and receive data (Olifer & Olifer, 2006). Ritchie and Brindley (2005) defined ICT as “the array of primarily digital technologies designed to collect, organize, store, process and communicate information within and external to an organization”.

Today, Communication technology is an important part of IT, hence, Information and Communication Technology (ICT). ICT is a more specific term that stresses the role of unified communications and the integration of telecommunications. It involves computers, software, storage and audio visual systems, which enable users to access, store, transmit and manipulate information. Today, ICTs must be conceived broadly to encompass the information that businesses create and use, as well as the wide spectrum of increasingly convergent and linked technologies that process that information. Therefore, ICTs can be viewed as a collective term for a wide range of software, hardware, telecommunications and information management techniques, applications and devices. These technologies are used to create, produce, analyse, process, package, distribute, receive, retrieve, store and transform information (Porter & Millar, 1985; Brady, Cronin, & Brand , 2002).

The definitions of ICT by (Olifer & Olifer, 2006; Ritchie & Brindley, 2005; Barba-Sanchez, Del Pillar Martinez-Ruiz, & Jiminez-Zarco, 2007) invariably agree with the definitions put forward by Porter and Millar (1985), and Brady et al., (2002). ICT incorporates primary digital technologies, like mobile phones, computers and other digital communication media, designed to collect, organise, store, process, analyse and communicate both internal and external to organisations (Ritchie & Brindley, 2005; Barba-Sanchez et al.,

2007). Therefore, ICT as an umbrella term 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. ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries.

Importance of ICT to the growth and development of national economies

In the past, most political and development planners classified ICT as a luxury service and, therefore, ICT did not feature prominently in the national strategies for socio-economic development. However, in the contemporary world, ICTs are increasingly seen as key elements for development (Galloway & Mochrie, 2005). Luccetti and Sterlacchini (2004) substantiate this finding that ICTs are the drivers of economic growth. The contributions of ICTs to general economic development are varied, but the key ones include:

- Facilitating social change and economic activity,
- Improving quality of life,
- Bringing cost-benefits in rural social service delivery,
- Enabling political participation, promoting good governance and transparency (Panos, 2004).

According to Crede and Mansell (1998), ICT is crucially important for sustainable development in developing countries. This statement is acknowledged by Thioune (2003), who noted that for the past two decades, most developing countries have witnessed significant changes that can be traced to ICT. These multi-dimensional changes can be observed in almost all

aspects of life-economics, education, communication and travel. Martin (2005) argues that quality of life, as well as prospects for social change and economic development, depends increasingly upon information and its exploitation. So, ICT revolution has had profound impact on all aspects of growth, equity, and governance for countries at all levels of development. For these reasons, Adekunle and Teller (2008) and Apulu and Ige (2011) describe ICT as a catalyst for development in both developed and developing countries.

Importance of ICT to SMEs Growth

It has been established by several empirical studies (Boachie-Mensah, 2006; Acquah, 2012; Barba-Sanchez et al., 2007) concerning the various roles that have been played and continue to be played by the integration of ICT in the business processes of corporate organisations. Generally, ICT applications have the potential to provide several benefits with respect to the internal and external operations and transactions of businesses.

These benefits can be seen in terms of enhancing the knowledge and information management inside the firm, reduction in transaction costs, increase in the speed and reliability of transactions for both business-to-business and business-to-consumer transactions (Duan, Mullins, Hamblin, Stanek, Sroka, Mavhado, 2002). This assertion is supported by a study by Minton (2003). He reported that through the use of ICT, SMEs can gain from developing capabilities for managing information, intensive resources and enjoy reduced transaction costs. He added that SMEs stand to develop their capacity for information gathering and gain access to rapid flow of information. In the same way, to propel SMEs to play meaningful roles in the

socio-economic development of the country requires the adoption and use of ICTs to organize supplies, link customers, employees, acquire market information including prices and customer preferences, among others (Frempong, 2005). Furthermore, Onugu (2005) affirms that ICT enables business organisations to decrease costs, increase organizational capabilities and also, assist to shape inter-organizational coordination. Therefore, the use of ICT can help to lower coordination cost and increase outsourcing in organizations. And so, for most business organisations today, ICT has certainly brought some benefits.

However, Schubert and Leimstoll (2007), opine that there are two schools of thought with regard to the issue of ICT value to SMEs. The one, known as Porter's theories, says that ICT adds value to SMEs and the other, known as Millar's theories, believes that ICT does not really add any value since it is a commodity, just like electricity, available to everyone. Nevertheless, they agree that competitiveness of an SME depends on the ways in which ICT is used to support business processes. Therefore, having ICT implemented in a business does not necessarily give the business any competitive advantage, but having it linked to the business processes and strategy will most likely give a competitive advantage.

ICT Evolution in SMEs in Ghana

Acquah (2012) recounts that though ICT has been with us for some time, its usage in organisations and firms within Ghana did not become so popular until the last two decades. He added that though individuals and organisations were using faxes, telegraphs etc. most organisations 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 the 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. This has led to enhanced customer satisfaction, leading to repeated business and growth and development of firms. For example, before the advent of ICT, lovers of music would have to travel extensively to look for the Compact Disc of their favorite artiste. Nevertheless, with today's modern ICT, people can purchase the music of their favorite artiste online and download them to PC's, tablets, and smart phones 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 while 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 (Acquah, 2012).

ICT usage in Ghana has undergone much 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 non-existent 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 SMEs (Acquah, 2012).

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 (Acquah, 2012). 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 (Acquah, 2012).

The age of smart phones, 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 an 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 smart phones 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 (Acquah, 2012).

ICT Policy Environment for SMEs in Ghana

ICT 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. This was intended to boost electronic commerce. Consequently, in the late 2003, Ghana government enunciated the National ICT for Accelerated Development Policy (ICT4AD) to provide the framework for utilizing ICTs in every sphere of socio-economic activities of the country (Boah-Mensah, 2008). The main objective of the policy is to facilitate an ICT-led socio-economic development process which could transform Ghana into a middle income, information-rich, knowledge-based and technology driven economy and society (Ghana Government, 2003).

The achievement of the objective of the policy entails supporting the development, deployment and exploitation of ICT services by institutions, business enterprises and individuals in the country. The policy is to position ICTs as one of the tools to enable the government to achieve its development goals as envisioned in the Ghana Poverty Reduction Strategy (GPRS) I and II. In view of this, the ICT4AD Policy has identified 14 priority focus areas which ICTs could play enabling roles to support accelerated national development.

Out of this number, four directly relate to business activities of which SMEs dominate. These are:

- facilitating the development of the private sector.
- developing globally competitive service sector.
- modernization of agriculture and development of the agro business sector.
- developing an export oriented ICT products and service industry.

Theoretical Review

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, business growth projections 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.

Technology adoption research shows in almost all cases, especially in network technologies such as ICT, that S-shaped adoption curves can be observed. The diffusion of an innovation starts slowly with a few early adopters. As the benefits of the new technology can be observed by others, the diffusion and the speed of penetration increase. When most potential adopters have the new technology the speed of diffusion decreases again until the

saturation level is reached, where entrepreneurs might not see a benefit of the new technology but fear to have a disadvantage if they don't use it (Müller-Falcke, 2001). The ICT adoption models below provide the theoretical framework for this study. The models help to explain and advance the understanding of ICT use in SMEs.

Department of trade and industry (DTI) model. This model was developed by Martin and Matlay (2001). When SMEs are viewed purely from a technological point of view, they tend to suggest that engagement with the technology is sequential and progressive. The sequence begins with the use of e-mail and progresses through Web site development to the buying, selling and payment mechanisms of e-commerce, to the supply chain management of e-business and the new business models built on full immersion in the technology. This “adoption ladder” approach is favored by the UK government's Department of Trade and Industry (DTI) and hence the name of the model.

This implies that business benefits derive directly from the organizational change and increasing ICT sophistication that the Internet facilitates. That change is progressive and the greater sophistication derives, in turn, from the supposed unique qualities of the Internet: ubiquity; interactivity – that permits collaboration; speed – that allows businesses to build quickly; and intelligence – endowing the ability to retrieve, store and process information. These qualities, it is argued, offer new ways of organizing value chains (especially disintermediation and reinter mediation) and allow new forms of marketplace to emerge. It implies that all SMEs have the need and

opportunity to follow one prescribed course; with the implication that not to finish the course (cross the divides and climb to the top of the ladder) is some kind of failure (Kenney & Curry, 2001).

Pervious-impervious trade off (PIT) model. Foley and Ram's (2002) PITs model has analyzed adoption of e-business technology in SMEs. In this model the two came up with two elements that an enterprise can adopt in its operations; the functions that ICT can be used in the firm, and the activities it can be applied to. First, ICT and the Internet can be used by SMEs for three increasingly sophisticated activities, which give the model its name, publish and publicize information on a Web site, such as product and contact details and other "brochure ware", plus terms and conditions or delivery schedules.

To interact with customers and suppliers through automated communications systems that are more than the simple exchange of emails and for example, verify credit cards or recognize returning customers and to transform the way a business undertakes its activities, allowing customers to specify delivery times and places or enabling real time tracking of deliveries. The PIT model is a decision support tool to evaluate the use of pervious (also known as porous or permeable) pavements for parking lot design. The user of the tool can evaluate the potential use of pervious pavements while considering cost, infiltration, peak runoff, and a range of site-specific conditions.

Emergency change theory. The introduction of any technological aspect is usually taken up at a slower rate at the beginning by firms because of resistance to change. Theories have been developed to explain change but the

emergent theory best suits the ICT sector. The Emergent Approach has come up and it started from “the assumption that change is continuous, open-ended and unpredictable process of aligning and re-aligning an organization to its changing environment.” (Burnes, 2000)

This approach argues that it may be hard to plan for change sometimes and that even managers may not always know the full consequences of their actions and their plans may not always be understood. Thus, most proponents of this approach argue that change needs to be studied across the different levels and also time periods. This is because organizational change cuts across functions, spans hierarchical divisions, and has no neat starting or finishing point; instead it is a ‘complex analytical, political and cultural process of challenging and changing the core beliefs, structure and strategy of the firm’. This argument supports what Burnes says that there is no particular prescription for managing organizational transitions successfully due to time pressures and situational variables.

Innovation-decision process framework (IDPF). Everett Rogers' IDPF is the definitive source for learning strategies aimed at gaining adoption of complex and controversial technologies. The framework relies upon well-established theories in sociology, psychology, and mass communications to develop a concise and easily understood approach to consumer acceptance of new technologies. Rogers (1995) postulates that the dissemination of technology, given its inevitable unanticipated, unintended, and undesirable consequences for some, and sometimes for all, entails a strong commitment to ethical standards of professional practice.

The mistake made most often in attempts at technology transfer is to assume that transmission of the scientific facts about the technology will be sufficient to gain adoption of it. Because science is known to fail, because factors other than technical risk assessments affect decisions to adopt, because for complex and controversial technologies the public demands attention to their values and assurances of competence to give their trust to the developers and managers of these technologies, technology transfer strategies must find ways to address value-based concerns, instil trust in technical risk assessments, and ease the transition to using the new technology.

Hence, for SMEs to adopt ICT in their business operation, critical elements of technology transfer include implementing good risk communication skills and working with the media to facilitate reasonable presentation of arguments in favor of and opposition to the new technology. To effectively gain adoption or rejection, however, SMEs must also

- Influence the social comparison process that provides the required connection between persuasive arguments and choice shift. That is, understand the social system;
- Understand the innovation-decision process. That is, the time sequence of adoption decisions;
- Assist in easing the transition to the new technology, which includes changing attitudes, behaviors, and infrastructure support for the new technology. That is, reduce transaction costs, and
- Mitigate negative consequences associated with new technology adoption.

Technology acceptance model (TAM). An information systems theory that models how users come to accept and use a technology. This Model was initially proposed by Davis (1989) to explain why a user accepts or rejects information technology by adapting theory of reasoned action. TAM provides a basis with which one traces how external variables influence belief, attitude, and intention to use. Two cognitive beliefs are posited by TAM: perceived usefulness and perceived ease of use, which determine attitudes to adopt new technologies.

The attitude toward adoption will decide about the adopter's positive or negative behaviour in the future concerning new technology. Beliefs about the system, perceived usefulness, and perceived ease of use in the model directly affect attitudes toward use. In the model, people who perceive technology as useful and easy to use will accept it more readily than those who do not, with usefulness more important than ease of use. TAM also proposes that external factors affect intention and actual use through mediated effects on perceived usefulness and perceived ease of use. Figure 1 depicts the model.

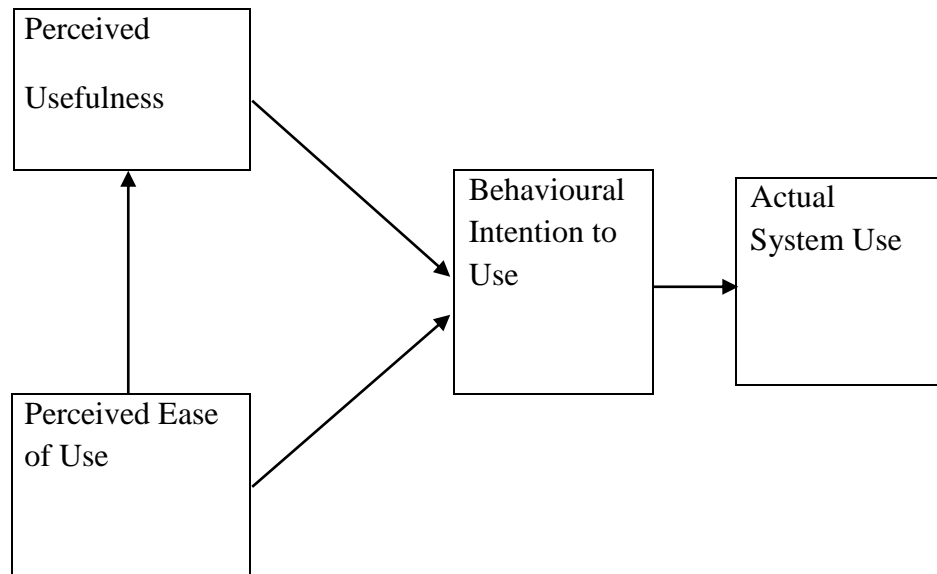


Figure 1: Diagram/schematic of theory

Source: Davis, 1989

The Model has been described to stem from the theory of reasoned action and aims at predicting the attitude of potential users towards a new technology by focusing on individual perceptions in evaluating costs and benefits. This implies that adopting a technology may inform the decision of the adopter to cut down the number of employees in the organization in an attempt to minimize cost. Again, considering the capital and the market share/turnover of an organization if they are small will inhibit adoption and so does asset value.

Accordingly, Ghobakhloo, Sabouri, Hong, and Zulkifli, (2011) identified that limited financial resources compel SMEs to be cautious about their investment and capital spending and that financial resources are one of the most crucial resources which are known as the key SMEs performance requirements and are the critical success factors. According to Forman and Goldfarb (2006), Technology Adoption Model has proven to be a robust model that is frequently used to study user acceptance of ICT. It is widely viewed as

an information system theory which helps to understand the adoption and use of internet (Gibbs, Sequeira, & White, 2007; Davis, 1989). The theory helps to understand how adopters come to accept or reject the use of ICT in their small businesses.

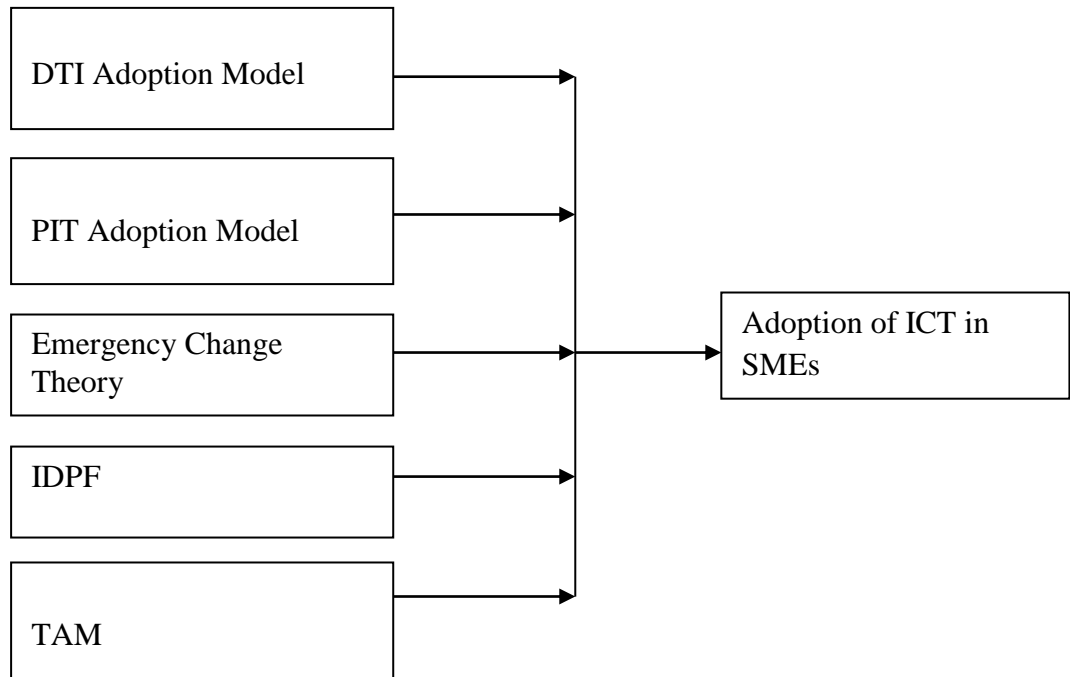


Figure 2: Theoretical Framework

Source: Author, Mongson (2015)

Empirical Review

A number of related empirical literatures have probed into the subject of ICT usage in relation to SMEs with varying opinions and divergent views.

Preferred ICT tools and their usage among SMEs. Acquah (2012) cites that Esselaar, Stork, Ndiwalana and Deen-Swarray (2007), in their research on ICT adoption and usage among 13 African countries, selected 280 SMEs from each of these countries, including Ghana. They categorized ICT tools preferred among SMEs into mobile phones, fixed lines, internet, and postal mail.

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. Acquah (2012) agrees with this finding that 86.7% of the respondents said that ICT tools like mobile phones have 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.

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). Frempong (2005) and Acquah (2012) affirmed this position by reporting that the mobile phone is the most used ICT facility by SMEs to link customers in Ghana. Frempong (2005) recounted the reason for this situation as the use of other ICT services, requiring a more permanent, secured business structures and premises. However, most SMEs (especially artisans) operate in temporary and makeshift structures.

Fixed lines. Sixty per cent 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% stated 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 (Esselaar et al., 2007). Correspondingly, Frempong (2005) established fixed-line phones as the second most owned and used ICT facility by SMEs to link customers in Ghana. This underscores the comparative importance of ownership and use of fixed-line

phones by SMEs in Ghana. Again, he mentioned that one of the factors which has accounted for the comparatively low use of fixed-line phones is the difficulty of getting a subscription which is also dependent on the availability of the service in the area of the applicant.

Clearly, the mobile phone is 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).

Use of internet. 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 (Esselaar et al., 2007).

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. Frempong (2005) to a very large extent corroborates this finding by reporting that the use of Internet has not been ingrained into the operations of SMEs in Ghana. He stated that in terms of internet usage, SMEs in the informal and semi-formal categories rates were 10 (14.3 percent) and 22 (23.6 percent) respectively. He added that the low uptake of internet by SMEs in Ghana is contrasted with the situation in Europe where nine out of ten SMEs were equipped with computers at the end

of 2000 and early 2001, and Internet was routinely used among SMEs (OECD, 2010).

Similarly, Barba-Sánchez et al. (2007) report that in most OECD countries, internet penetration rates for medium-sized companies are approximately the same than for larger enterprises and small firms have a slightly lower penetration rate, generally between 80% and 98%. In the study by Esselaar et al. (2007), 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.

According to ITU (2010), internet usage in Ghana between 2000, 2006, 2008 and 2009 were 30,000, 401,300, 880,000 and average of 4.2% of total population in 2009. Though Ghana's growth rate was significant when compared to the other countries, and ranked 7th in Africa, it is far below the average of 5.3% recorded in Africa. Likewise, Akomea-Bonsu et al., (2012) report that 29 SMEs representing 72.5% use the internet for their business in Kumasi whilst 11 firms representing 27.5% does not use the internet in their business. Among the firms that used the internet, 24% (7) use it to send emails and communicate. 31% (9) use it to locate customers and contracts. 35% (10) used the internet to access general business information whiles 10% (3) source for raw materials with the internet. Again, Acquah (2012) posits that 50% of SMEs in Tema use the internet in their businesses. He added that the internet is used by the SMEs mainly for long distance communication. These reports clearly indicate that internet usage by SMEs in Ghana is on the increase and also it is used in diverse ways.

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 (Esselaar et al., 2007) . Similarly, Frempong (2005) indicated that only 14.3 percent and 20.4 percent of the SMEs from the informal and semi-formal categories respectively utilised internet cafes.

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 (Esselaar et al., 2007). Similarly, Akomea-Bonsu (2012) recounts that internet usage among SMEs in Ghana is generally low. 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). Akomea-Bonsu et al., (2012) validate this assumption by recounting that, among the SMEs that did not use the internet, 33% said it was due to the lack of finance, 15% of the firms attributed it to the non-availability of infrastructure, 17% of the firms did not give any reason for not using the internet and 35% also said it was due to the lack of knowledge on how to use the internet to improve their businesses.

UNCTAD (2005) reports that access to the web in developing countries was primarily restricted to e-mail communication and many people thus continue to view the internet and its application as simply a medium for e-mail communication, faxing and web surfing, making majority of them not fully

aware of other web-based applications in Africa. These unique characteristics affect internet technologies adoption in SMEs in Africa.

The situation in Ghana is not different. Currently, the Internet is most commonly used by SMEs in Ghana for communication and research and least used for e-commerce as e-mail is considered an important means of communication (Addo, 2008). However, the extent of use is limited by the SMEs' recognition of the importance of face-to-face interaction with their buyers and suppliers. ICT usage patterns among SMEs in Ghana show a progression from the use of the Internet for communication mainly e-mail to use of the Internet for research and information search, to the development of Web sites with static information about a firm's goods or services, and finally to use of the Internet for e-commerce. To date, e-mail is the predominant and most important use of the Internet in Ghana. This is due to the relatively high Internet access costs in most developing countries.

However, the Internet is considered an inexpensive alternative to the telephone or facsimile machine. It is inexpensive due to the higher speed of information transmission and imperfect, because it does not provide two-way communication in real time unlike the telephone (Addo, 2008).

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).

Drivers of ICT usage in SMEs. Drivers can be defined as motivator factors leading the effective and efficient usage of ICT. It is essential to take into account that for an organization to adopt ICT systems and elements and strategies, the entity must understand the drivers of ICT usage in order to maximise the chance of its success in implementation. However, not all businesses more especially SMEs know or understand these drivers and thus exploit them order to facilitate or enhance the adoption and usage of ICTs in their businesses.

A number of factors have been cited by various Researchers as influencing the use of ICTs by SME operators. As observed by Barba-Sánchez et al. (2007), some key factors determined to drive the use of ICT among SMEs include (1) basic demographic factors such as age, ethnicity and gender, (2) training and experience effects, psychological differences between individuals and innovation orientation. Similarly, Frempong (2005) reported that the use of ICT services largely depends on accessibility and literacy level of SME operators.

External pressure like pressure from business trading partners is one of the important predictor that has strong influence on adoption of ICT. Lacking of pressure from their trading partners, the business manager may perceived the technology as a waste of resources (Thong & Yap, 1996; Iacovou, Benbasat, Dexter, 1995). When a major supplier or customer adopts ICT, the small business owner is more likely to adopt (Kirby & Turner, 1993). Julien and Raymond (1994), and Thong and Yap also confirmed industry sector has been shown to be interested to adopt technology if competitors and trading partners or a whole industry are adopting ICT.

Again, both industry and government bodies have a role to play in promoting and supporting small business networking and ICT. According to Doig (2000), Australian governments are committed to accessible e-commerce for SMEs, and have decided that some intervention was necessary to make participation affordable, particularly for small and remote businesses. A case in point in Ghana is the ICT4AD policy. Other aspects that should also be considered are the availability of ICT competencies within the firm as well as the availability and cost of appropriate interoperable small-firm systems, network infrastructure and ICT related support services (Leenders & Wierenga, 2002; Prasad, Ramamurthy & Naidu, 2001).

Another key element in the adoption of ICTs among SMEs is the innovation orientation. There is no consensus on this concept, which has made it difficult to develop a consistent theoretical research body (Siguaw et al., 2006). Despite its importance, few works have devoted to the study of this concept – although there are several definitions of the term. Homburg et al., (2002) view innovation orientation as a function of “the number of innovations a company offers, how many customers the innovations are offered to, and how strongly these innovations are emphasized”. Worren, Morre, and Carmona, (2002) promote the idea of “common” mission” and innovation climate of new ideas. Most definitions concur first and foremost that innovation orientation is a learning philosophy in which firms have common standards and beliefs about learning and knowledge that pervade and guide all functional areas toward innovation.

As Siguaw et al. (2006) suggest, innovation-oriented firms possess the inclusion of a future oriented concept of the business, captured in the strategic

beliefs and understandings that define who the firm is and how the activities of the organization are assembled to ensure that innovation happens in a timely fashion – the strategic direction.

Guided by these considerations, some key elements can be mentioned to foster an adequate introduction of ICT-based solutions in SMEs. First, it is worthy of recommendation that ICT-based solutions be introduced gradually in SMEs. This is because technology adoption research shows in almost all cases, especially in network technologies, such as ICT, that S-shaped adoption curves can be observed. The diffusion of an innovation starts slowly with a few early adopters. As the benefits of the new technology can be observed by others, the diffusion and the speed of penetration increases. When most potential adopters have the new technology the speed of diffusion decreases again until the saturation level is reached, where entrepreneurs might not see a benefit of the new technology, but fear to have a disadvantage if they do not use it (Martin et al., 2001). Second, adequate training and support are required (Barba-Sanchez et al., 2007). The adoption of continuous training solutions can play an important role in increasing the awareness of the huge potentialities of ICTs for concrete situations. In this way, employees, managers, and entrepreneurs can acquire a learning culture, integrating the training in their work activities and understanding in depth the potentialities of communication and information tools (Brady et al., 2002). Furthermore, a further fundamental element of concern is developing a full awareness of the huge potentials of ICT (Holmqvist, 2003). The path to full awareness should move from introducing concrete and short-term benefits for the companies, followed by the presentation of more general and long-term advantages.

Finally, by bearing in mind that the introduction of ICTs in SMEs can bring a real modification in the way of working, the introduction of ICT-based processes should take into account the specific culture of the company. This implies that the background of the entrepreneur and/or the managers is important as well as their openness to innovation orientation (Akkeren & Cavaye, 1999).

Barriers to use of ICT in SMEs. Barriers can be defined as inhibitor factors exacerbating the effective and efficient usage of ICT. Business organisations, especially the large ones, have realized the untapped, but important, use of ICTs in their line of business, and have moved in to take advantage of it. Previous studies on ICT adoption report that SMEs in developing countries have not fully capitalised on technological developments to grow their businesses (Humphrey et al., 2003; Shemi & Procter, 2013). Researchers have identified a variety of factors that affect technology usage in SMEs. The many factors identified can be categorized as relating to the barriers of ICT usage in SMEs.

Cost of acquiring and maintaining ICTs. The implementation of ICTs in an enterprise call for a sound financial management for the enterprise to be able to afford the costs involved therein. This is still a major factor in Ghanaian businesses today. The costs cover the actual hardware, software, internet and intranet, installation and maintenance of the same.

Most of the SMEs are running at low profits which make the implementation of ICT an uphill task and almost a farfetched dream to come true (Van Horne, 2002). Similarly, Acquah (2012) posits that high cost of software and hardware is one major barrier to ICT use among SMEs in Ghana. Likewise, according to Duncombe and Heeks (2001), SMEs in Botswana cannot afford to buy a computer. Once more, Herselman (2003) posits that in South Africa high cost of connectivity is one barrier to the use of the internet.

Education and skills. The education and skills of the owner-manager is a crucial part of the SME as he or she makes all or most of the decisions regarding the business (Southern & Tilley, 2000; Buckley & Montes, 2002). Duan et al. (2002) postulate lack of ICT skills and knowledge by SME operators who are invariably owner-managers as one of the major challenges faced by all European countries, particularly in the UK, Poland and Portugal. This claim is affirmed by Martin (2005), and Mutula and Van Brakel (2006).

A large proportion of the Ghanaian population has not undergone a formal ICT training. This is because until recent times ICT and its related fields was not part of the Primary, Secondary and Tertiary education curriculums. Most of the proprietors of these SMEs belong to the age bracket of 30 to 50yrs. Therefore, education and skills needed become a paramount factor in embracing and executing ICT in their business (Acquah, 2012).

Government policy. In developing countries, some of the ICT adoption challenges include legal and regulatory issues (Thong & Yap, 1996). Several developing nations are dealing with typical ICT issues such as lack of appropriate products, cost of ICT devices, education, local language content, human resources and robust regulatory framework for ICT growth. In order to overcome these challenges, governments in developing countries are designing and adopting ICT policies and action plans. The policies and action plans are important tools for governments in developing countries in attracting foreign investments (UNCTAD, 2005).

The Ghanaian Government has developed numerous strategy papers on ICT usage in SMEs. These strategic papers have been a basis of government policies. Key among them is the ICT4AD policy. The task will be to look into the policies to see if they ease or affect the ICT usage in these businesses. The lack of a theoretical foundation in making and adopting these policies often results in gaps among policy design and actual outcomes and effectiveness of policy implementation.

Attitude of SME owner-managers towards ICT use. The attitude of managers or owners towards change has been known to affect use of ICT in SMEs. If the owners perceive that the ICT will bring less benefit to the organisation, they will be reluctant to adopt it. Some of the managers will be reluctant to adopt ICT because they lack competences in the area. So, they develop adverse attitude towards technology. SMEs can benefit either as producers of ICT or as users of ICT for purposes such as increased productivity, faster communications and reaching new clients.

However, it must be noted at the outset that not all SMEs need to use ICT tools to the same degree of sophistication. The most basic ICT tool is having communication capabilities through fixed lines or mobile phones, whichever is more cost effective. SMEs may then use a personal computer (PC) with basic software for simple information processing needs such as producing text or keeping track of accounting items. Internet access enables SMEs to have advanced communication capabilities such as email, web browsing and launching a website.

Accessibility to ICT. Previous studies have identified accessibility to ICT by SMEs as one of the major factors affecting adoption of ICT in SMEs. For instance, Adebayo, Balogun and Kareem (2013) discover that ICT infrastructure is one of the main factors affecting ICT adoption in Nigeria by SMEs. The study of Sajuyigbe and Alabi (2012) also confirm that ICT infrastructure is one of the main challenges of ICT adoption by SMEs in Nigeria. Again, Herselman (2003) point to lack of infrastructure as one factor militating against the use of ICTs by SMEs in South Africa. Lack of fixed telephone lines for end-users, dial-up access and the underdeveloped state of the Internet Service Providers (ISPs) have been identified by Kapurubandara and Lawson (2006) as problems that hinder SMEs' adoption of ICT in a developing country. According to Cloet et al. (2002), in a study of SMEs in South Africa, they discover that ICT adoption is significantly influenced by lack of access to computer software, other hardware, and telecommunication at a reasonable cost. A similar study in China by Kunda and Brooks (2000) confirm that limited diffusion of computers, and a lack of online payment

processes are the major factors that directly inhibit ICT adoption by SMEs. Okwuonu (2013) concludes that poor communications infrastructure leads to limited access and higher costs.

Analysing East and South Africa's ICTs physical infrastructure, nation-wide diffusion of ICTs is rather low by international standards in East Africa, as it is underscored by a comparison with South Africa. For instance, in Tanzania the intensity of telephone main lines and mobile phones is less than 4 percent of the comparable intensity for South Africa and in Kenya the situation is only slightly better. Actually the waiting time for a fixed phone in Kenya is by far the longest in East Africa and has even increased from 5.6 years in 1997 to 9.6 years in 1999. The increase in mobile phones was most rapid in Tanzania where it increased from 0.1 phones per 1000 people in 1995 to 1.6 in 1999, but was also considerable in the other countries (Wolf, 2001).

However, cognisance is taken of the fact that in the informal sector in Ghana and other African countries, lack of ICT facility does not necessarily mean lack of access. An informal business operator can use the facilities of a neighbour to meet his/her communication needs (Frempong, 2005). The use of ICT facilities, such as the internet and mobile phone, in Ghana appears viable in regional and district capitals and available literature indicates that higher benefits can be generated in urban market where internet service is better, with more ISPs, which offer higher speeds and greater access (Addo, 2008).

Awareness of benefits of ICT. SMEs more especially in the developing countries, have low awareness about their operating environment. They are, therefore, unable to take advantage of opportunities to improve upon their business. For this reason, although SMEs increasingly use the internet for a variety of commercial and production-related purposes, on average they have a limited understanding of the full range of benefits of e-commerce. This lack of awareness of the countless potential of e-commerce is one important barrier to its use and it is a matter of serious concern (Turban, McKay, Marshall, Lee, & Viehland, 2008).

Ownership of ICT. The likelihood that SMEs will exploit the benefits of ICTs also depends on ownership of the ICTs by the SMEs. Frempong (2005), in his analysis of the result of a survey of ICT facilities used mostly by enterprises to link customers in the three main commercial and industrial cities in Ghana, namely Accra/ Tema, Kumasi and Takoradi, came out with the following: Mobile telephone was the dominant ICT facility owned by the majority of the SMEs with Internet as the least. Fixed line and E-Mail placed second and third respectively. The prominence of mobile telephones is linked to increased mobile telephone subscription in the country. Since 2002, there have been more mobile telephones in the country than fixed lines. For example, in 2002, the total mobile telephone subscribers in the country were almost 300,000, while that of fixed line was around 275,000.

National Communication Authority in Ghana (as cited in Frempong, 2005) has observed that at the end of April 2006, the total mobile telephone subscription stood at 3.4 million, while that of fixed line telephones was 0.34 million. One of the factors which has accounted for increased subscription to mobile telephone service, in spite of its high cost, is the ease of getting a subscription. One can subscribe to the service within few moments after purchasing the starter packs, while subscription to fixed line telephone service can take months and even years depending on the availability of the service in the area of the applicant. Therefore, mobile telephone has become important business tool owned and used by SMEs in Ghana.

These factors are shown in figure 3 which also indicate the conceptual framework of the study.

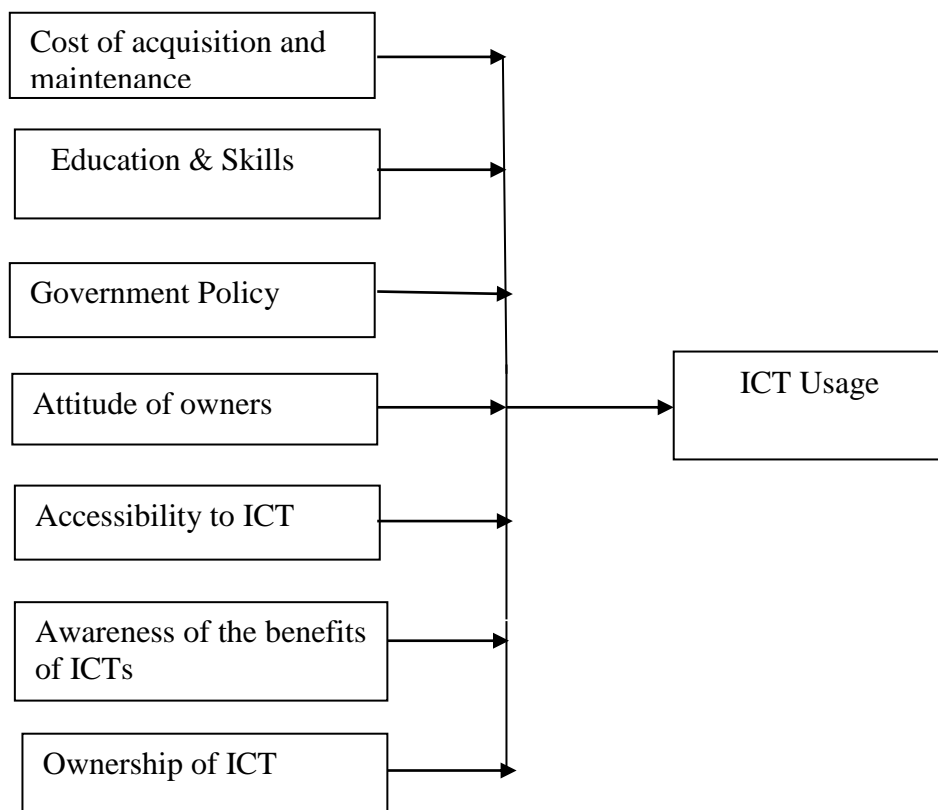


Figure 3: Conceptual Framework

Source: Author, Mongson (2015)

Chapter Summary

The empirical literature has provided insights into preferred ICT tools and usage for communication among SMEs. Elements that drive SMEs to incorporate ICTs into their business operations were also looked at. It also examined various factors that hinder ICT usage for improved SMEs performance from various stand point and with varying literally perspectives and insightful empirical findings.

The foregoing discussion on ICT adoption shows clearly that most of the studies on ICT adoption among SMEs have been done in the developed world in contrast with developing countries such as Ghana. Research on ICT adoption in SMEs in Ghana is still limited at the time of this study. Given the increasing importance of ICT to the development of SMEs, ICT diffusion among SMEs will be the key to the growth of this vibrant sector. This study fills a gap by assessing the determinants of ICT usage for improved SMEs performance which is an important linkage that is found missing in the literature in the Birim Central Municipality.

Lessons learned and observation of ICT usage among SMEs from research may be applied by researchers to enhance research in ICT. Many researchers have proposed ICT adoption factors, some of which are barriers, benefits or realized benefits (Jensen, 2001). Other factors focused on human, management and organizational issues and challenges (Krell & Gale, 2005), while yet other factors are termed critical success factors or drivers (Jensen, 2001). The concept of innovation often appears in the context of technology adoption and has also been used in context of ICT adoption research (Rogers,

1995). Conversely, skill shortages and lack of knowledge are found to be inhibiting adoption factors along with other less obvious hindrances, advantages and opportunities (Jensen, 2001; Al-Mashari, 2002).

CHAPTER THREE

RESEARCH METHODS

Introduction

Research methods section describes the methods and procedures to be used to carry out this study. This chapter covers the overall methodology employed in the study. These include the research approach, study design, study area, population of the study, sample and sampling procedures, data collection issues, instrument design and ethics. The others are field work and data preparation and analysis.

Research Approach

The Researcher for the most part employed Qualitative orientation in this study. This stems from the following reasons. First, according to Neuman (2007), Qualitative research involves the collection of data which by nature is in the form of words and sentences. The data collected in this study is characteristically fit into this form. Secondly, this study relies more on the principles from interpretive social science as it emphasized on conducting detailed examination of the specific case of “ICT use among SMEs” as opposed to measuring variables and testing hypotheses (Neuman, 2007). Finally, the choice of qualitative approach also stem from what this study sought to accomplish, which among some few others, is to describe details of the causal mechanism between SMEs and ICTs use. This objective, contrast with the Quantitative approach which seeks to verify or falsify a relationship that is perceived to exist among variables under study (Neuman, 2007).

Research Design

This study is descriptive in nature. The descriptive research design was preferable because, according to Bhattacharyya (2006), it requires that objectives be well spelt out and the sample drawn through a probability sample design. The advantage of this kind of research is that it enables the researcher to draw definite conclusions and make generalisations from the probability sample. Bhattacharyya (2006) further stated that the data collected is useful for measuring demographic as well as behavioural variables such as the attitudes of the respondents who are being studied. Such data can be gathered through interviews schedule, questionnaires or experiments. Since this study sought to assess the use of information and communication technology among small and medium-sized enterprises, the descriptive study was considered to be the most appropriate and would enable the researcher to draw meaningful and relevant conclusions.

Study Area

The Birim Central Municipality is one of the 17 administrative districts in the eastern region of Ghana. It was carved out of the former Birim South District Assembly in 2007 under Legislative Instrument (L.I) 1863 as part of the government's decentralization programme. As a result, in the year 2007 the Municipality was one of the Districts elevated to a municipality status under L.I 1863. The municipality shares boundaries with Birim North and Kwaebibirem (to the north), Birim South (to the West), Agona East and Agona West Municipal (to the South) and West Akim Municipal (to the East). The Municipality, especially the capital Akim Oda, is linked up with many districts

and this promotes commercial activities among the district capitals and other nearby communities.

Administratively, the municipality has four Zonal Councils namely Akroso, Asene/ Aboabo, Manso and Oda with an estimated total population of 37,220, 14,083, 36,318, and 57,576 respectively (birimcentral.ghanadistricts.gov.gh). The population of the Municipality, according to the 2010 PHC is 144,869 with an estimated growth rate of 2.4% annually.

In terms of economic activity status, more than two thirds (68.9%) of the population aged 15 years and older in the Municipality are economically active. The majority (95.0%) of the economically active population are employed, with only 5 percent being unemployed. More than half of the population not economically active (53.5%) are students in full time education, with nearly one quarter (22.8%) of them performing home duties (birimcentral.ghanadistricts.gov.gh).

Focusing on ownership of ICT in the Municipality, of the population 12 years and above, 48.1 percent have mobile phones. About 4.4 percent of the population aged 12 years and older use internet facilities in the Municipality. A total of 2028 households representing 5.6 percent of the total households in the Municipality have desktop/laptop computers (Birim Central DMTDP, 2010). The district map of Birim Central Municipal is shown in Figure 1.

Population

Population, as defined by Bless and Higson-Smith (1995), is the entire set of objects of and events of group of people, which is the object of research

and about, which the researcher wants to determine some characteristics. Neuman (2007) pointed out that most of the time researchers are not able to study an entire population owing to limitations of time and costs, and are obliged to draw a sample. This is supported by Singpurwalla (2013), who stated that it is not feasible to use the whole population in a research study, but a sample must be selected which will be representative of the population. In this study, the research population was all actively operating SMEs in the Birim Central municipality.

The target population was made of eight hundred actively operating SMEs, under different economic sectors, namely Agriculture, Trade and Commerce, Industry and the Service sectors in the four zonal council areas of Birim Central Municipality. For the purpose of this study, proportional sampling method was used to draw the sample size from the various economic sectors in each of the four zones. Table 1 shows the household numbers in each of the four zones. A proportion of 0.30 was taken from each economic sector to give a total sample size of 240. This is shown in Table 1.

Table 1: Target population/Estimated number and percentage of SMEs

Economic Sectors	Target Number of SMEs	Sample Size (30%) of Target Population
Agriculture	400	120
Trade and Commerce	160	48
Industry	100	30
Service	140	42
Total	800	240

Source: Field Survey, Mongson (2015)

Sampling Procedure

The number of 240 respondents was chosen based on the submission by Neuman (2007). According to him, for small population (under 1000), a researcher needs a large sampling of about 30 percent; for example, a sample size of about 300 is required for high degree of accuracy. For moderately large populations (10000), a smaller sampling ratio of about 10 percent is needed to be equally accurate. For large populations (over 150000), smaller sampling ratios of 1 percent are possible, and samples of about 1500 can be accurate. Again, to sample from very large populations (over 10 million), one can achieve accuracy, using tiny sampling ratios of 0.025 percent.

$$n = 0.30 * N$$

$$n = 0.30 * 800$$

$$n = 240$$

Where;

n = desired sample size

N= population size

The type of sampling technique used was the probability sample design and the specific type of sampling design chosen for the study was the multistage sampling method. This was suitable because the sample was stratified into four homogeneous zones, namely Akim Oda, Aboabo-Asene, Manso and Akroso. Furthermore, because the sector did not have the same number of elements, the type of stratified sampling method suitable was the proportionate stratified sampling, where the number of elements in each stratum in relation to total population was chosen (Kumar, 2005). Also, SMEs

in the Birim Central Municipality operate under diverse economic sectors, which are mutually exclusive and exhaustive.

A number of sampling techniques was adopted in order to ensure that the sample has these diversities. The target population of the study was divided according to their location in the four zonal council areas of the municipality. Secondly, the target population in each zonal council area was stratified based on the economic sectors under which they operate. Furthermore, each zonal council area and stratum was allocated a quota of SMEs to be sampled. Finally, simple random selection was used to select SMEs from each of the strata, as shown in Table 2. However, all the decimals were rounded up.

Table 2: Distribution of the zonal sample of the respondents

Zones	Agriculture	Trade & Commerce	Industry	Service	Total
Akim Oda	48	19.2	12	16.8	96
Aboabo-					
Asene	24	9.6	6	8.4	48
Manso	24	9.6	6	8.4	48
Akroso	24	9.6	6	8.4	48
Total	120	48.0	30	42.0	240

Source: Field Survey, Mongson (2015)

Data Collection Instruments

To achieve the research objectives, both primary and secondary source of data was employed in this research. Primary source of data was basically

interviews and administering of questionnaires to retrieve information from SMEs. The questionnaires which were administered to the SMEs provided wide range of options for them to choose from. Secondary source of data for the study include textbooks, business articles and journals, the internet and SMEs published accounts that are directly related to the study area.

Two data collection instruments were used for data collection and they comprised a questionnaire and an interview schedule. The researcher used questionnaires, because some of the respondents were literate and time for collecting data was limited. However, interview schedules were also used especially for the illiterate respondents. Items were of both open- and close-ended forms. The close-ended items were dichotomous response, multiple choice types.

The choice of interview schedule to collect primary data was in view of the high illiteracy rate among many business owners and managers in the municipality. The use of interview schedule in addition, allowed respondents to seek clarifications to questions to enable them respond appropriately and offered the interviewer an opportunity to probe further into relevant issues arising. The interview schedule was used for its advantages that range from personal contact to high response rate. This technique offered the respondents the opportunity to express themselves as much as possible because most of the questions were open-ended. The technique also made it possible for questions to be explained very well to respondents for the right reactions to be obtained. Structured and semi-structured forms were used.

The questionnaire was divided mainly into four parts which sought to ask questions concerning the broad objectives of the research. The first part

deals with the general information of the respondents and that of the business entity they work in. The data collected under this part includes Age, Educational background, Scale of business, Type of business, Number of Employees and Gender. The second part of the questionnaire sought to find from respondents, ICTs preferred by them, their main usage in their business activities and possible barriers to their usage among SMEs. Most of the questions were close ended. The third and final part sought to find out the factors that drive SMEs to exploit ICT into their business operations.

Data Collection Procedures

The researcher conducted the data administration in the four zonal council areas in the Birim Central Municipality. The researcher introduced himself to the opinion leaders in the four zonal council areas as per his student's identity card and introductory letter from the school. Upon a little interrogation from the opinion leaders, they typically asked one of their community members to assist the researcher to conduct the exercise and if I faced any difficulty should not hesitate to inform them for the necessary assistance. All the questionnaires administered by the researcher were done by hand. The questionnaires were administered, first, at the Akroso zonal council area, then Manso, Asene-Aboabo and Akim Oda, in that order. The completed questionnaires were received through personal collection. As the questionnaires were given out to the literate respondents, illiterate respondents were contacted for the interviews to proceed.

A total number of Two Hundred and Forty (240) questionnaires were administered in the four zonal council areas within the Birim central

municipality, namely Akim Oda, Asene-Aboabo, Manso and Akroso. Within each zonal council area, the questionnaires were administered across the four main economic sectors of the municipality. That is, Agriculture, Industry or Manufacturing, Trade or Commerce and Service. Over all, about two months were spent in the administration and retrieving of all completed questionnaire. Out of the 240 questionnaires administered, One Hundred and Eighty-Three (183), representing 76.25%, were retrieved. This consisted of 60 responses from Akim Oda, 42 from Asene-Aboabo, 39 from Akroso and 42 from Manso zonal council areas respectively.

Ethics

The study was carried out only after the expressed consent of participants. The researcher gave a written declaration to assure those concerned of their confidentiality and that the information given would be used for purpose of learning and that it will be treated as such. The official letter from the university helped to instil confidence in the sources of data and, therefore, the letter was of utmost importance to the study. In order to avoid plagiarism, all sources of information were duly acknowledged.

Data Processing and Analysis

The completed questionnaires were gathered and edited to ensure that all the questions had been answered appropriately. Majority of the questions in the questionnaire were close-ended and pre-coded. The responses for the open-ended questions and the interview schedule were coded according to the responses given by the respondents. These coded responses were entered in the

computer, with the use of the Microsoft Excel software. The data entered was further scrutinised and cleaned to ensure that errors made during the entry of the data were rectified to avoid discrepancies.

Chapter Summary

The chapter comprehensively described the entire research design and the methodology for the study. Subsequently, the research approach, sample size, data collection instruments and data analysis techniques have been described.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

This chapter generally presents a detailed discussion and analysis of the findings of the study pertaining to the use of ICTs by SMEs in their business operations in the Birim Central municipality. More specifically, guided by the research objectives and questions of this study, it presents the findings on the analyses and discussions on the preferred types of ICTs that are used by SME operators in the Birim Central municipality. Results and discussion on the main uses of ICTs in the business activities of the SMEs are also presented here. To end with, discussions on the results of the factors that impede as well as drive SMEs to integrate ICTs into their businesses would also be presented in this chapter. The main data presentation is done based on how the research questions appeared in test.

Table 3: Background of selected SMEs by Economic Sector.

Zonal area	Agriculture	Industry	Trade	Services
Akim Oda	33	6	12	9
Asene/Aboabo	24	7	7	4
Manso	18	6	9	9
Akroso	18	6	8	7
Total	93	25	36	29

Source: Field Survey, Mongson (2015)

Table 3 gives a detailed breakdown of the respondents selected from the various economic sectors. Analysis revealed that the Agricultural economic

sector represents more than half (93, representing 50.82%) of the total respondents, while the Industry sector recorded the least respondents (25, representing 13.66%). This gives a clear indication that most of the SME operators selected for this study were involved in agricultural activities.

Table 4: Categories of SMEs by number of Employees

Number of employees	Frequency	Percentage
1-5	147	82.58
6-29	30	16.85
30-99	6	0.56
Total	183	100.0

Source: Field Survey, Mongson (2015)

Based on the definition of SME by NBSSI which was adopted for this study, SMEs can be categorised into micro, small and medium scale enterprises based on the number of employees. Judging from Table 4, 147 (82.58%) of the SMEs sampled are micro enterprises, 30 (16.85%) are small enterprises and 6 (0.56%) are medium enterprises. This indicates that majority of the SMEs sampled are at the micro stage, as defined in Ghana by the NBSSI.

Table 5: Age Distribution of Respondents

Age Distribution	Frequency	Percentage
Less Than 35	44	24.04
36-55	108	59.02
Above 55	31	16.94
Total	183	100.0

Source: Field Survey, Mongson (2015)

Table 5 gives detailed information about the age distribution of the respondents. The results that 44 (24.04%) were less than 35 years, 108 (59.02%) were between ages 36-55 and 31(16.94%) were above 55 years. This implies that the majority of the respondents are in their youthful period. This supports one of the litanies of important indicators as revealed by the 2010 PHC on the Municipality as regards the youthfulness of the population who make up the majority of the economically active and self-employed population.

Table 6: Sex Distribution of Respondents

Sex of respondents	Frequency	Percentage
Male	94	51.0
Female	89	49.0
Total	189	100.0

Source: Field Survey, Mongson (2015)

From Table 6, 51% (representing 94 males) and 49% (representing 89 females) comprised the sex breakdown of the total of One Hundred and Eighty–Three respondents. This gives an indication that most of the sampled SMEs were male dominated than female. This finding is contrary to what Quartey (2000) as cited in Acquah (2012) said that most SMEs in Ghana are female owned.

Table 7: Distribution of Respondents by Educational Level

College	Frequency	Percentage
None	40.00	21.9
Primary	53.00	29.0
O' Level	17.00	9.3
University	11.00	6.0
Other	62.00	33.9
Total	183.00	100.00

Source: Field Survey, Mongson (2015)

From Table 7, out of the total respondents, 53 representing 29% had acquired primary or basic education, 17 making 9.3% had obtained secondary education and 11 representing 6% of the respondents had acquired university education. 62 representing approximately 40% had obtained some other form of education. 21.9 % representing 40 of the remaining respondents had not acquired any form of formal education. This shows that majority (143) of the respondents representing 78.1% had obtained some form of formal education. This finding is corroborated by Frempong (2005) that majority of SME operators have had some form of formal education, except his finding also disclosed that majority of these educated SME operators (a little over 67 percent of the Operators) had received secondary and tertiary education. Against the background of the majority of the respondents having had some form of formal education, administration and retrieval of questionnaires were enhanced. Also, this facilitated the reading and understanding of the questionnaires given to them by the researcher and, thus, provides relevant answers to help the researcher in his data collection, analysis and discussion.

Preferred Types of ICT Facilities used by SME Operators in their Business Operations in the Birim Central Municipality

The researcher, in trying to answer the question on the preferred types of ICT facilities used by SME operators in their business operations in the Birim Central Municipality, asked the respondents to choose from a few given range of options. Among these were mobile phones, fixed line, internet connectivity and postal box. Table 8 gives a detailed breakdown of answers from the respondents.

Table 8: Preferred Types of ICT facilities used by SME Operators in their business Operations in the Birim Central Municipality

	YES	NO	TOTAL
Do you have mobile phone for your business?	136 (74.32%)	47 (25.68%)	183
Do you have fixed line you use for business?	14 (7.65%)	169(92.35%)	183
Do you have internet connectivity?	40 (21.86%)	143(78.14%)	183
Do you have postal box you use for your business?	41 (22.40%)	142(77.60%)	183

Source: Field Survey, Mongson (2015)

From table 8, though all the ICT facilities listed are being used by all of the respondents, majority (136) representing 74.32% respondents use mobile phone for their business. The findings by Esselaar et al. (2007), Frempong (2005), and Acquah (2012) endorsed the ownership and use of Mobile Phone by majority of SMEs. This could be as a result of the increasing importance of mobility and low start-up costs associated with mobile phones. Aside the low

cost associated with it, you do not need a special knowledge and a higher skill to be able to operate a mobile phone as in the case of other ICTs.

On the other hand, as low as 14 making 7.65% of SMEs use fixed line for their businesses. This situation could probably be attributed to the fact that the both mobile phone and fixed line are close substitutes. Another factor which could account for the comparatively low use of fixed-line phones is the difficulty of getting a subscription which is also dependent on the availability of the service in the area of the applicant.

Twenty-One point Eighty-Six per cent (21.86%) and Twenty-Two point Forty per cent (22.40%) use internet connectivity and postal box respectively. The use of the Postal Box as the second most used ICT facility varies with the findings by Frempong (2005) and Esselaar (2007) where the use of Fixed Lines came second. The low use and ownership of Internet by SMEs in the Birim Central Municipality was corroborated by Esselaar et al. (2007), Frempong (2005), Akomea-Bonsu (2012) and UNCTAD (2005).

Table 9: Distribution of the main uses of ICTs

Main Uses	Frequency	Percentage
E-Commerce	00.00	00.00
Connecting Vendors and Suppliers	44.00	24.00
Customer Relationship Management	60.00	33.00
Payroll Management	00.00	00.00
Core Business	79.00	43.00
Inventory Management	00.00	00.00
Secretarial and Book keeping	00.00	00.00
Others	00.00	00.00
Total	183.00	100.00

Source: Field Survey, Mongson (2015)

The study further sought to answer the question on the main uses of ICTs by SMEs in the Birim Central municipality. Table 9 gives a breakdown of the 183 respondents with respect to the main uses of the ICTs in their business operations. From the table, most of the respondents, constituting 43.00%, stated that they employ ICTs as their core business. Thirty-Three point thirty-three per cent (33.00%) use ICTs as a means of managing their customer relations and the rest connect their vendors and suppliers through the use of ICTs. This result is inconsistent with the findings by Esselaar et al. (2007), Frempong (2005), and Acquah (2012), that majority of SMEs in Africa use ICTs primarily as a communication to link customers. Clearly, none of the respondents use ICTs in their inventory management, electronic commerce and payroll management or for any other purpose. Again, this is incoherent with the results of the studies by UNCTAD (2005), and Addo (2008) where ICTs, notably the Internet, were used

by SMEs in developing countries, including Ghana, basically for E-Mail communication and to lesser extent, web-surfing, and E-Commerce. Low awareness about other uses of ICTs in SME operations and high ICT illiteracy on the part of the SME operators could be attributed to this situation. Obviously, SME Operators in the Birim Central municipality have narrow use of ICTs as far as their business operations are concerned.

Barriers to the Use of ICTs

On assessing the factors that hinder SMEs to integrate ICTs in their business operations, from the review of the relevant literature, respondents were asked to select from a range of barriers in terms of non applicability to their work, cost of setup and maintenance of ICTs and lack of knowledge in ICTs. In addition, options for no reason for non use of ICTs and other possible barriers of ICTS use were also provided. Table 10 represents the responses from the respondents.

Table 10: Barriers to the Use of ICTs

Barriers	Frequency	Percentage
Not applicable to my work	90.00	49.2
It is costly to set up and maintain	24.00	13.1
I don't have any knowledge in it	44.00	24.0
Do not know	25.00	13.7
Others	00.00	00.00
Total	183.00	100.00

Source: Field Survey, Mongson (2015)

From table 10, despite the general availability and accessibility of SMEs to ICT facilities as well as the fair awareness on the part of the SMEs to the benefits of ICT to SMEs operations, as many as 86.3% out of the total respondents mentioned certain factors as accounting for their inability to employ ICTs in their business operations. These factors are analysed below.

1. ICTs are not applicable to SMEs activities. Forty-Nine point Two percent (49.2%) representing 90 respondents who also make up the majority stated they are not employing ICTs in their business operations, because they cannot perceive any relevance between the use of ICTs and the type of business they do. This supports the finding by Turban et al. (2008), where he posits that lack of awareness of the countless potential of ICTs notably e-commerce is one important barrier to its use. However, Acquah (2012) opine that cost of ICT is the first ranked barrier to the use of ICTs in Ghana by SMEs.
2. ICTs are costly to set up and maintain. About 13% of the respondents also said the cost that goes into the setting up and also the maintenance ICTs is too much for them to bear and therefore have decided not to employ ICTs to avoid that cost. In relation to this finding, Van Horne (2002) reports that most SMEs are running at low profits, which makes the implementation of ICT an uphill task and almost a farfetched dream to come true. This observation is again affirmed by Acquah (2012) that high cost of software and hardware is one major barrier to ICT use among SMEs in Ghana. Again, Duncombe et al. (2001) and Herselman (2003), opine that unaffordability of ICTs to SMEs hinder them from employing them in their business activities

3. Lack of knowledge in ICTs. Twenty-Four percent (24%) made it clear that they don't have the relevant skill and knowledge to employ ICTs in their business operations. This finding, to a considerable extent, could probably be attributed to the finding by the 2010 PHC that majority of SMEs operators in the Birim Central municipality are in their youthful period and are generally ICT illiterate. Duan et al. (2002), as affirmed by Martin (2005) and Van Brakel (2007), postulate lack of ICT skills and knowledge by SME operators as one of the major challenges suppressing the adoption of ICTs in their business activities.
4. Do not know why. 13.7% of the respondents did not assign any reason as to why they do not employ ICTs in their business operations. They just do not know why. This does not agree with other relevant findings by Thong and Yap (1996), Lawson (2006), Adebayo et al. (2013), and Frempong (2005) that other factors such as relevant Government Policy, Attitude of SME owner-managers, Ownership and Accessibility to ICTs by SMEs invariably influence the adoption and use of ICTs by SMEs.

This finding suggests that ICT use by SMEs in the municipality could be generally low. Humphrey et al. (2003), and Shemi and Procter (2013) agree with this finding that SMEs in developing countries including Ghana, generally use ICTs less in their business operations. Besides, it is clear that various factors account for this situation.

Drivers of ICT Use

In the same way as the researcher wanted to assess the barriers to the low use of ICTs by SME Operators in their business operations in the Birim Central

municipality, the researcher likewise sought further to examine the factors that drove them into using the ICT facilities they have mentioned. Table 11 provides a pictorial impression on the result of the factors that drives SME operators to integrate ICTs into their business operations.

Table 11: Drivers of ICT Usage

Driving Factors	Frequency	Percentage
Because of innovation orientation	00.00	00.00
Because I own ICT facilities	49.00	26.90
Because I have access to ICTs	57.00	31.00
Because of literacy skills	77.00	42.10
Others	00.00	00.00
Total	183.00	100.00

Source: Field Survey, Mongson (2015)

Based on table 11, respondents who employ some forms of ICT facilities in their business operations assigned at least three reasons as their motivating factors. In the first place, most (42.11%) of these respondents attributed it to they having the required knowledge and skill to operate the facilities. This finding is supported by Barba-Sanchez et al (2007) and Frempong (2005). Access to ICTs was cited by thirty-one percent (31%) of the respondents as the second driver of ICT use in activities of their SMEs. Accordingly, Frempong (2005) recounted the use of ICTs as dependent on accessibility of SMEs to the ICTs. The last section of the SME operators (26.9%) also stated that their ownership of ICT facilities is the push factor pertaining to its use in their business operations.

Considering the reasons given by the respondents for the use of ICT, no other factors such as “openness to innovation orientation” was cited, which projects a picture of a limited number of drivers accounting for the use of ICTs in the business operations of the SMEs. However, other studies point to other factors such as roles played by governments and industry, and awareness of the huge potentials of ICT use (Doig, 2000; Leenders et al., 2002; Prasad et al., 2001; Holmqvist, 2003). The finding also shows that certain conditions must prevail to drive SMEs to employ ICTs in their business operations.

Chapter Summary

This chapter has presented the detailed discussion and analysis of the findings from the survey of the study. The analysis undertaken included descriptive statistics on the demographic data, preferred types of ICT facilities owned and used by SME operators in their business operations in the Birim Central Municipality, main uses of ICTs, barriers to the use of ICTs and drivers of ICTs. Findings suggest that mobile phone was the most used ICT by the SMEs in the municipality. Also, ICTs uses by the SMEs are very limited as a core business. High illiteracy level came up as the major factor inhibiting the use of ICTs by the SMEs. Of the few SMEs that employ ICTs in their businesses, ICT literacy emerged as the major motivating factor.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter highlights the major results of the study. The results are outlined in direct response to the specific objectives. Based on the results, Conclusions and Recommendations have been included to help raise the standard of the SMEs through the employment of ICT in their business operations. Last but not least, relevant areas for further studies have also been provided.

Summary

The study assessed ICTs by SMEs in their business operations in the Birim Central Municipality and the major findings are as follows:

The first objective sought to analyse the preferred types of ICT facilities which used by SME operators in their business operations in the Birim Central Municipality. The study found out that SMEs in the municipality are using at least one of the listed ICTs in their businesses. The most preferred ICT facility used among the SME operators was a mobile phone.

Then, again, considering the range of ICT facilities listed by the researcher and those the respondents added, the least preferred and used ICT facility was fixed line. Postal Box and Internet came up as the second and third most preferred and used ICTs by the respondents respectively.

The second objective sought to examine the main uses of ICTs in the business activities of SMEs in the Birim Central Municipality. The study found out that overall, respondents indicated that they employ ICTs in their

businesses for three purposes namely Connecting Vendors and Suppliers, Connecting Customer Relationship Management and Core Business. Specifically, the use of ICTs as a core business came out top (42.86%), followed by customer relationship management (33.33%) and then connecting vendors and suppliers (23.81%).

The third objective sought to analyse the barriers to the use of ICTs by SME operators in their business operations in the Birim Central Municipality. The study found out that, first, most of the SME operators in the Birim Central municipality (49.38%) are reluctant to employ ICTs into their daily business operations because their awareness level with regard to the benefits associated with using ICTs are very low among the SME operators. Thirty-Seven point zero three (37.03) of respondents ascribed their inability to employ ICTs in their business operations to lack of knowledge in the use of ICTs and cost associated with the set-up and maintenance of the facilities. The remaining respondents constituting Thirteen point Five Eight percent (13.58%) indicated no reason(s) for their decision not to integrate ICTs into their business operations.

The fourth objective of this study sought to assess the factors responsible for driving SME operators to integrate ICTs into their business operations. The study found the following: Close to half (42.11%) of the respondents credited ICT use in their businesses to their ICT literacy skills. The remaining respondents constituting 57.89% attributed it to their accessibility to and ownership of ICT facilities.

Conclusions

The research primarily attempted to assess ICTs among SMEs in the Birim Central Municipality. First, based on the finding of the preferred types of ICT facilities which are owned and used by SME operators in their business operations in the Birim Central Municipality, the study therefore concludes that SMEs in the Municipality own and uses at least one of the listed ICTs in their businesses. Again, while Mobile phone usage appears to be high, the use of the other ICTs are relatively low.

Second, the finding concerning the objective on the main uses of ICTs in the business activities of SMEs concludes that the uses of ICTs by the SMEs to develop and grow their businesses were also limited. This is because the SMEs use the ICTs in only three areas.

On the third objective of this study which sought to examine the barriers to the use of ICTs by SMEs in the Birim Central Municipality, first, the study established that the existence of certain factors or conditions are hindering the use of ICTs by SMEs in the municipality. Secondly, the SMEs are yet to overcome these conditions or factors.

To end with, the finding on the motivating factors of ICT use by the SMEs which reflect the fourth objective of this research concludes that, for SMEs to be motivated to adopt and use ICTs in their businesses, certain conditions would have to prevail. Otherwise, SMEs may be reluctant to use ICTs in their businesses.

Recommendations

In view of the findings and conclusions drawn from the study, the following recommendations are provided to enhance the use of ICTs by SME operators in the Birim Central Municipality into their business operations.

Regarding the first objective and the conclusion drawn, the study therefore recommends that SMEs in the municipality should be trained in how different ICTs can address their specific SME development challenges. This would enable to be well informed on the choice of ICTs to be applied relative to their developmental challenges and objectives. This would also enable them to economically optimise their financial resources pertaining to the purchase and use of ICTs in their businesses thereby promoting effectiveness and efficiency of their businesses.

As strategies to overcome the situation of limited use of ICTs in the business activities of the SMEs, the following are recommended: First, periodic training activities and educational seminars should be organised for the SMEs in order to expose the SMEs to various aspects of their businesses that ICTs can be applied. These trainings can be organised by their local business organisations, public and private SME development service providers such as the NBSSI and private consultants. Activities like study tours to well established and managed ICT inclined SMEs is also one way by which SMEs could get exposure on wider use of ICTs in their business operations. SMEs could also embark upon internships to ICT minded SMEs to overcome this situation. Finally, SMEs could also be mentored and role modelled by other SMEs as means of managing this situation.

In order to overcome the situation where SMEs are confronted with hindrances to the use of ICTs in their business operations, SMEs should invest in recruiting or outsourcing knowledgeable ICT specialists or consider outsourcing their ICT function to expert to enable them manage the cost associated with the set up and maintenance of ICTs in their businesses. This could be impeded by low working 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 and other activities such as relevant periodic trainings and seminars could again be organised in order to enhance their ICT knowledge and skills.

Last, to motivate SMEs in the municipality to adopt ICTs in their business operations, ICTs must be made affordable to the SMEs. Specialised packages such as low tax or tax waive on ICTs can be formulated by the government in order to encourage the SMEs to adopt them. Additionally, schemes such as lease and hire purchase of relevant ICTs can also be initiated by the government and local authorities to enable more SMEs to own ICTs. Again, central and local government can also come out with some policy that will encourage the usage of ICT among these SMEs. For 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.

Suggested Areas for Further Research

A lot of research is still needed in this area, especially from Birim Central Municipal point of view. Birim Central Municipal, like many other districts relies on SMEs to reduce unemployment and to contribute toward the growth of the district economy. Research into how ICTs can enhance SMEs in order to keep them competitive and sustainable in the knowledge economy is at the top of many governments' agenda around the globe. It is thus important that many proper needs analyses and solutions provided that assist SMEs. Other factors, such as characteristics of SMEs, should be studied in greater detail in order to see how they affect the adoption and usage of ICT by SMEs. Future research should also consider more research studies on strategies for SMEs in developing countries to overcome the barriers to ICT adoption.

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APPENDIX
QUESTIONNAIRE
UNIVERSITY OF CAPE COAST
COLLEGE OF HUMANITIES AND LEGAL STUDIES
SCHOOL OF BUSINESS
DEPARTMENT OF MANAGEMENT STUDIES
**QUESTIONNAIRE ON THE USE OF ICTs BY SMALL AND MEDIUM-
SIZED ENTERPRISES IN THE BIRIM CENTRAL MUNICIPALITY**

Dear Respondent,

I am an MBA student pursuing Entrepreneurship and Small Enterprises Development at University of Cape Coast. This questionnaire is administered purely for academic purpose.

The objective of this questionnaire is to collect data that would assist the researcher to assess ICTs among SMEs in the Birim Central Municipality in the Eastern Region of Ghana.

Information given will solely be used for this research. You are also assured of full confidentiality, privacy and anonymity of all the information that will be given by you. You should, therefore, feel free to give the right information to ensure the success of this research.

Thank you.

SECTION A

GENERAL INFORMATION:

Please tick or write in the space provided below

1) Name of entity:

.....

2) Type of business: Agriculture Services Manufacturing

Trade Other, Please specify

.....

3) How many employees are in your organization?

1 to 5 (Micro) 6-29 (Small) 30-99 (Medium)

4) Business Location:

Zonal Area.....Town/ Village.....

5) Age of Owner/Manager:

Less than years 35 36 – 55 years Above 55 years

6) Gender: Female Male

7) Level of education

No education

Primary level

0'Level

University

Other(s),

Please specify

.....

SECTION B

ICT ACCESSIBILITY, USAGE AND BARRIERS AMONG SMEs:

8) Do you have mobile phone for your business? Yes No

9) Do you have Fixed Line you use for your business? Yes No

10) Do you have internet connectivity? Yes No

11) Do you have Postal Box you use for your business? Yes No

If you answered Yes to question 8 to 11, please answer question 13 only. If you answered No to question 8 to 11, please skip question 13 and continue from question 14.

13) If Yes, what are the main uses of it? Tick all that apply.

Secretarial & Book keeping

Inventory Management

Core business

Payroll Management

Customer Relationship Management

Contacting Vendors and Suppliers

Electronic Commerce

Other(s),

Please specify.....

14. If your response to 8 to 11 is No, why? Tick all that may apply

Not Applicable to my work

It is costly to setup and maintain

I don't have any knowledge in it

Do not know

Other(s),

Please specify.....

.....

SECTION C

DRIVERS OF ICTs USE:

15) What are the factors that drove you into using the ICT facilities you have mentioned?

a) Because of my ICT literacy skills

b) Because I have access to ICT facilities

c) Because I own ICT facilities

d) Because of my innovation orientation

e) Other(s), please specify.....

.....