ASSESSING THE EFFECTS OF ADOPTION & USAGE OF INTERNET TECHNOLOGIES ON THE OPERATIONS OF MICRO SMALL AND MEDIUM ENTERPRISES IN GHANA

BY

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THIS DISSERTATION IS SUBMITTED TO THE DEPARTMENT OF FINANCE, UNIVERSITY OF GHANA BUSINESS SCHOOL, LEGON, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF SCIENCE, DEVELOPMENT FINANCE

JULY, 2019
DECLARATION

I hereby declare that apart from references to other people which have been duly cited, this long essay is the result of my own work, and that it has neither in the whole nor in part been presented elsewhere.

……………………………………….   …………………..

Mary-Ann Kyeremaah Laryea     Date

(10702097)
CERTIFICATION

I hereby declare that the preparation and presentation of this project work was supervised by me in accordance with the guidelines on supervision on project work laid down by the University of Ghana.

…………………………………….    ……………………………
Dr Lordina Amoah       Date
(Supervisor)
DEDICATION

This book is dedicated to the Lord Almighty for His grace and strength to push me through. It is also dedicated to my Late dad Mr. Yaw Osei-Asibey and mom Ms. Mercy Konadu Afrifa, my husband Mr. Griffith Nii Amarh Laryea and our two little kids Edward Nii Ashitey Laryea Jnr and Ethan-Manuel Nii Ashitei Laryea who have been my pillar of hope and have helped me push myself this whole stretch. You are all amazing. Thank you.
ACKNOWLEDGEMENTS

Through all the changing scenes of life, In trouble and in joy, The praises of my God shall. My heart and tongue employ. It has been an amazing journey with everything in between, learning new things, meeting new and interesting people and having to study after almost 10 years break.

Through it all God has been faithful, and He’s kept his promises and has used people to help me through this journey who without their dedication and help I would not have finished this work.

To all these people I say thank you, thank you for allowing God to use you to help me in diverse ways.

To my dear supervisor, Dr Lordina Amoah, she understands me such that even before I open my mouth to say a word. Thank you so much, you are really a role model and inspiration. God richly bless you. To Fafali Kudjawu, second in command, thank you very much for all the assistance and help. To Mr. Emmanuel Kwaku Boamah my second eye, thank you for all the support and help. Mr. David Annoh-Quarshie, I owe this to you. I really appreciate your encouragement and your words of wisdom through the journey.

To the great friends I have made through this journey, Alberta Amankwah, Aaron Ameyaw, John Perry Aggrey and Kwaku Aboagye- Acquah, through thick and thin you have been great study mates and marvelous friends. Thank you, guys, so much. There are tons of names I cannot mention, please know that you are duly remembered and special thanks to you too.
ABSTRACT

In recent times, internet has become foundational in terms of business strategy and growth plans. Internet usage has been proffered as a panacea to expansion and growth in international markets. It has been argued for academics, researchers and business leaders that advancement in internet could bring benefits to Micro- Small and Medium Size Enterprises (MSMEs) in Ghana. However, the adoption of internet technologies among MSMEs in Ghana is minimal due to teething challenges emanating from the inadequate development of internet infrastructure, limited areas of reliable connectivity, high set up cost among others. It has been argued that MSMEs could benefit from adoption of internet technologies such as the email, messenger, client services servers, P2P, B2B, web browsing, social media marketing, etc. Benefits such as broader market reach for products, easy of access to information, and swift customer service delivery are attributed to the adoption of internet technologies. The findings of the research work demonstrate the benefits in more practical terms of adopting internet technologies by MSMEs. It is evident from the findings that most MSMEs apply basic level of internet technologies such as email. Few MSMEs in Ghana maintain a well-functioning website though a significant number also use social media in marketing their products, The study further makes recommendations to assist governments and policy makers in setting the pace for internet technologies penetration across the broad Ghanaian society to facilitate MSMEs incorporation of same into their operations.
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<tr>
<td>AGI</td>
<td>Association of Ghana Industries</td>
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<tr>
<td>DTI</td>
<td>Department of Trade and Industry</td>
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<td>EU</td>
<td>Europe Union</td>
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<td>GDP</td>
<td>Gross Domestic Products</td>
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<td>GIPC</td>
<td>Ghana Investment Promotion Centre</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>ITU</td>
<td>International Telecommunication Union</td>
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<td>MSMEs</td>
<td>Micro Small and Medium Enterprises</td>
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<td>NBSSI</td>
<td>National Board for Small Scale Industries</td>
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<td>NGOs</td>
<td>Non-Governmental Organizations</td>
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<tr>
<td>OECD</td>
<td>Organization of Economic Cooperation and Development</td>
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<td>SMEs</td>
<td>Small and Medium Enterprises</td>
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CHAPTER ONE
INTRODUCTION

1.1. Background of study

Micro, Small and Medium Enterprises (MSMEs) dominate the business setting across many economies in the world. It has become the most ubiquitous business model globally especially in many developing economies. In the view of Vandenberg (2009), MSMEs forms for about 90% of all enterprises in all countries across the world. It is projected that MSMEs contribute about 60% to 80% of the work force in developing countries. MSMEs constitute about 90% of businesses in Africa and the rest of the developing nations. In Ghana alone, MSMEs’ contribution to the national GDP is about 70% (Abor, 2016). The growth in MSMEs picked up in Ghana in the early 1960s with the springing up of many personal enterprises (Oppong, Owiredu & Churchill, 2014). The contribution of MSMEs to national economies have been recognized by researchers emphasizing the significant role of MSMEs in national economies as catalyst for achieving the growth and development projections of emerging economies (Kayanula & Quartey, 2000). The growth in MSMEs has been described as a stimulus mechanism for the socio-economic advancement of many countries including Ghana (Oppong, Owiredu & Churchill, 2014). Ghana’s business landscape is replete with countless MSMEs with most ranging from one-man owner operated enterprise to medium size enterprises. The nature of MSMEs and the structure influenced the definition of MSMEs in the Venture Capital Trust Fund Act (2004). The Act defines Small and Medium Enterprises as an “industry, project undertaking or economic activity whose total asset base excluding land and building, does not exceed the cedi equivalent of one million dollars in value and employs not more than 100 persons”. MSMEs operate in the area of agriculture, food and beverages, retail and wholesale of manufactured goods (both local and imported goods) real estates, services and many others. According to Mensah (2004), the data obtained
from the Registrar General’s Department shows that 90% of all companies’ registrations are in the area of micro, small and medium enterprises.

The benefits from MSMEs cannot be overemphasized in the modern era of globalization which is the driver of growth in modern businesses. However, the MSMEs sector in Ghana has not performed commendably and has not succeeded in harnessing the full potential of the sector (Oppong, Owiredu & Churchill, 2014). This apparent ineptitude is attributed to continuous use of rudimentary business practices and models. Technology has been proffered as the solution to the operational weaknesses of MSMEs in the developing economies but the level of advancement in technology in the developing countries does not support the rapid transformation postulated. It is evident in recent times that MSMEs are increasingly adopting Information and Communication Technology (ICT) with the view of enhancing productivity (Agboh, 2015). Further, MSMEs are keen on adopting technological systems and applications for the purpose of enhancing their core control practices, boost product quality and facilitating efficient distribution of products.

Research has shown that internet technologies can lead MSMEs into their growth and advancement drive. It has been argued that MSMEs located in for instance rural communities and towns can participate efficiently in the globalized economy if given the chance to be able to take advantage of the abundant information, markets, inputs and services which are provided over the internet (Barkley, Lamie & Markley, 2007). In a McKinsey Global Institute report on internet impact, Pelissie du Rausas, et al. (2011) found out that there was 10% rise in the output from small and medium businesses from the usage of internet. Their findings further revealed that MSMEs that took the use of web technologies seriously grew faster and were able to export twice as much as others. This demonstrates the potential for MSMEs in employing internet technologies in their operations. In a research on information technology, Kang (1998) argued that the use of IT has the potential of enabling entities both
small and large to significantly increased their market shares and compete capably thereby adding value to their productivity and performance management. Thus, advancing the argument to support MSMEs need to embrace and adopt technological advancement in its processes to take advantage of the open and competitive market that the internet offers.

According to Gunasekaran, Rai and Griffin (2011), SMEs must modify their operational strategies, be ready to adopt the new developments in information technology and use appropriately the information available to be relevant and remain competitive in a globalized world. MSMEs however, have generally been classified as weak in Africa and for that matter in Ghana owing to the insignificant market size and the continuous practice of employing simple traditional methods that does not need maximum reliance on established IT infrastructure (Czinoka, et al., 1983). It has been argued that the weaknesses in MSMEs could be surmounted if national authorities support MSMEs to focus on adopting internet technologies in their operations. In his studies of ‘‘Drivers and Challenges of ICT Adoption by SMEs,’’ Agboh (2015) argued that the adoption of technological solutions to the weaknesses of MSMEs need business settings that promotes open competition, trust and security, standardization and accessibility to finance. These drivers of technological growth are lacking in scope and in implementation and thus adversely impact on MSMEs. The level of impact of technology on businesses in recent times has been phenomenal with some MSMEs seeing increased revenues and improved customer satisfaction due to the rapidity with which goods and services are produced and made available to the customer.

This research work seeks to assess the implication of the advancement in internet technologies on MSMEs in Ghana and further examine the various factors that have hindered the growth in the adoption of internet technologies by MSMEs in Ghana. The research would further advance concrete measures to be taken to promote the adoption of technological innovations among MSMEs.
1.2. Research Statement

The economy of Ghana is dominated by many MSMEs. The contribution of MSMEs is projected at about 22% to the country’s total GDP and estimated to account for almost 92% of all business’s entities in Ghana. MSMEs further absorb 60% of the country’s core employed labour force (GLSS-3, 2002). There exists a great potential for MSMEs to act as catalyst for creating linkages for sustainable economic growth through the reliance on local raw materials, employment generation and promoting fair distribution of industrial development across all communities in the country. MSMEs are perceived by policy makers and governments as the bedrock for the industrialization of the country and successive governments and multilateral support agencies have sought to position MSMEs as a catalyst for Ghana’s industrial and service sector growth. However, constraints such as financing, use of rudimentary productive techniques and other difficulties experienced as a result of economic stagnation have posed as a hindrance to MSMEs expansion in Ghana.

According to Oppong, Owiredu and Churchill (2014), MSMEs in Ghana have not match the expectation and have not played the anticipated role in the economic growth agenda that they are expected to drive. Several factors have been adduced as the rationale for the non-performance of the expected role in the economy. The often-cited reasons are financing and lack of social infrastructure to facilitate the growth. There are also references to the use of rudimentary business practices and lack of proper governance structure. However, one critical area that has been ignored over the years is the impact of technological on the operations of the MSMEs. Research has shown that technological advances in ICT especially internet technologies allows organizations or entities to achieve greater levels of productivity, efficiency and quality service delivery (Brown, 2000; Tapscott & Caston, 1993). MSMEs adoption of internet technologies in their business operations would enhance production techniques, eliminate or decrease less paperwork, improve the quality of output, and ensures
satisfactory customer experiences through tailor-made service delivery. Despite the many benefits that the internet offers, there are teething challenges with MSMEs joining the ICT advances in Ghana. Ntiamoah, Li and Kwamega (2016), enumerated the numerical divide between rural and urban Ghana and the lack of IT infrastructure in the rural communities as among the challenges impacting the adoption of technological innovations by SMEs. On the other hand, Duan, et al. (2002) maintained that the absence of ICT knowledge and skills are the key challenges confronted by MSMEs in their attempt to adopt technological innovations. The research work would assess the effects of internet technologies on the operations of MSMEs. Issues relating to what MSMEs are using to maximize their productivity and efficiency by using IT, the constraints that they face and ways that ICT is enhancing business growth would be addressed.

1.3. Research Objectives

The overall purpose of this research is to assess the effects of the adoption of internet technologies in the operations of MSMEs. To achieve this purpose the following objectives have been set as the specific objectives of the research:

- Assess the level of usage of internet technologies in the operations of Micro, Small and Medium Enterprises in Ghana,
- Evaluate the impact of the advancement in internet technologies to the growth and development of Micro, Small and Medium Enterprises in Ghana,
- Examine the challenges confronting Micro, Small and Medium Enterprises in Ghana concerning the efficient adoption of internet technologies in their operations.
1.4. Research Questions

To achieve the objectives of the research work as outlined above, the following research questions would be posed. The essence is to ensure that the appropriate responses could be elicited. The following are the research questions:

- What is the level of adoption of internet technologies in the operation of MSMEs?
- What aspects of internet technologies are employed by MSMEs in Ghana?
- How have the rapidly advancement in internet technologies affected the growth and development of MSMEs in Ghana?
- What challenges do MSMEs face in their quest to efficiently adopt internet technologies in their daily business operations?

1.5. Research Gap

The subject of MSMEs over the years has been studied by several researchers who view MSMEs from varied perspectives (Kayanula & Quartey, 2000; Abor & Quartey, 2010). However, there are limited studies on the impact of technology on the operations of MSMEs in Ghana. The advancement in technology in contemporary times especially the internet has led to a boom in global trade with many players sourcing products from low labour cost regions to more advanced economies. However, MSMEs in Ghana are yet to take full advantage of the improvement in distribution, marketing, product techniques and design to enhance their productivity and help create a market share of the global business. This is because MSMEs in Ghana continues to employ traditional practices that are somehow tedious and unproductive in nature. Research in the sector has focused on financing, inadequate government support and high cost of doing business for MSMEs whiles there are fewer research in the area of applying modern technology as part of the business enhancement mechanisms in the development of MSMEs. This gap in the literature on the
subject is the focus of this research as it seeks to explore the overall impact of the adoption of internet technologies and its related advancement on the operations of MSMEs in Ghana.

1.6. Significance of the study

MSMEs form an important part of the industrial set up of Ghana. The sector plays a critical role in wealth creation, health and improving the general wellbeing and living standards of many of the citizenry. Due to the significant role of the sector, the upshot of the research would enable policy makers and governments to enact laws and set up policies with the view of strengthening the sector. The outcome of this research would benefit businesses and governmental bodies seeking to adopt technological innovations in their business especially internet technologies. The outcome of the research would serve as a guide for implementation of technological innovations in MSMEs operations. This research would open up complementary studies in the area of technological innovations and techniques and its implications for MSMEs. The research would further add to the body of literature available to academic researchers, students, and business research units both in Ghana and the wide world.

1.7. Chapter Organization

The information contained in this research has been structured in the manner elaborated below. Chapter one of the research work covers a background to the study, the research statement, the objectives, research questions, research gap, benefits of the study and the organization of the chapter.

Chapter two contains the literature review, which is segmented into introduction, definitions, theoretical foundations of the subject, the role of technology in business growth, challenges facing MSMEs in adopting technology in their operations and the benefits that an improvement in the technological processes and system could have on the operations of MSMEs.
Chapter three deals with the research methodology that would be used in collating the required data for the research. The section would look at the general research strategy, the study area, data sources, target population, study site, sampling technique, sample size, data collections tools and ethical considerations. The fourth chapter titled data analysis would cover the evaluation of the data collected and presentation of the information using various statistical measures and variances as well as graphical tools such as bar chat, line graph, and others. The final chapter would cover the summary of the findings and conclusions drawn from those findings and making practical recommendations.
CHAPTER TWO
LITERATURE REVIEW

2.1. Introduction

The MSMEs sectors play a crucial part in the economic development of most countries with many economies founded on the back of a strong MSMEs sector. According to Subramanyam and Reddy (2012), MSMEs have gained a standard status in the economies around the world with many creating significant impact through value creation and thus have become one of the essential sectors of every economy. MSMEs constitute more than 90% of businesses and are projected to constitute about 80% of global economic growth (OECD, 2012). A strong MSMEs form the foundational path in the advancement of national economies towards industrialization. According to Satpathy, SailajaRani and Nagajyothi (2017), MSMEs have become an economic growth specialist worldwide and have largely been considered as the foundation of economic growth and development due to its notable contribution to industrial development and employment creation.

In this section of the research work, the following areas mainly the definition and classification of MSMEs, the theoretical foundations of the study, the impact of technological advancement on the operations of MSMEs, would be evaluated. Also, the challenges that MSMEs face in their quest in adopting technological innovations in their operations would be examined.

2.2. Definition of MSMEs

There is no unanimously accepted definition of MSMEs though the concept is global in nature with definitions varying from one place to another. Researchers, national bodies and international development organizations have made attempts at defining the concept in simple terms by setting a criterion to be met before an entity could be described as MSMEs.
Ekpeyong and Nyong (1992) argued about the subjectivity involve in the classification of businesses into the various categories of MSMEs. The classification of MSMES into various categories of business units vary across countries. A review of the various definitions of MSMEs show a combination of common indicators such as the number of employees, financial strength, sales value, relative size, initial capital outlay and types of industry. Inang and Nkpong (1992) maintained that the key pointers prominent in the definitions of MSMEs include the quantum of capital investment (fixed assets), yearly turnover (gross output) and number of employees. Other researchers, on the other hand, have argued that classifications which include size, total number of employees, turnover, etc. when used in one industry may lead to all entities being classified as small, while the same size definition when applied to different category could produce a different outcome (Kayanula & Quartey, 2000). This position is reflected in the varied descriptions of MSMEs from country to country. In Ghana for instance, the Venture Capital Fund Act 2004(Act 680) defines MSMEs as an industry, project, undertaking or economic activity which employs not more than 100 people and whose total asset base excluding land and building does not exceed the cedi equivalent of $1million in value. The EU on the other hand categorizes MSMEs as being made of businesses employing few than 250 persons and annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million (European Commission, 2003). The US SBA Office of Advocacy offers a more succinct definition of MSMEs as an autonomous business with less than 500 employees (www.sba.gov/advocacy). It is important to note the basic elements in all the definitions offered mainly turnover, employees, assets, etc. and these form the foundation of the theoretical framework of the study. However, it is evident that the lack of a single definition for MSMEs emanates from the distinctiveness of the concept across various countries thus contributing to the difficulty in designing a theoretical framework in the field. It is also important to recognize that the
definitions reviewed have not emphasized the mode of operations of MSMEs and how it impacts on their productivity. The various views have not addressed the linkage of technology in the operations and its implication in the globalized market context for MSMEs. These are shortcomings of the various studies and would be addressed in the overall conceptualization of MSMEs.

2.3. Theoretical Framework

The subject of MSMEs does not lend itself readily to the application of theoretical paradigms to aid in a detailed study of the subject. In their study on MSMEs adoption of internet technologies, Mendo and Fitzgerald (2005) argued that MSMEs regarded internet initially as an opportunity designed at improving the association with the market and reaching broader geographical market. However, other researchers have argued that MSMEs lack the technical expertise, inadequate funding to undertake technologically advanced process enhancements, and thus suffer from insufficient organizational planning (Barry & Milner, 2002; Rao, Metts & Mora-Monge, 2003; Teo & Pian, 2001). As a result, most MSMEs completely avoided technological innovations especially sophisticated software applications (Chen, 1993).

Mendo and Fitzgerald (2005) in describing the adoption of ICT, used the Stage Theory to examine the process and the advance of aspect of the key components in MSMEs. The Stage Theory depicts the phases of the adoption of internet technologies in MSMEs businesses and postulate that business processes change in stages from uncomplicated use of internet technologies to a more advanced use that incorporates business systems and redesign business processes (Daniel, Wilson & Myers, 2000).

According to Mendo and Fitzgerald (2005), the Stage theory has been used to examine the adoption and progression of various aspects of e-commerce in many organizations including MSMEs. It is important to emphasize the development of other comparable models which seek to expatiate on the diverse phases and the systematic ways MSMEs move through the
sophisticated ways of using internet technologies. Governments over the world have employed the one-size-fit-all staged models to boost SMEs’ adoption of internet technologies especially in the European Union and the UK (Willcocks & Sauer, 2000).

The European Union on the other hand maintained that in spite of the various support programs by the governments and other supporting institutions, the achievement of the advanced stages of the principles embedded in the theory is minimal as the adoption of internet and other communication technologies by MSMEs is lagging behind especially in the developing economies (European Commission, 2002). It is must be noted that the stage theory and its linked models are built on the idea that entities progress through several sequential, recognizable stages with each stage reflecting the particular level of maturity in the application of internet solutions and technological applications to support and facilitate business activities (Mendo & Fitzgerald, 2003). The critic of the model argued that the stage model overgeneralized perceptions on complex issues and settings around small business economic conditions and using the simplistic assumption under organization innovation and change theory (Jayasuriya, 1993; Levy & Powell, 2003).

Other researchers in trying to conceptualize the study of MSMEs and ICT adoption used the Technology Acceptance Model (TAM) by Davis (1989). Proponents of the TAM model maintained that when “a user is presented with a new technology, a number of factors influence their decisions regarding how and when they will use it” (Davis, 1989). The two major characteristics defined below forms the foundation of the study of ICT adoptions by entities. Perceived usefulness indicates the extent to which an individual’s confidence in using a system would enhance his or her job performance; and perceived ease of use demonstrate the degree to which an individual accept that using a particular system would be free of effort (Gibbs, Sequeira & White 2007).
According to Forman and Goldfarb (2006), the TAM theory has proven to be a robust model that is constantly being used in the study of user acceptance of technology. Gibbs, Sequeira and White (2007) argued that TAM is viewed as an information system theory which helps to comprehend the adoption and use of internet and other technological innovations. Other scholars, on the other hand, have suggested that the model is less comprehensive compared to other theories such as the diffusion approach which maintain a more innovative characteristic (Gibbs, Sequeira & White 2007; Rogers, 1995).

In this research the Stage Theory and the TAM theory would be combined to form the theoretical framework of the study. The key aspects of both theories would be employed to aid in the research. The fundamental elements of TAM to be employed as developed by Wahid (2007) include attitude towards use, behavioural intention to use and actual system use. Under the Stage Theory, Beckinsale and Ram (2006), Poon and Swatman (1999), Willcocks and Sauer (2000) argued that the four-stage adoption model mainly the no adoption or no ICT, basic, intermediate and advanced stages of adoption of ICT help in categorizing the different stages of ICT adoption in SMEs.

2.4. Drivers of adoption and usage of Internet Technologies

In their study of ICT adoption by SMEs, Yap, Soh and Raman (1992) developed a schema to help compile efficacious and limiting adoption drivers for ICT in SMEs. Their conceptualization tended to combine a plethora of organizational and external factors which bring to the fore several grave matters for ICT adoption by businesses. The factors that turn to drive ICT adoption and for that matter application of internet technologies focused on three (3) critical areas mainly perceived benefits—that is the efficiency improvements in adoption (Poon & Swatman, 1999), organizational effectiveness and new business opportunities that are opened to MSMEs (Levy, Powell & Worrall, 2005) and organizational readiness and external pressures are the other drivers to ICT adoption by MSMEs (Levy &
Powell, 2003). Merhtens, Cragg and Mills (2001) argued that what is crucial to the organizational enthusiasm is the owner manager situations in most SMEs where the owner manager is seen as the entrepreneur, risk taker, and who is innovative and creative. The external forces concentrate on customers, suppliers, employees, competitors and governments who act as the catalyst for MSMEs interest in employing internet technologies in the processes (Beckinsale, Levy & Powell, 2006). Poon (2000) on the other hand argued that these drivers invariably become the major obstacles or inhibiters to the adoption of internet technologies by SMEs. For example, Galloway (2006) described the lack of email address by a customer or a supplier limit the MSMEs effectiveness in terms of applying internet technology in the business operations. Levy, Powell and Yelten (2001) maintained that business stratagem as part of the drivers of SMEs’ adoption of internet technologies is supported by limited evidence. They further argued that there is a lack of evidence in the literature to support the view that business strategy drives the internet adoption among SMEs and that strategy is rarely mentioned as an accelerator or inhibitor to SMEs use of internet technologies.

In their research note, Boone, De Brabander and Hellemans (2000) indicated that internal factors are similarly significant for the small businesses especially in situations where the firm and the managerial factors merge to act as one in either promoting the adoption of internet technologies or otherwise in the operation of the firm and this is due to the level of control wielded by the key decision maker. To Cragg and King (1999), one enabling driver for use and adoption of internet technologies by MSMEs is growth and closely linked it to is the enthusiasm of the owner manager conditions of MSMEs. Whiles maintaining that there are benefits to the adoption and application of internet technologies to businesses, the amount of limited resources available to the MSMEs tend to serve as an inhibiter to speedy adoption and use of internet technologies by these entities. According to Thong (2001), the limited
resources available to the small business is a barrier to adoption for example e-business. Further concerns with security, privacy worries, cost of consultants and poor IT skills add to the limited adoption and use of internet technologies by MSMEs (Thong, 2001). It is important to note that most MSMEs view cost as a restraining factor and willing to adopt internet technologies when they can undoubtedly perceive a viable advantage and palpable benefits in doing so.

Fillis and Wagner (2005) in their paper indicated that barriers to adoption of internet technologies could be put into either technical or social setting. They further argued that technical issues relate to poor telecommunication infrastructure and security of transactions whiles the social structure relates to inadequate level of confidence in the medium, meagre knowledge with regards to the technology being employed and insufficient IT skills. The view of Fillis and Wagner (2005) holds true for most developing countries where the infrastructure and the technical know-how are now evolving. But in developing countries the non-adoption and usage of internet technologies in many MSMEs is attributed to the social concerns mainly insufficient IT skills, trust of the medium, etc. Lal (2007) in a study of Nigerian SMEs found that the foremost constraints to ICT diffusion and intensive exploitation by SMEs relates to poor physical infrastructure. On the other hand, Agboh (2015) maintained that the desire for low cost, improved productivity, higher quality products, high customer approval and ability to concentrate on core business areas are among the key drivers of ICT adoption for all businesses both in the developing and the developed world. Contrary to this view, other researchers have maintained that the extensive simplifications that were made regarding MSMEs adoption of internet was that one must investigate four principal areas mainly the features of the firm, competitiveness and management strategies of the firm, influences of internal and external parties on adoption decision process and characteristics of technology adopted (Lefebvre, Harvey & Lefebvre, University of Ghana http://ugspace.ug.edu.gh
Studies have shown that disparities exist in the level of usage of internet technologies among MSMEs. In their research on adoption of e-commerce by SMEs, Tibbs et al. (2015) posited that SMEs’ adoption of e-commerce is limited because SMEs have different characteristics from large enterprises. The variation in business characteristics of MSMEs determines their level of usage or adoption of internet technologies. Boston Consulting Group in a report indicated that SMEs vary widely in the adoption of technologies especially in deploying the latest IT tools in its business process (Boston Consulting Group, 2013).

In their experimental studies Fuller and Jenkins (1995) found that the richness of information in the business environment, the need for cooperation for purposes of competing, and the business values existing in communicating electronically play critical function in internet usage and thus influence the extent of adoption of internet technologies among MSMEs.

In a DTI (1999) survey report, it was revealed that SMEs in the UK usage of ICT have grown and is forecasted to continue to grow due to the low cost of internet services when compared to other electronic networks. However, Saleh and Ndubisi (2006) in their study of the Malaysian SME sector found a low level of technological adoption and ICT penetration in the sector. The limited level of internet usage by MSMEs invariably depends on the kind of business that the MSMEs run. In an investigate study, Thurasamy, et al. (2006) maintained that the lack of adoption of technology by SMEs may be due to the fact that certain type of technologies is highly adaptable than others and this fuel the “wait” and “see” attitude on a particular innovation.

2.5. Benefits of Adoption of Internet technologies by MSMEs

Many research works exist in the area of the benefits that business entities and organizations derived from ICT in general terms. According to Bloch and Segev (1996), the use of internet in businesses and organizations has been the attention of many research undertakings and this is because of its significance in enhancing organizational performance. Ashrafi and Murtaza
(2008) maintained that organizations of all forms are now utilizing internet technologies to gain competitive advantage. This view was corroborated by Apulu and Latham (2010) who maintained that in the current dispensation of the knowledge based global economy, it is crucial for MSMES to implement processes that assist in promoting competitive advantage. The benefits of adoption of internet technologies by MSMEs cannot be overemphasized as there are large volumes of research data on what MSMEs would tend to gain by adopting internet technologies. While other scholars have limited their research on internet benefits, other researchers have broadened the scope to cover the whole area of ICT. According to Maldeni and Jayasena, (2009), ICT has significant impact on performance of MSMES making it vital to ensure business growth and expansion.

In another research, ICT was noted as a key incentive and enabler of organizational change and impact ominously on the operations of MSMEs (Hazbo, Arnela & Chun-yen, 2008). The European Commission (2008) indicated that SMEs could use ICT which include internet technologies to grow and become more innovative. Internet has been known to have opened diverse ways to internationalization of firms and has successfully minimize barriers that hitherto hinders expansion of business across international borders. According to Williams (1999), the adoption of internet technologies tends to foster the techniques of SMEs to compete with other companies both locally and internationally.

In their survey report Pelissie du Rausas et al. (2011) find out that productivity of SMEs grew by about 10% and this is attributable to internet usage. They further found that SMEs which heavily use the internet in their businesses grew in export value by 2times when compared with others. Akhtar, Azeem and Mir (2014) in their studies of linking technology and internationalization of SMEs found out that firms that were aggressive in adopting internet obtained the competitive advantage and that such entities are more likely to engage in export of products and services than entities that employ less technology. Thus, the adoption of
internet technologies inures to the growth of businesses especially MSMEs given their structure and managerial approach to change. In contrast to the view that the adoption of internet technologies provides competitive advantage to businesses, other leading scholars have maintained that since the information accessed via internet is available to all firms in the widest sense, the use of internet cannot be the sole means of gaining competitive advantage (Mata, Fuerst & Barney, 1995; Porter, 2001).

This view is situated in the resource-based approach to analyzing strategies of MSMEs. Akhtar, Azeem and Mir (2014) argued in terms of the resource-based approach and maintained that it is vital for MSMEs to use internet-based technologies to develop strategic techniques, resources and capabilities that enhance the firm’s competitiveness. According to Ongori (2009) the use of ICT in general terms aid in facilitating the changes in the way and manner firms function in the era of globalization, and this involve varying business models and rising competition levels and generating competitive advantage for businesses both big and small through changing business processes. The adoption of internet technologies in MSMEs offers a wide range of opportunities for enhancing MSMEs competitiveness in both the local and international business environment. Fullanteli and Allegra (2003) maintained that internet technologies offer to businesses a mechanism for accessing new market opportunities and expert information services such as distance consulting, constant training, new advisory services among many other opportunities that are opened through the adoption of the internet technologies by MSMEs. The global nature of the internet and the large number of users creates enormous opportunities for businesses especially MSMEs who can tap into the strategic position of the internet to drive business growth globally.

According to Lawrence (2002), the current numbers of internet users and probable users affords MSMEs the opportunity of gaining critical business leverage in exploiting the benefits of the internet to facilitate growth in MSMEs. Lawrence (2009) further argued that
the internet provides flexibility that generate unique opportunities for MSMEs to participate in a global market and further exposes their businesses, products and services to a wide range global marketplace. The use of the internet opens new market opportunities at a lower cost and makes them competitive with the large industries. Cameron and Clarke (1996) maintained that the emergence of the internet technologies has opened new markets and new opportunities to otherwise geographically limited enterprises. Recent internet technologies offer a readily available and cost-effective way in which both large and small businesses can make the most of the information technology infrastructure and making use of the information itself and further provides MSMEs with the ability to compete on level terms with larger and more competitive partners (Poon & Swatman, 2005; Lawrence, 2009).

2.6. Challenges to the adoption of Internet Technologies by MSMEs

Poon and Swatman (1999) in their research on small business adoption maintained that the small business adoption of internet website is in the early stages of development and further stated that the field only came to light in the early 1999. However, the few literatures that exist on the subject on the benefits is replete with several potential opportunities for MSMEs. Even though internet usage in businesses has a worldwide acceptance, the extent of usage varies widely among MSMES (Sadowski et al., 2002). Researchers have argued in favor of the competitive advantage and the potential of the internet to facilitate business expansion for the benefit of MSMEs (Tuunainen & Saarinen, 1997). However, challenges exist in the same proportion as the benefits to be derived from adoption of internet technologies in MSMEs’ operations. According to Lawrence (2009), SMEs face crucial challenges in their effort to sustain their position in the global marketplace and to survive under the intense competition that exists in the global setting. Wymer and Regan (2005) maintained that MSMEs faces an additional restraint in terms of its limited resources such as financial and human resources for the effective deployment and administration of internet technologies. This view is shared by
Thong (2001) who maintained that the nature of limited resources available within MSMEs hinders or serves as a barrier to the adoption of internet especially in promoting e-business strategies. One key challenge to MSMEs adoption of internet technologies such as the website, email, etc, is cultural perception of the system and the level of trust that an entity can put in the structure. According to Tornatzky and Klein (1982) Rogers (1983), the key determinants of adoption of an innovation for all organizations is how the likely adopters perceive the innovation. Accordingly, Rogers (1983) maintained that the ease or difficulty in introducing an innovation depends basically on the nature of the newness in the innovation. This is because customers tend to view the bundle of services that is embedded in the innovation and that informs their attitude towards the product. This is the situation of most MSMEs in the developing countries where the emergent of the internet and its related technologies are relatively new coupled with the apparent lack of internet knowledge for most owner managed MSMEs.

In recent times information security and privacy issues have combined to make the internet usage very worrisome for businesses both small and large. There is no guarantee that the privilege information a client provides, or information of client business obtained could be kept under strict confidentiality rules. MSMEs are therefore required to protect their business and their customers from security threat. According to Korper and Ellis (2000) common security problems that affect MSMEs include viruses, damaging programs that are introduced to computers or network with viruses re-writing programs to make the application unusable. These concerns create a hindrance for MSMEs to fully integrate their businesses with internet technologies as mitigating cyber security risk bring additional cost to the business. Emery (1997) for instance advocates that small businesses should not store customer data and relinquish its internet security issues to their ISPs. Ein-Dor and Segev (1978) predicted that small businesses’ participation in the computerization of businesses would be less likely to be
successful. They argued further to indicate that MSMEs still encounter access and know-how related issues which put MSMEs at a disadvantage position. On the contrary, Dholakia & Kshetri (2004) maintained that the gap which used to be between large business and small business has decreased significantly because of two main factors that is cost and specialized applications. Over the past couple of years, the cost relating to internet adoption and usage has reduced and in recent times, there is constant supply of user-friendly small business applications to cater for the needs of MSMEs. According to Foong (1999), the computerization of MSMEs which hitherto was not possible is now feasible but comes with obligations which most MSMEs are unwilling to accept.

Yamine, et al. (2014) in a market research report about SMEs and adoption of digital communication maintained that the barriers to adoption of technology lie in four key considerations which compete among themselves. The key considerations relate to the trust and confidence in the technology; return on investment; usability, familiarity and fit with current systems; and dependability of the technology. These considerations tend to compete in the manner such that either can be a motivator to adoption of technology or barrier to SMEs adoption of technology. Ultimately the decision to adopt a technology or not is one which the manager of the business makes especially in the case of owner managed firms, and their personal comfort and confidence in the technology coupled with their ability to recognize the perceived benefits of the technology ensures the future growth and sustainability of the application. (Yamine, et al., 2014).

To Agboh (2015) and Tan, Chong and Eze (2010) the often-cited challenges of MSMEs for the adoption of internet technologies in the literature is the poor telecommunication infrastructure, inadequate expertise, ineffective incorporation of ICTs into businesses, high cost of ICT equipment and government regulation. Other researchers have further indicated that constraints to the adoption of the internet and technology as a whole are due to untrained
technicians which include ignorance on the value of ICTs and more importantly less return on investment technology (Duan et al., 2002; Fulantelli & Allegra, 2006; Hashim, 2007).

In their study of ICT adoption in Nigeria, Kapurubandara and Lawrence (2006) postulated the barriers to adoption of technology as a whole by MSMEs is influenced by internal and external factors and further argued that the internal features included owner or manager type of business, the characteristics of the firm, cost and return on investments. They maintained that the absence of infrastructure, socio-cultural, political, legal and regulatory factors influence the decisions to adopt technologies especially internet technologies in business. This position was corroborated by Lal (2007) who maintained that poor infrastructure in developing countries is a bane to the swift adoption of internet technologies by MSMEs.

**2.7. Challenges to adoption of Internet Technologies in Ghana by MSMEs**

Ghana as a developing country has a low internet penetration level across the whole country with the service focusing mainly in the cities and some towns. There is only 34.3% of the entire population with access to internet as at the end of 2017 (www.internetworldstats.com).

In a survey conducted by Frempong and Essegbey (2013) on the use of ICT, it was found that Ghana in spite of the availability of internet technologies and the relatively high literacy rate across managers of MSMEs, only a few of them (7%) use the internet services. With the boom in telecommunication and the high mobile phone usage in Ghana, it was thought that the telecommunication industry through their connectivity expansion would results in a high level of internet usage. However, in the ITU rankings, Ghana was 109th on ICT development index indicating the lack of development of the technology sector to support business growth in the country. In a research conducted by ITC with support from the AGI found that one key striking feature in terms of ICT usage is the widening gap in ICT connectivity between MSMEs (International Trade Centre, 2016). It has been argued that the deployment of internet by MSMEs in Ghana will inure to the benefit of all as it will facilitate growth in the
economy. Though leveraging on the advantages of the internet forms a crucial feature of today’s competitive business environment, there is only about 43% of MSMEs which maintains a corporate website (International Trade Centre, 2016). In his study on drivers and challenges to internet adoption in the Accra Metropolis by MSMEs, Agboh (2015) found that most of the respondents to the survey perceived cost as the key challenge to their adoption of internet in their business operations. Most of the SMEs in the study area did not have ICT budget and maintained that the cost of upgrade and maintenance due to the increasing changes in the technology is prohibitive and therefore a barrier to most MSMEs not adopting internet technologies in Ghana. Infrequent power supply and inadequate IT infrastructure across the country was the second challenge that respondents to the study indicated as a challenge (Agboh, 2015). Further the firm management structure tends to impact on the decision making of the SMEs. The owner managed characteristics of many of the MSMEs in Ghana inhibits the adoption of internet technologies. According to Kapurubandare and Lawrence (2006) the owner-managers of MSMEs are the decision makers who do not have a full appreciation of internet technologies adoption and the perceived benefits to business growth. The low level of ICT knowledge for both managers and employees of SMEs pose a challenge to the adoption of the technology.

As in other African countries, majority of the firms within the MSMEs in Ghana are relatively small with some even having less than 5 employees. Several studies have revealed that the size of the firm has a correlation with the adoption of IT in general. According to McDonagh and Prothero (2000) there exist a relationship between the size of the business and the business’ level of adoption of IT and that the size of the business also influences the adoption of internet by SMEs. Thus, the small size of businesses in Ghana does not foster the adoption of internet among the small businesses. In the view of Burgess (2002), one of the challenges faced by MSMEs in their quest to introduce technology especially in developing
countries is the unavailability of information specifically decision-making related information. Sawyerr, Edbrahimi and Thibodeaux (2000) maintained that the lack of data sources from which to obtain the type of information needed due to poor technological infrastructure impacts on SMEs’ from adopting internet technologies. This is the reality in Ghana where most MSMEs lack the requisite information and thus unable to effectively utilize the benefits of the adoption of internet which is support in the provision of the required information. Information for decision making regarding ICT adoption is based on quality data which is readily available to access which is not available in the case of Ghana.

2.8. Conclusion

The challenges of internet adoption are not peculiar to MSMEs alone in Ghana. Unlike other countries where internet adoption rate is high for all businesses both large and small, Ghana’s situation is such that businesses of all dimensions are impacted by the poor IT infrastructure which serves as a backbone for rapid internet penetration into the whole country. From the review of the literature, it is evident that MSMEs globally are confronted with peculiar challenges in the quest to incorporate the technological change to their business model. There are also several studies on the benefits that would accrue to MSMEs which effectively employ technological advancement especially the internet and its related technologies in their business operations.
CHAPTER THREE

METHODOLOGY

3.0. Introduction

This section of the project would evaluate the research methodology employed in obtaining information for the purposes of the research work. The section will provide information relating to the research design or approach, the population and further, discusses the sampling techniques, the size and justification for the selection of the sample. There will also be discussion on the data sources and type of data that would be collected and the analytical techniques that would be employed in analyzing the data collected.

3.1. Research Design

In this research, the mixed method research design would be used in the data collection and analysis of the information obtained. The approach involves the combination of both qualitative and quantitative techniques of data collection and analysis. The adoption of this research design would situate the research work in the realist ontological and epistemological thoughts. As ontological thinking seeks to uncover the reality, the research is expected to discover the extent of usage of internet technologies among MSMEs in Ghana. Under this design approach, both the quantitative and qualitative data collection techniques and analytical procedures would be employed in the process of collecting data and analyzing same. However, in this research the concurrent mixed methods research approach would be used as the objective is to apply in separate modes the quantitative and qualitative methods in one single phase of the data collection and analysis processes. The essence of this approach is to allow the results obtained through both techniques to be analyzed and interpreted together. The use of this approach is to allow diverse views to be obtained from participants which will enrich the outcome of the research. The rationale for adopting the mixed method include
enabling the adoption of one technique in explaining a phenomenon and employ another technique with the view of exploring relationships existing between variables.

### 3.2. Research Strategy

With the adoption of the mixed theory approach as the research design, the survey method, the case study, and the narrative inquiry strategies would be employed to collect data for the research. Under the survey strategies, closed ended questionnaires would be used to obtain information from participants from the research population. The rationale is to assist in collecting standardized information which can be analyze easily and to ensure that the sampling adopted is representative of the population. Case study is another research strategy that would be employed in this research. Under this strategy, sample MSMEs would be selected from the various sectors and their technological usage would be examined to identify trends and standards which would be evaluated in line with the information collected using the survey approach.

Essentially this approach is adopted to corroborate findings that may be obtained from the other data collection techniques. Under the qualitative aspects of the research, narrative inquiry strategy would be employed. Here the structured interview approach would be adopted to gather information from participants selected to participate in this category of the research. The rationale for the adoption of the approach is to harness the benefit of the strategy in terms of seeking to preserve chronological linkages and the sequencing of events as indicated by the participants which provide further understanding and foster analysis of the data collected for the research.

### 3.3. Sources of Data

#### 3.3.1 Primary Sources

In this research both primary and secondary data sources techniques would be used. The primary sources would provide firsthand information from individuals who are connected to
the subject. The approaches to be adopted to collect primary information for the purpose of the research include using structured interview questionnaires with a predetermined or identical set of questions which would be read out to respondents. The essence is to obtain data from respondents that can easily be quantified and analyzed using quantitative analytical approaches. Further to this semi structured interview would also be conducted to elicit primary information from respondents. The rationale is to obtain information from respondents around specified themes of the research. Under this technique, a set of questions would be administered in such a way to factor in the specific organizational conditions of each sample entity. This approach would provide qualitative data for further analysis and drawing inferences to test the research hypothesis.

3.3.2. Secondary Sources

Secondary data sources of information for this research would be obtained via review of books, journal articles, organizations’ databases, communications, emails, letters, memos, blogposts of entities, committee reports and minutes, magazines and newspapers as well as interview transcripts of organizational broadcasts. Non textual sources such as media accounts including television broadcast on the subject, voice and video recordings, documentaries and images (Saunders, Lewis & Thornhill, 2016) would also be employed in the data gathering process. The data gathered through these means would also be analyzed quantitatively and qualitatively with the view of confirming the research hypothesis. Under the case study, the internet technological adoption and usage of selected entities would be examined from end to end.

The strategies adopted and the extent of integration of modern internet technologies and its application to the selected entities would be evaluated. The entities selected for this study would be in the following sectors that is mining, oil and gas, manufacturing and agribusiness
sectors. The essence is to identify trends, extent of usage and the level of integration of entities across various sectors of the economy.

3.4. Study Area

For purposes of this research, the study area would cover selected vicinities due to the widespread nature of MSMEs across the country. One other consideration for the selection of the study area is cost in terms of movement across the country to gather information. The selected study area would cover a portion of Accra with the findings mirrored to other areas such Kumasi,Nsawam, Kasoa, Koforidua and Tema. The sample would cover the agribusiness, mining, manufacturing, services, construction, and the trading and distribution sectors of the economy. The services sector would include finance, education, health, tourism and other e-commerce businesses.

3.5. Population

The population for this research in broad terms would be obtained from MSMEs operating in Ghana. However, the target population would cover participants from the Agribusiness, mining including other extractive industries such as oil and gas entities, manufacturing, services which include transportation, education, health, tourism and financial services providers), trading and distribution, and construction sector.

3.6. Sampling Technique

The sample for this research work would solely be derived from the population of staff and executives of MSMEs operating within the sectors outlined above. Probability sampling technique would be employed to select individual respondents of the research questions. Under the representative sampling technique, the simple random sampling approach would be adopted. The adoption of the representative sampling or probability sampling technique is
to give each member of the target population the opportunity or equal chance of being a participant in the research process.

3.7. Sample Size

A total of one hundred (100) entities would be selected from the target population. The sample size would cover a) agribusiness-20; b) manufacturing-20 c) mining and other extractive industries-10; services industries-30 and trading and distribution-20. Participant would be selected from the entities which falls within the categories of industries outlined above. The focus would be examining the adoption of internet and the level of usages of the technologies among the sample entities selected. It is expected that at least 2 employees within the chain for each entity would be participate in the research in addition to interviewing business owners in respect of their view regarding the advancement in internet technologies and the possible benefits that MSMEs stand to gain from adopting same.

3.8. Data Collection Tools

The major technique to be adopted in the data collection process would be the questionnaires. The questionnaires would be used to collect primary information from participants of the research. The questionnaires will primarily be self-administered to participants (employees mainly mid-level officers) of entities selected as sample. Personal interviews questionnaires would also be administered to individual employees (managerial and strategic level officers) of the entities to be selected. Secondary data would be obtained through review of documentary information of selected entities, government agencies and relevant institutions such as NGOs promoting MSMEs, statutory bodies in the state and other entities. Content analysis would be the primary technique adopted in reviewing the documents to be accessed on the subject. Documents to be examined using this approach include books, website information of relevant entities, journals articles, newspapers and magazines memos, annual reports, various messages such as broadcast, advertisements, media reports among others.
3.9. Data Management and Analysis

The raw data collected would be edited and coded for purposes of making it easier to analyze. Statistical tools to be employed in analyzing the data include pie chart, histogram, line graph, bar chart, and other graphical charts and tables. Other distribution techniques to be employed would include the mean, standard deviation, ANOVA test, dispersions, among others. Testing for the relationship between the hypotheses set in the research would involve the use of chi-square test. This would enable the determination of how likely two variables in the hypothesis are independent of each other. Correlation co-efficient technique would also be employed to facilitate the analysis of relationships between variables within the sample. Most of the test would be conducted using Microsoft office spreadsheet and in some instances the R-Programming and results would be interpreted and included in the research findings.
CHAPTER FOUR
DATA ANALYSIS AND DISCUSSION

4.1. Overview

This section of the research work presents findings and analysis of the data collected through the various techniques employed as part of the research process. The analysis is based on the overall objectives of the research work which assessing the level of usage of internet technologies in the operations of MSMEs in Ghana and evaluating the impact of the advancement in internet technologies to the growth and development of MSMEs. The research also intended to examine the challenges confronting MSMEs in Ghana and these challenges are in terms of effectively adopting internet technologies in the day to day operations of the business. The findings of the research have been analyzed below.

4.2. Population and Sample Analysis

The population for the research was obtained from various sources including Ghana Association of Industry, Private Enterprise Foundation, Registrar General’s Department websites, National Board of Small-Scale Industries (NBSSI), GIPC websites and other industry body’s websites. A total of 100 participants were selected and the questionnaires were distributed to all. The responses received were coded and transcribed into forms that are easily uploaded into applications for analysis. The Statistical Package for Social Sciences (SPSS) and Microsoft Office Spreadsheet (Excel) were used to analyze the responses. Below is the summary of responses

4.3. Demographic Profile

The nature of the business sampled for the purposes of the research work include agribusiness, mining, oil and gas extraction and distribution; services industry including
trading and transportation. The diagram below illustrates the distribution of the respondents selected as sample across the industries in which MSMEs operate (see Fig. 4.1).

**Fig. 4.1: Nature of Business**

Source: Researcher’s calculations, 2019.

The education level and gender of the proprietors and owners of the sample were assessed for purposes of understanding the categories of persons involve with MSMEs in Ghana. Fig 4.2 illustrates the level of education with majority of the people being tertiary level certificate holders at 33% whiles the senior high school and vocational and technical training institutes trainees follow with 21% each. On gender distribution of the sample, 55% were male and 45% female (see Table 4.1 below). The age distribution of respondents (Figure 4.3) shows
that majority of the persons behind MSMEs set up are within the age ranges of 26 to 35 years and 36 to 50 years cumulatively constitute 60% of the sample and thus reflects the country’s youthful population with majority of the people being within this age brackets.
Table 4.1: Gender Distribution

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>55</td>
<td>55.0</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
<td>45.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3.1: Assessing the Level of Usage of Internet Technologies in the Operations of MSMEs in Ghana.

The usage of internet technologies among MSMEs for the purposes of the research were coded into categories as indicated in the diagram (Fig 1.4) below. From the sample selected, most of the respondents indicated that their companies employ email services, websites, messenger and client server services as a whole package of internet technologies used. From the diagram below 37% of the respondents affirmed this position whiles another 26%
maintained that their entities use email services and website as the internet technologies employed in their operations. One significant platform was the usage of social media platforms for marketing of products and services, with 23% of the sample confirming the usage of the platform as a means of marketing their products. One of the areas of internet technologies usage that MSMEs in Ghana have not explored is in marketing products using People to People(P2P), Business to Business(B2B) and Business to Consumer(B2C) network systems, as this area especially P2P has revolutionized marketing to a much more personal strategy. About 3% of MSMEs employed this internet-based marketing strategy and even for the 3%, the research found that they are at the nascent level of application in the businesses.

![Fig. 4.4: Internet Related Technologies Used by MSMEs](image)

Regarding general access to internet, 46% of the respondents indicated that their entities have access to the internet whiles 40% responded as not having access to internet. Most of the accesses are basically personal modems especially in the case of the smaller entities. Figure 4.5 below illustrate the percentage of entities with general access to internet.
It was also evident from the analysis that majority of the entities selected adopted internet technologies in recent times ranging from 1 to 7 years. About 57% of the respondents indicated that their entities adopted the usage of internet technologies between zero to three years whiles about 17% of the respondents confirm that their entities adopted internet technologies between 4 to 7 years ago thus translating to about 74% covering years zero to 7 years. Table 4.2 demonstrates the details of the period of adoption of internet technologies by the various entities sampled.

**Table 4.2: When did your company adopt Internet Technologies in its Operations?**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>26</td>
<td>26.0</td>
</tr>
<tr>
<td>Between 1 to 3 years</td>
<td>31</td>
<td>31.0</td>
</tr>
<tr>
<td>between 4 to 7 years</td>
<td>17</td>
<td>17.0</td>
</tr>
<tr>
<td>8 years and above</td>
<td>15</td>
<td>15.0</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>11</td>
<td>11.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>
4.3.2: Types of Internet Technologies used by MSMEs

The evidence obtained through the survey and review of research papers in the field concluded that most of the MSMEs in Ghana employ the email services as primary modern internet technology in their operations. However, combining email usage with other applications such as social media platforms, messenger, client server services, P2P/B2B services showed that majority of the respondents affirming that their entities employ either email, website, social media platform such as Facebook, WhatsApp, Instagram, etc., and/ or messenger as part of the internet technologies employed in the business operations. The research further revealed that most MSMEs in Ghana rely on third part host mails services such as Gmail, yahoo and Hotmail. 61% of the respondents affirmed that their entities use Gmail, yahoo or Hotmail as the main means of communicating with third parties including customers. 29% of the respondents on the other hand indicated that their entities have their own host mail anchored on their internal network and URL. The diagram below shows the representation of the respondents.

![Fig: 4.6. Use of Third Party Mail Services](image)

4.3.3: Application of Internet Technologies in the Business Operations.

Analysis of the responses received showed that most of the entities uses the email services to communicate to customers, suppliers, financiers and other third-party vendors or
stakeholders. Further, a significant proportion of the sample maintained that their entities advertise their products and services using the internet apps such as on social media platforms, google ads, Instagram, search engine and web advertising. The Table 4.7 below illustrates the usage of the internet in the area of sales, communication to third parties and advertising.

The data gathered showed that 49% uses the internet for selling their products whiles 56% and 54% uses the internet to advertise their products and communicate with customers respectively. Further the study revealed that most of the entities with their own website use it for advertise their products and create a good image of the entity and to attract international sales or cross border sales.

4.4. Impact of the Advancement in Internet Technologies on MSMEs Operations in Ghana.

4.4.1: Sales Growth:

The analysis of the research data proved that most of the MSMEs adopt internet technologies with the view of gaining growth in their sales thereby increasing their market share both locally and internationally. The data collected showed that 52% of the respondents indicated that their entities have seen improvement in sales since they adopted the internet and its
related applications. 44% of the respondents maintained that their entities have seen market share improvement though a greater proportion of the respondents (50%) have seen no improvement in market share for their products and this is attributable to increase competition from other countries. On the other hand, 32% of the sample provided a response that showed that their entities have experience some form of cross border sales as a result of the adoption of the internet and its related technologies. Table 4.3 and Fig 4.8 are illustration of the responses in respect of sales growth, improvement in market shares and cross-border sales.

![Fig 4.8: Impact of the Advancement of Internet Tech on MSMEs](image)

*Has the Company experienced Sales Growth due to the adoption of Internet Technologies?*

*Has the Adoption of Internet Technologies improve the market share of your Company?*

*Does the improvement in Market Share include Cross-Border Sales of Products & Services?*
### Table 4.3: Impact of the advancement of Internet Tech on MSMEs

<table>
<thead>
<tr>
<th>Has the Company experienced Sales Growth due to the adoption of Internet Technologies?</th>
<th>Has the Adoption of Internet Technologies improve the market share of your Company?</th>
<th>Does the improvement in Market Share include Cross-Border Sales of Products and Services?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>52%</td>
<td>44%</td>
</tr>
<tr>
<td>No</td>
<td>35%</td>
<td>37%</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>13%</td>
<td>19%</td>
</tr>
</tbody>
</table>

### 4.4.2. Product Visibility and Customer Service

The use of the internet and its related technological applications have led to increase product and service visibility and improved customer services through efficient delivery of customer focused products and services. Evidence garnered from the data gathered points to a steady increase in the products of MSMEs through internet marketing especially the use of social media and email marketing. Table 1.4 and Fig 1.9 illustrate the distribution of the responses in respect of how internet has propelled product visibility and customer service delivery.

### Table 4.4: Impact of Internet on Product Visibility and Customer Service Delivery

<table>
<thead>
<tr>
<th>Has your company's product become visible in the market due to the use of internet technologies?</th>
<th>Has the adoption of Internet Technologies eg. Messenger/webchat influence customer support services?</th>
<th>Has the Internet usage promoted customer feedback on products and services delivery?</th>
<th>Has the adoption of internet usage improve customer service delivery and rapid flow of product information?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>49%</td>
<td>45%</td>
<td>52%</td>
</tr>
<tr>
<td>No</td>
<td>36%</td>
<td>36%</td>
<td>33%</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>15%</td>
<td>19%</td>
<td>15%</td>
</tr>
</tbody>
</table>
From the information gathered, 49% of the respondents confirm that their entity’s products or services have gained some form of visibility or exposure as a result of advertising the products using the internet and its related applications. Additionally, 45% affirm that the use of messenger and webchat techniques have facilitate product sales and after sales services rendered to customers. It is also significant to note that the majority of the respondents (“No” and “Not Applicable”) views showed that 51% of the sample believe their products and services have not seen any exposure as a result of internet usage whiles 55% disagree with the view that internet applications such as messenger and webchat do not promote efficient customer support services. Regarding customer service delivery and rapid flow of product information to-and-fro the customer to the producer or seller, 52% and 57% believed that the adoption of the internet has facilitated the promotion of customer feedback and rapid flow of information across the chain respectively.
4.5. Challenges to the adoption of Internet Technologies by MSMEs in Ghana.

The evidence gathered through the research showed that also all the respondents agree that there are challenges regarding the adoption of internet technologies among MSMEs. 79% of the sample maintained that there are challenges to the adoption whiles 15% indicated that they are yet to adopt internet fully and thus have not encountered any teething challenges. This is represented in fig 4.10 below.
The evidence gathered suggest that the challenges to the adoption of internet technologies are multifaceted but can broadly be grouped into two that is internal or organizational factors and external and technological factors as argued by Tornatzky and Fleischer (1990). Some of the factors that were evident as a result of the survey outcome include set up cost, inadequate personnel to support the setup and the organizational structure not supporting the adoption of internet. Other external factors include unstable internet connectivity, challenges with coverage of the network infrastructure and socio-cultural. In the analysis of the research data obtained, cost of set up was specifically analyzed and it was identified majority of the respondents view cost of set up and maintenance as well as the technical know-how as the major challenges to the effective adoption of internet technologies by MSMEs in Ghana.
CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0. Introduction

The section of the study gives the overall summary of findings post review of the information obtained via the research. It contains the summary of findings, conclusions drawn based on the research work and recommendations.

5.1. Summary of Findings

The research objectives were to assess the level of usage of internet technologies in the operations of Micro-Small and Medium Enterprises in Ghana, evaluate the impact of the advancement in internet technologies to the growth of MSMEs in Ghana and examine the challenges confronting MSMEs in Ghana in their quest to adopt modern internet technologies in their operations. The research sought to answer the questions relating to the level of adoption, the aspect of internet technologies used by MSMEs, and questions on whether the rapidly advancing internet technologies has impacted on the growth and development of MSMEs in Ghana. It further asked questions relating to challenges to the effective adoption of internet technologies in Ghana. Overall a total sample of 100 officers were selected from the 100 MSMEs sampled for this research. The findings of the research have been outlined below. It was found that most of the MSMEs especially the Small businesses with employees less than 50 people mainly rely on third party email service such as Gmail, yahoo mail, Hotmail, etc. primarily because of the free nature of the services though it requires access to the internet to make it operational. However, some of the medium size enterprises maintain their own host mail which is centrally managed by the entity itself though the number of entities in this category are not many compare to the usage of third-party mails. Further, it was found that most of the entities sampled uses the basic or simple internet technologies mainly mail and messenger. it was also evident that most of the entities did not have their
own website and for the few entities with websites, the URL is updated in an infrequent manner. For the entities that have fully implemented standard internet technologies such as incorporating advertising of products through websites and engaging in online sales, significant improvements were noticed in sales which impacted their overall revenue. It was also found that some of the entities have experienced increases in market share both locally and internationally though it was obvious the cross-border sales component was evolving and requires additional efforts and improvements in products quality and meeting certain international standards to sell in other jurisdictions. Closely linked to the growth seen in sales and market share is also improvement in customer service delivery and provision of after sales support services. These have been achieved through product improvement and visibility internationally with the advent of e-marketing strategies which some of the entities have employed in their operations. Regarding challenges in respect of the adoption of internet technologies, it was found that cost of set up, maintenance and availability of technical support and personnel were some of the key external factors inhibiting the adoption of internet technologies. One other key challenge is the level of infrastructural development of internet technological infrastructure across the country. Researchers have maintained that to gain business value and competitive advantage, IT infrastructure must be properly been designed, deployed and effectively utilized as it is vital in sustaining competitive advantage in a global business setting (Byrd & Douglas, 2001; Fink & Neumann, 2009). This view was found to be lacking in the overall country setup to develop internet and other IT related technologies to facilitate businesses’ adoption and usage. It is also important to bring out concerns from participants who have not adopted the internet technology. The view is that there are cost to data breaches and other cyber security related matters which those entities are unwilling to take the risk. There are other views which point to the issue of internet security breaches or internet account being hacked for fraudulent purposes.
5.2. Conclusion

The study sought to assess the level of usage of internet technologies and the various forms of internet technologies employed as well as evaluating the impact and challenges of the adoption of internet technologies in business operations. The study revealed that most of the MSMES do not have the ability or skill to harness the full potential embedded in fully adopting internet technologies. There is also a lack of understanding of the whole workings of internet and the role it plays in business operations. The interaction with participants and evidence gleaned from research papers and leading literature on the subject shows that this situation is born out of the cultural orientation of most people towards changes and the believe in the traditional way of doing business. The study further revealed that the adoption of internet by most MSMEs in Ghana are primarily undertaken by recently established entities with young entrepreneurs who are open to new ways of doing business. It was found that the age of the business and the ownership structure were factors that influence the adoption of technological changes in the operations.

In the nutshell, it is important to note that internet technologies are broad and keep evolving in a rapidly manner. It is the one of the tools of business which is in vogue in contemporary times. For going concern purposes, businesses irrespective of size need to anchor their operations on internet technologies as it would be pivotal to business growth and advancement in the foreseeable future.

5.3. Recommendations

There is a need for government intervention in supporting the development of the national telecommunication infrastructure to provide a wider, faster and more reliable connections to facilitate the growth and usage of the internet across the whole country. This would further reduce the cost of data and other related tools to make it accessible to all to widen the market scope of MSMEs.
There is also the need for the industry bodies to organize workshops and symposiums for MSMEs especially the owner managed entities and those with minimal level of education for purposes of training and bring them up to speed with benefits of internet to businesses. One other crucial aspect relates to gaining competitive advantage through cross-border sales. However, this hinges on quality product. There are concerns in terms of the quality of items purchase via internet and to address this challenge, industry bodies must be encouraged to adhere to international product standards.

Finally, there is a need for collaboration between industry leaders, managers and owners to collaborate with ICT services related organizations and institutions to design business specific user-friendly internet technologies solutions that are readily available and less costly to small business. The design of tailor-made solutions for ill-equipped entities would help promote MSMEs usage of internet technologies.
REFERENCES


Fallon, M., & Moran, P. (2000) 'Information and Communication Technology (ICT) and Manufacturing SMEs'.


Yamine, M; Ellis, N; Pedic F, & Tan, B (2014) *SMEs and Digital Communication Technologies: A Qualitative Market Research Report Based on Consultation with Small and Medium Sized Enterprises*. Australian: Australian Communications and Media Authority

APPENDIX: I
QUESTIONNAIRE

The following questionnaire is part of a survey being conducted in partial fulfillment of a Master of Science in Development Finance from University of Ghana Business School on the topic, “Assessing the effects of Adoption and Usage of Internet Technologies on the Operations of Micro Small and Medium Enterprises in Ghana.” This information is purely for academic purpose and therefore its confidentiality is highly guaranteed. You are therefore kindly requested to provide accurate answer to the ensuring questions. Your co-operation and support will be appreciated.

DEMOGRAPHIC PROFILE

1. Name of the Business: …………………………………………………
2. Entrepreneur’s Gender: 1. Male : ( ) 2. Female: ( )
3. Age of Entrepreneur: 1. 18-25 ( ) 2. 26-35 ( ) 3. 36-50 ( ) 4. 50 years + ( )
4. Religion: 1. Christianity ( ) 2. Islamic ( ) 3. Traditionalist ( ) 4. Others Specify ( )
5. Background: 1. No formal Education ( ) 2. Primary Educational Education ( ) 3. Junior High ( ) 4. Secondary ( ) 5. University /Polytechnic ( ) 6. Others ( )
7. Number of employees: 1. less than 50 ( ) 2. 50-100 ( ) 3. 100-250 ( ) 4. 250-500 ( ) 5. More than 500 ( ).
8. Period of operation or in existence in Ghana: 1. less than 1 year ( ) 2. 1 to 5 years ( ) 3. 5-10 years ( ) 4. 15-25 years ( ) 5. More than 25 years ( ).

PART I: ADOPTION AND LEVEL OF USAGE OF INTERNET TECHNOLOGIES BY MSMEs IN GHANA

9. Does your company have access to internet? 1. Yes ( ) 2. No ( )
10. Does your business entity have its own LAN (local area network such as intranet) or WAN (wide area network such as WWW)? 1. Yes ( ) 2. No ( ) 3. NA ( )
11. When did your company adopt internet technologies in its operations? 1. Less than 1-year ( ) 2. Between 1 to 3 years ( ) 3. Between 4 to 7 years ( ) 4. 8 years and above ( ) 5. NA ( )

12. Does your company use any of the following internet related technologies? Tick as applicable. 1. Email services ( ) 2. Web browsing ( ) 3. Messenger ( ) 4. P2P services ( ) 5. client server services ( ) 6. NA ( )

13. Does your company use its own host mail or a third party email such as yahoo, google, Hotmail, etc.: 1. Yes ( ) 2. No ( ) 3. NA

14. Does your business entity have its own secured website? 1. Yes ( ) 2. No ( )

15. What kind of information does your company publish on its website? 1. Product and services on offer ( ) 2. Company profile ( ) 3. History and success stories of the company ( ) 4. Information about the company’s personnel and customers ( ) 5. career and available job information ( ) 6. NA ( ) (tick as many as applicable).

16. How often does your company update its website information? 1. Once every day ( ) 2. At least once every week ( ) 3. At least once every 2 weeks ( ) 4. At least once a month ( ) 5. At least once every quarter ( ) 6. At least once every half year ( ) 7. At least once a year ( ) 8. NA ( )

17. Does your company communicate to customers using the email? 1. Yes ( ) 2. No ( )

18. Does your company sell its products via the web? 1. Yes ( ) 2. No ( )

19. Does your company advertise its products using the internet? 1. Yes ( ) 2. No ( )

PART II IMPACT OF THE ADVANCEMENT OF INTERNET TECHNOLOGIES ON MSMEs OPERATIONS.

20. Has your company experienced sales growth due to the adoption of internet technologies in its operations? 1. Yes ( ) 2. No ( )

21. Has your company’s product become visible in the market due to the use of internet technologies such as email, web advertising? 1. Yes ( ) 2. No ( )

22. Has the adoption of internet technology such as the messenger influence customer support? 1. Yes ( ) 2. No ( ) 3. NA ( )

23. Has the internet usage (eg email, web browsing) promoted customer feedback on products and service delivery? 1. Yes ( ) 2. No ( )

24. Has the adoption of the internet technology improved customer service delivery and rapid flow of information? 1. Yes ( ) 2. No ( ) 3. NA ( )
25. Has the adoption of internet technologies such as the email and web browsing improve the market share of your company’s product? 1. Yes ( ) 2. No ( )

26. Does the improvement in market share include cross border sales of products and services? 1. Yes ( ) 2. No ( ) 3. NA ( )

PART III CHALLENGES IN THE ADOPTION OF INTERNET TECHNOLOGIES BY MSMEs IN GHANA.

27. Are there challenges to your company’s adoption of internet technologies in Ghana? 1. Yes ( ) 2. No ( ) 3. NA ( )

28. Are there internal factors in the organization that influence the attitude towards changing the mode of operation of your entity to include internet technologies? 1. Yes ( ) 2. No 3. NA ( )

29. Does the structure of your company support the adoption of internet technologies in your operations? 1. Yes ( ) 2. No ( )

30. Is set up cost part of the reason for not fully adopting internet technologies in your business? 1. Yes ( ) 2. No ( ) 3. NA ( )

31. Does your company have dedicated person’s in-charge of promoting the company’s adoption and usage of internet technologies? 1. Yes ( ) 2. No ( )

32. Are there external factors that serve as a barrier to the adoption of internet technologies? 1. Yes ( ) 2. No ( )

33. Does the socio-cultural orientation of personnel of your company a factor to the efficient adoption of internet technologies? 100. Yes ( ) 2. No ( )

34. Select from below any challenges your company faces in the efficient adoption of internet technologies: 1. Cost ( ) 2. Unstable Internet connectivity ( ) 3. Expertise ( ) 4. Technical know-how ( )