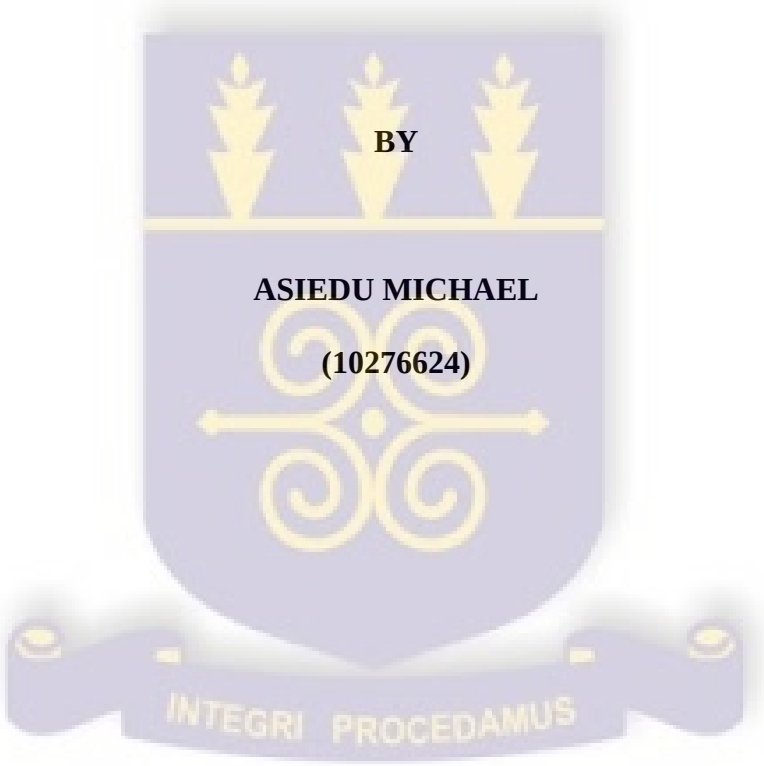
UNIVERSITY OF GHANA

INNOVATION AMONG SMALL AND MEDIUM SCALE ENTERPRISES (SMEs) IN GHANA: ASSESSING THE CONSTRAINING FACTORS.



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THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MPHIL MARKETING DEGREE

MAY, 2016

DECLARATION

I hereby declare that this work is the result of my own research and has not been presented by anyone for any academic award in this or any other university. All reference used in the work have been rightly acknowledged.

I hereby declare that any shortfalls therein are my sole responsibility.

…… ……

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CERTIFICATION

This is to certify that this thesis is conducted under our supervision in accordance with the rules and regulations of the University of Ghana, Legon.

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DEDICATION

This work is dedicated to my Spiritual Father, Prophet Bernard El Bernard Nelson Eshun and the wife, Mrs. Mimi Nelson Eshun. I am grateful for everything you have done for me and will do for me. Again, to my entire family for their encouragement and support throughout this course. Especially to My Dad and Mum; Mr. Opare Asiedu, Mrs. Charity Darko Asiedu and Ms. Rosemond Praiman.

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LIST OF ABBREVIATIONS

SMIDO: Small and Medium Industries Development Organization

UNIDO: United Nations Industrial Development Organization

ECI: Economic Composite Index

SME: Small and Medium Scale Enterprises

NBSSI: National Board for Small Scale Industries

AGI: Association of Ghana Industries

ABSTRACT

In recognition of the recent relevance of SMEs and innovation, which is as a result of their potential to contribute substantially to economic growth and development, academics and practitioners have focused attention on these subject matters. In a similar vein, the current study seeks to investigate innovation among SMEs in Ghana and has focused on assessing the constraints of innovation. In view of this, the current study seeks to identify the internal and external factors that constrain innovation among SMEs in Ghana. Additionally, the researcher, based on the findings proffered some recommendations to mitigate the impact of these constraining factors on innovation. As a result of its pragmatic philosophy, the current study, adopted a mixed method approach. In view of this, the study used 12 respondents to qualitatively identify the constraining factors relevant to the innovation process in Ghana. Consequently, 100 respondents were sampled to assess the impact of these constraining factors on SME innovation. The results revealed that the top three constraining factors, which were classified as "high constraints" were all internal factors including, management time related, human resources related and technical expertise related factors respectively. Management time related factors emerged as the most impactful constraining factor. Employee commitment and trust in the workplace were found to be very important human related constraints that impedes innovation among SMEs in developing economies like Ghana. In this respect, the researcher recommends that government and non–governmental agencies purporting to offer support to SMEs with regard to innovation can educate these firms on time management and internal marketing strategies to help them manage their time, employee commitment and trust in the workplace.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Despite the increasing proliferation of small and medium scale enterprises (SMEs), the high levels of unemployment and low standard of living has consequently imposed immense economic pressures on most African and Latin American economies (Abor, 2011; World Bank Latin American Report, 2013). The World Bank released a report titled "Many firms, but little innovation" in an attempt to explain the paradoxical situation in these countries. In Ghana, for example, Abor (2011) indicates evidence of the massive proliferation of SMEs. However, very few of these SMEs are able to channel out competitive products able to compete on the international market. Recent discussion in extant literature reveals evidence of some factors that constrain innovation within these firms, as well as reveal a need for such factors to be empirically assessed in different contexts.

Placing this issue within the context of recent happenings in Ghana, the trade liberalization policies and agreements between Ghana and the EU community has raised raging concerns about the ability of SMEs within the economy to compete with other international products and firms. These concerns, according to Necadova and Scholloeva (2011) are because of underproduction and low competitiveness of SMEs, which is ultimately because of the low level of innovation among SMEs in Ghana. This low level of innovation according to some scholars has been as a result of the plethora of factors that constrain SMEs' effort to innovate (Piatier, 1984; Hadjimanolis, 1999; Madrid-Guijarro et al., 2009). Previous studies in this respect have viewed these elements in the light of different terminologies; see for instance, barriers to innovation (Madrid-Guijarro et al,

2009) and obstacles to innovation (Galia & Legros, 2004). However, the current researcher will contextualize these elements as factors that constrain innovation among SMEs.

Innovation in recent times has attracted both academia and practitioner attention. It is considered as an important driving force for economic growth for nations as well as a key player in global development (Freel, 2000; Nečadová & Scholleová, 2011). This hype of innovation has erupted because of its direct links with productivity and competitiveness (Porter, 1990). In connection to this, some scholars have revealed that the low levels of innovation has a rippling effect on several facets of the economy including trade balances, foreign exchange reserves (Patel, 2007) and unemployment (World Bank Latin American Report, 2013). This goes to suggest that the high imports rates and low exports of most developing economies (evident for instance in Ghana and Nigeria), which is as a result of their dependence on unprocessed primary commodities (Babatunde & Egwaikhide, 2010; Naude & Gris, 2008), precipitates from the low level of innovation among small and medium scale enterprises. In addition, the World Bank Latin American Report (2013) revealed unemployment as an indicator of the low level of innovation among Latin American SMEs, as such firms were not able to increase their labour intakes.

Additionally, with the reasons for popularity of innovation studies as well as the indications of the low level of innovation among SMEs in Ghana discussed, it is important to note that this attention has heightened further because of its negative impact on economic growth and development (Feldens, Maccari, & Garcez, 2012). In this respect, scholars in recent time have focused research on assessing various facets of innovations (Nooteboom, 1994; Robinson, 2009; Rogers, 2003).

In spite of the heightening interest in the subject of innovation, majority of the attention have focused only on developed economies. Furthermore, with concerns of low level of innovation increasing in the 19th century (Piatier, 1984), a great deal of studies in these developed economies focused on identifying and assessing the factors that constrain innovation among SMEs. In spite of this, some scholars still believe there is a paucity of empirical evidence in this respect (Feldens et al., 2012; Tiwari & Buse, 2007). This line of research has culminated in the identification of some internal and external factors that constrain innovation among SMEs (Piatier, 1984; Madrid-Guijarro et al., 2009). Some studies have further grouped these internal and external factors into subdivisions that allows for the easy comprehension of the genesis of these issues. For example, Hadjimanolis (1999) groups the internal factors into resource related, human related and culture and system related factors; and on the other hand, groups external factors into supply, demand and environmentally related factors.

Also of note, as indicated in the preceding paragraph, majority of the empirical evidence assessing innovation and its constraints has focused mostly on developed economies (see for instance, Blanchard et al., 2012; Madrid-Guijarro et al. 2009; Lekovic, 2013; Piatier, 1984). Some discussions have also been made with regard to underdeveloped economies (Hadjimanolis (1999). However, very few studies have attempted to assess the factors constraining innovation among SMEs within the context of developing economies like Ghana. Some scholars have argued that studies investigating the factors constraining innovation among SMEs in developing economies may produce some insight relative to those contexts (Wziatek-Kubiak, Peczkowski, & Balcerowicz, 2010).

Stemming from the arguments posited with regard to the importance of innovation in enhancing the export competitiveness of Ghana, as well as its impact on economic development and industrialization; the current study sought to research the factors that constrains innovation among small and medium scale enterprises in Ghana. In this respect, the researcher adopted and adapted the approaches used by Piatier (1984) and Hadjimanolis (1999) to identify and group the constraints under the broad umbrella of internal and external factors. Furthermore, the internal and external factors were classified into eight sub-divisions namely; management time, technical expertise, financial, human, culture and system, supply, demand and environmentally related factors.

1.2 Research Problem

Scholars have established that firms that adopt the innovation approach are more likely to grow (Hoogstraaten, 2005) and have also affirmed that SMEs are more susceptive to this approach and consequently, have a huge potential to grow (Christensen & Bower, 1996; Ferriani, Garnsey & Probert, 2008). This, according to some scholars is as a result of the small size of SMEs, which allows them to be more flexible and susceptible to change as well as less bureaucratic (Nečadová & Scholleová, 2011). In spite of this potential to grow and innovate, recent evidence in literature and practice demonstrate the low level of innovation among most SMEs (Wang & Costello, 2009). This, in recent studies has been attributed to some constraining factors present within the business environment (Frenkel, 2003). In this respect, the current study seeks to investigate the situation with respect to developing economies, Ghana, for that matter. Thus, to assess the factors that constrain innovation among SMEs.

Recent scholarly works across the field of innovation spans across the ambits of diffusion of innovation (Nooteboom, 1994; Robinson, 2009; Rogers, 2003); product innovation (Freel & Robson, 2004; Susman, 2006; Lofsten, 2014); service innovation (Menor, Tatikonda & Sampson, 2002; De Jong, Bruins, Dolfsma & Meijaard, 2003), and evolution of innovation (Guojun, & Angappa, 2014; Martin, 2012). Additionally, innovation have also been researched in relation to creativity (Okpara, 2007; Mihalyi, 1997) and entrepreneurship (March-Chorda et al., 2002; Moore, 2004; Mosey, 2005; Trott, 2008). More recently, researchers have shifted attention to examine the factors constraining innovation among SMEs because such factors are considered to be the prime cause of the low level of innovation among SMEs (Madrid-Guijarro et al, 2009; Tiwari & Buse, 2007; Feldens et al., 2012; Blanchard et al, 2012). Despite acknowledging the significant increase in literature in this regard (Wziatek-Kubiak et al., 2010), Wziatek-Kubiak et al. (2010) and Oslo Manual (2005) have made calls for future and further studies to assess the factors constraining innovation among SMEs. This is as a result of the paucity of empirical works still evident in the subject area.

Studies investigating the factors constraining innovation among SMEs have been scattered across several continents and countries for that matter (Poornima & Kala, 2012). A few example of countries that have benefited from studies in this subject area include the United State (Acs & Audretsch, 1990; Chesbrough, Vanhaverbeke & West, 2006), Sweden (Ylinenpää, 1998), Canada (Mohnen & Rosa, 1999; Baldwin & Gellatly, 2004) and Germany (Centre for European Economic Research (ZEW) and DIW, 2004; Rammer et al., 2005; Hamburg Institute of International Economics (HWWA), 2004) just to mention a few. Recently, there have been substantial increase in the literature from the Asian regions, with respect to factors constraining innovation. For example, China

(Savitskaya, Salmi & Torkkeli, 2010) and India (Poornima & Kala, 2012; Clancy, 2001) have seen a steady increase in literature in this respect. Quite recently, some studies have also erupted from South America; see for example, Brazil (Weisz, 2006; Feldens et al., 2012) and some Latin American countries (World Bank Latin America Report, 2013). Evidently, studies investigating factors constraining innovation have focused mostly on developed nations. For example, Piatier (1984) conducted a comprehensive study across the European Economic Community (EEC) to assess the factors constraining innovation among firms in the community; majority of the countries involved in that study were developed countries. A similar study was also conducted by Hadjimanolis (1999) among under-developed countries. In view of this, Wziatek-Kubiak et al (2010) notes that even though some analysis have been carried out among developing nations with regard to this subject matter; literature in this regard, is still very slender. Hereby, affirming the paucity of literature with respect to developing countries, particularly across Africa.

Additionally, with respect to Ghana, there have been substantial increase in the empirical evidence on the subject of innovation (see for instance, Robson, 2012; Dzogbenuku, 2013). The subject matter has been discussed in relation to several concepts and sectors in Ghana. Some frequently cited examples includes some works focused on the financial sector (Baba, 2012; Dzogbenuku, 2013), innovation adoption (Boahene, Snijders & Folmer, 1999), entrepreneurship (Robson et al., 2012; Quaye & Acheampong, 2013), health (Al-Bader, Daar & Singer, 2010), governance (Odingo et al., 2014), corporate social responsibility (Mahmoud & Hinson, 2012) and agriculture (Urama & Ozor, 2011). However, most of the studies, except for a few were focused on large firms (see for instance, Dzogbenuku, 2013) rather than small and medium scale enterprises. In addition

to the fact that these works mildly discussed innovation, little or no attempt has been made in Ghana to investigate the factors that constrain innovation among Ghanaian SMEs.

Furthermore, recent studies investigating SMEs have increased profusely over the years in Ghana (Abor, 2011; Quaye & Acheampong, 2013), with several different focuses. For example, Quaye and Acheampong (2013) assessed SMEs with respect to entrepreneurial orientation. Haselip, Desgain & Mackenzie (2015) also assessed SMEs with respect to non-financial constraints to scaling-up in the energy industry. Furthermore, some scholars have also evaluated SMEs in connection with other relevant subjects and issues such as bank finance and export activities (Abor, Agbloyor & Kuipo, 2014); financial performance (Masakure, Cranfield & Henson, 2008), innovation in the mobile telephony (Essegbey & Frempong, 2011) just to mention a few. However, with regard to studies assessing factors constraining innovation among SMEs in Ghana, little or no evidence exist. Analysis of empirical evidence within Africa reveals efforts in the field of innovation have concentrated on such field as: enabling technological learning through networking (Chipika & Wilson, 2006); adoption of information and communication technology (Kossa & Piget, 2014); innovation systems (Agwu, Dimelu & Madukwe, 2008) just to mention a few. However, still across Africa, very little evidence has been found with respect to factors constraining innovation among SMEs.

With respect to the research gaps illustrated above, the current author is of the view that considering such a study in a developing nation like Ghana, with respect to small and medium scale enterprises could produce some significant findings that could assist the growth of SMEs. In view of this, the current study seeks to assess the factors constraining innovation among SMEs in developing economies; using Ghana as a case in point.

1.3 Research purpose

The research purpose for the current study is to investigate the factors constraining innovation among SMEs in Ghana.

1.4 Research objective

The current study seeks to achieve the following specific objectives at the end of the research;

- To identify the internal factors constraining innovation among SMEs in Ghana
- To identify the external factors constraining innovation among SMEs in Ghana

1.5 Research Questions

Based on the research objectives the following questions are posed:

- What are the internal factors constraining innovation among SMEs in Ghana
- What are the external factors constraining innovation among SMEs in Ghana

1.6 Scope of the study

The scope of the study is limited to investigating the factors constraining innovation among SMEs in Ghana. In this regard, the current study considered 112 SME owners in Ghana as its unit of analysis. The selection of the SMEs cut across all industries; this is because the study sought to produce a general overview of the factors constraining innovation among SMEs in Ghana, with no particular interest in any one specific industry or sector. Again, the SMEs were be selected from various parts of Accra, as the capital city has the concentration of a variety of SMEs within the catchment area. This allowed the researcher the opportunity to easily assess respondents for the study as well as aid in

meeting the time limits of the study. A future extension of the study may consider specific industries as well as a nation-wide study of SMEs.

1.7 Significance of the Study

With regard to the significance of the study, this study is significant in three respect; policy, practice and academia. As indicated by some scholars, there is the need to understand and elucidate how SMEs can find possible remedies to the factors constrains their effort to innovate (Teece, 1996). Furthermore, Hadjimanolis (1999) also notes that a better comprehension of these factors will be necessary if firms are to be able to overcome the constraints as well as provide an environment that supports innovation.

In relation to practice, the current study provides an understanding of the concept of innovation and how it applies to most small and medium scale enterprises. Again, it also illustrates the various factors that impede the innovative behavior of SMEs in Ghana as well as in other developing nations. In this respect, for practitioners, the current study outlines the various factors an SME owner has to consider if he or she is to be innovative. Result from the current study has the potential of making local SMEs more competitive on the global scene, as identifying the various factors constraining innovation can put them in a better position to overcome them.

In connection with policy, an understanding of these factors can assist the government and other policy makers to appreciate the factors that impede innovation among SMEs in Ghana. Thus, the government and other policy makers would be able to create a conducive environment for businesses to strive as well as be more competitive on the global market. Previous studies have shown how the external environment, which includes government regulations and legislations, exchange rate, inflation just to mention a few, has a way

siphoning innovation (Katila & Shane, 2005). In this respect, the current study aids the government and other policy makers in formulating policies that enhances and creates a favorable environment for innovation.

With respect to academia, the current study also adds up to the existing literature on innovation among SMEs in developing economies and Ghana for that matter. Additionally, as an academic exercise, it affords the student the opportunity to contribute knowledge and also improve on the research experience of the student. It will also provide a basis for further research.

1.8 Organization of Chapters

The study is organized in five chapters. The first chapter deals with the introduction of the study. It gives a brief coverage of the background study, statement of the problems, significance of the study, scope and area of the study, methodology and ultimately the purpose of the study.

Chapter two (2) contains a review of the relevant literature for the study; which includes the following headings; innovation, internal and external factors constraining innovation, just to mention a few. It covers applied theoretical and empirical works on innovation.

The third chapter discusses the context of the study. This chapter includes discussions on SMEs in Ghana as well as other contextual background information.

Chapter four describes the method for data collection and analysis as well as elaborates on the statistical model used for this study. In addition, this section discusses the research approach, design, research paradigm, strategy, sample technique and size.

Chapter five deals with the analysis of the data collected for the study and also tables to illustrate the finding from the data.

Chapter six deals with the findings and summary of the analysis, recommendations and conclusions of the study as well as suggestions for future studies.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

In order to give an auspicious foundation for the understanding of the subject of innovation, this chapter discusses extant literature on the topic of innovation. The section discusses the evolution of the definition of innovation and how the definition has been adopted in relation to the changing environment and scope of the subject matter. The section also includes the review of literature on the various types, importance and levels of innovation. Ultimately, scholarly discussions on the factors constraining innovation among SMEs are included. Finally, the various analysis of extant literature on the issues culminated into the presentation of a conceptual model that simplifies all the thoughts discussed in this section. Also of note, in this section and others such terms as "factors that impede innovation" and "barriers to innovation" were used interchangeably with the term "factors constraining innovation". Again, the constraining factors are considered in the present study as the factors contributing to the low level of innovation among SMEs.

2.1 Innovation

Some researcher have argued that the definitive parameters of the subject of innovation is still broad and vaguely defined (Damanpour & Schneider, 2006). This challenge with the subject matter (innovation) was identified and emphasized by Piatiers (1984). Piatier indicates the need for a more precise and comprehensive definition of the constituents of the term; and further explains that this is core to the understanding and practice of innovation. Some earlier scholars of innovation specify that it consists of novel products or services, a new production process, technology, a new structure or administrative system, and new plan or programme with respect to organisational members (Zaltman et

al., 1973). In addition, the authors also suggest innovation engulfs the adoption of new technology, generated within or without the organization. In spite of these authors' acknowledgment of the fact that innovation can be borne within a firm; the above definition lucidly emphasizes the fact that innovation can be adopted from the outside of an organization; further emphasizing how innovation can be affected by some external factors. These views seem to affirm the market based view of innovation, which suggest that innovation is identified by a proper scanning of the market environment of a firm (Porter, 1985).

Drucker (1985) opines that innovation is a means of entrepreneurship and provides resources that aids in building a capacity that allows the organization to reach welfare. Drucker's definition establishes a nexus between the concept of wealth creation and innovation. In addition, it draws attention to the fact that innovation is a function of entrepreneurship. Drucker's assertion seems to place the entrepreneur in the center of the innovation process and sets innovation as the prime theme that defines entrepreneurship. This definition instigates discussions about the individualistic theory of innovation (Trott, 2008). This theory explains that instead of market environment, innovation emanates from individual with certain peculiar characteristics.

Furthermore, Porter (1990) attempts to draw a nexus between innovation and competitive advantage. In this respect, Porter suggests that innovation provides competitive advantage and comprises both new technologies and new methods. Porter's definition, affirmed the notion held by some scholars that innovation does not solely refer to the channeling out of new products, instead it also includes the adoption of new methods of marketing and markets. Focusing on the adoption and usage of novel technology, some scholars define

innovation as an idea, a practice (application) or an object that is perceived as something new (Rogers, 1995).

Damanpour (1996) explains innovation as a complete or partial modification put forward in the outputs, structure or processes of an organization that enables its integration with the environment. From this definition, Damanpour seems to be circuitously postulating three resultant effects from the innovation process, which is either a change to the final *output*, *structure* or *process*. In addition, the author emphasizes that innovation must be integrative: suggesting that for a thing to qualify as an innovation; regardless of its source, it must be well integrated into the environment, as this has the propensity to affect its adoption and usage. In addition, innovation must have positive impact on the environment, thereby introducing a social dimension of the innovation process.

Whereas majority of the definitions discussed above emphasize a snapshot change, a more recent definition by Elçi (2006) accentuates innovation as a continuous process and in view of this, defines innovation as the continuous changes and differentiations in the products, services and working methods. Similar to the view of Damanpour (1996), Elci (2006) affirms that innovation must have social and economic value, as it is the aggregation of both social and technical processes.

An assessment of the evolution of innovation from the 1960s reveals how the term was initially associated with the creation of new things. This definition evolved to include the adoption of technology, as technological discoveries revealed new ways of doing things. As a result of the rising need for entrepreneurship to foster economic growth and wealth creation, Drucker (1985) suggests innovation as the catalyst for this advancement and

thereby draws an important nexus between entrepreneurship, wealth creation and innovation. A much related position is also posited by Porter (1990) who revealed a connection between innovation and competitive advantage (Necadova & Scholleova, 2011). Another definition posited by Rogers (1995) also introduced and emphasized the usage and application of ideas considered to be novel in some way to the entity. As a result of the rising concerns for social and environmental contribution and protections, Damanpour (1996) introduces a social and environmental component to innovation and argues that innovation must be environmentally conscious (able to be integrated into the environment). This view is accentuated in a more recent definition posited by Elci, who argues that innovation must have social and technical value.

The direction of argument with regard to the definition of innovation has limpidly skewed from just the introduction and application of a novel technology and has further shifted from just changes in structures, processes and outputs to the adoption, modification and introduction of ideas, methods and technologies that can be integrated into the environment as well as has social and technical value. In this respect, the current author considers innovation as the continuous and instantaneous changes and introduction of new ideas, methods as well as technologies, which result in the modification of the output, process or structure of an organization and contributes to the social and economic environment of a firm. The above posited definition present a comprehensive and holistic view of innovation and attempts to capture the various evolving facets of innovation.

2.2 Types of innovation

Even though a relatively substantial number of studies have been conducted in recent times with respect to innovation (Wziatek-Kubaik, 2010), still a paucity of studies

investigate the subject area adopting the barriers approach, which considers investigating the factors constraining innovation. This is in contrast to the deterministic approach (Holzl & Janger, 2014), which focuses on the favorable factors that stimulates innovation rather than the inhibitors (Trott, 2008). The deterministic approach explains that innovation is possible when certain factors are present within and outside the firm.

Very few studies attempts have been made to explore the various types of innovation (Story, Daniels, Zolkiewski, Andrew, & Dainty, 2014) and their effect on the innovation process and adoption. In spite of this, several different classifications have been posited by different scholars in this regard. Scholars draw this distinction base on the impact (Wan, Williamson, & Yin, 2014), industry type (Damanpour, 2009) as well as resources required to pursue such innovations. One of the most popular classification is offered by Trott (2008). Trott (2008) explains that innovation can be classified based on the facet of the firm's structure it is influencing. In view of this, 8 types of innovation are posited; product, process, management, commercial, organizational, production and service innovation. Also to note, Damanpour et al. (2009) posit an industry specific classification, which explains that innovation can be classified into service, administrative process and technological process innovation. However, some scholars argue that this classification of innovation is particularly useful to the service industry (Baba, 2012).

From a different perspective, Christensen (1997; 2006) and Story et al (2014) elaborate and discuss the various types of innovation. In this respect, these scholars identify two basic types of innovation namely; sustaining and disruptive innovation (Christensen, 1997, 2006; Adner, 2002, 2006; Calia et. al., 2007; Christensen & Bower, 1996; Christensen and Raynor, 2003; Govindarajan and Kopalle, 2006; Hall, Matos, & Martin, 2014; Linton,

2004, 2009). Furthermore, Christensen and Raynor (2003) suggest that the interrelation of the levels of innovation with the internal and external drivers consequently postulates an additional two strands of innovations namely product innovation and system innovation. The current study will adopt the latter, as it provides a broad perspective that interrelates the levels of innovation and environment.

2.2.1 Disruptive Innovation Theory

The disruptive innovation concept is traceable at least to the inspirational work of Abernathy and Clark (1985). These authors suggest disruptive innovations are characterized by their ability to destroy the value of existing technical competencies, thereby causing drastic changes within an industry. The concept in recent times has been popularized by such authors as Christensen (1997), Christensen and Raynor (2003) and Markides (2006, 2012). Christensen (1997) defines disruptive technologies or innovations as technologies or innovations that provide distinct sources of value, which are mostly initially inferior to mainstream technologies along the dimensions of performance important to mainstream customers. Wan et al (2014) further explains that these forms of innovations often possess non-standard performance attributes and are often targeted towards niche segments.

Disruptive innovation is very much distinct from other forms of innovations and has very peculiar characteristics and criteria (Markides, 2006). Markides reveals two basic criteria that distinguish disruptive innovations from all other forms of innovation; the first is that a disruptive innovation must be inferior in terms of performance, with non-standard performance attributes as indicated by Lucas and Goh (2009). The next is that, for an innovation to qualify as disruptive, it must evolve in performance to become better than

the incumbent, while still maintaining its superiority in terms of price (as in keeping a low price).

In relation to the aforementioned characteristics, Christensen (1997) explains that disruptive innovation can be classified into two categories. The first category includes those disruptive innovations that create an entirely new market; for example, the introduction of computers was a disruptive innovation that created an entirely new market as against the typewriter. The second category of disruptive innovation includes those that initially have lower performance compared to incumbent technologies, appeal to lower end consumers at the beginning and often less costly. Digital photography and the disk industry are classical examples of industries that experienced this form of innovation (Lucas & Goh, 2009, Christensen, 2006). With respect to the digital photography for example, Lucas & Goh, (2009) revealed it came with lower prices, non-standard performance attributes and eventually disrupted the market of professional photography.

Further attempts by some scholars have also revealed other interesting categories and types of disruptive innovation. Markides (2006) in a comprehensive analysis of the disruptive innovation theory categorizes disruptive innovations into three distinct types namely: *technological*, *business model*, and *radical product innovations*. The author postulates that in spite of some idiosyncratic differences, all categories follow a similar process to invade existing markets. Markides, again indicates that these categorizes are precipitated by different conditions, have varied competitive effect as well as requires different reactive strategies from incumbents.

In addition, Scholars have made attempts to investigate factors or conditions necessary for disruptive innovation to be possible within an organization (Wan, Williamson & Yin, 2014). According to these authors, certain precipitating factors need to be present for disruptive technologies to be possible. These scholars agree the resource allocation processes of a firm can be considered as one of the conditions that can influence and promote disruptive innovation (Chao & Kavadias, 2007; Hogan, 2005). In this respect, some authors explain firms that allocate majority of its resources to research as well as to improve already existing and established processes and technology; are not likely to introduce a disruptive innovation.

Additionally, Lee and Chen (2009) and Tsai and Wang (2005) also indicates that a flexible organizational structure is one of the conditions for disruptive innovation. In this respect, firms that enable delegation, participation and less bureaucratic systems are more likely to be introducing disruptive technologies. To this end, some scholars have also argued that organizational culture is also a necessary condition, if a firm is to engage in disruptive innovations. According to Henderson (2006) the culture should promote creativity and participation, which suggests creating a platform that allows for the free flow of information through interaction. In spite of the progress in assessing the conditions necessary for disruptive innovation, scholars concur these conditions are not exhaustive (Yu & Hang, 2010); for example, as emphasized by Damanpour (1996), innovation must be rightly integrated into the environment; therefore a suitable and permissible legal and social environment is necessary for disruptive innovation.

In relation to finding a favorable environment for disruptive innovation, Hart and Christensen (2002) and Li et al. (2007) note that emerging economies create favorable

environment for disruptive innovation. These authors explain that such emerging markets or economies often adopt product design and business model that offer lower prices and improved value for both the consumers and producers. This strategy is often adopted by Multinational companies in their quest to penetrate such markets, thereby disrupting the market. Williamson et al. (2013) also explains that this opportunity is further intensified by the characteristic of customers within emerging customers; the author reveals that such customers often have less established favorites and low expectations, less regulations as well as fewer legacy assets. These attributes makes customers in emerging economies more susceptible to disruptive innovations compared to customers in developed and advanced economies.

Moreover, in counting examples of emerging economies that have conducive environment for disruptive innovations, scholars have numbered China, India, Brazil and some developing countries as Nigeria and Ghana (Angelo, 2010). The Angelo explains that the conducive environment created in such economies was what precipitated the disruptive innovation of the India telecommunication giant (Bharti Airtel) all over 20 countries across Africa and Asia. Bharti Airtel adopted a business model that introduced innovative marketing, billing and pricing system adapted to entice the lower income consumers. Another example of a disruptive innovation is the penetrative strategy adopted by Spacefon Ghana Ltd in Ghana's telecommunication industry, which almost entirely bastardized the countries national telecommunication corporation. Spacefon adopted a business model that offered low prices, easy accessibility, targeted the lower and middle class earners as well as launched a technology that disrupted the entire market (Ahator, 2004). Some experts are also of the view that the recently emerging cloud computing is an example of a disruptive innovation, which would eventually cannibalize the software

licensing business. Some examples of disruptive innovations include low prices, mass market products such as copiers and motorcycles (Christensen & Raynor, 2003).

2.2.2. Sustaining Innovation

According to Dixon, Slater, Romi, Johnson, & Ellstrand, (2009), sustaining innovation occur in the mainstream market of a firm and results in the production of products or services or changes that delivers better quality at lesser prices. According to Christensen (1997), sustaining innovation is what is used to take over markets from incumbents because this kind of innovation fosters the growth of new entrants, who may have all the time to establish its structures in order to properly compete. Felden et al. (2012) also notes that sustaining innovations improve product performance and does not result in the destruction of value as well as the metamorphosing of an industry.

Typical examples of sustaining innovation, according to this author include the ethanol-fueled automobiles and multi-core processors. Additionally, the improvements in television picture quality from black and white to color, HD and 3D are also typical examples of sustaining innovations. Christensen and Raynor (2003), in their attempt to define sustaining innovation, explain that such innovations are centered on enhanced version of already existing products and services and are often catalyzed by participants within an industry as a whole, rather than by individual competitors. This definition is circuitously affirmed by some scholars, who suggest sustaining innovation occurs in the mainstream markets of a firm, and is often focused on delivering better quality as well as lower prices (Bower & Christensen, 1995; Hockert & Morsing, 2008).

From the above description of the phenomenon, scholars differentiate between disruptive and sustaining innovation based on some peculiar characteristics, which may include the kind of customers, technological impacts as well as the type of firms that often invest in such innovations (Bower & Christensen, 1995; Hockert & Morsing, 2008; Crooker, Baldwin & Chalasan, 2009). For example, Crooker et al. (2009) note that sustaining innovation targets customers in the mainstream market who are often willing to pay for improvement in product attributes. In addition, they are often advantageous and undertaken by established companies, who are often blinded and driven by customer feedback and information (Christensen, 2006). Also to note, sustaining innovation, even though, may be incremental or breakthrough in nature, the technological change and impact that comes with it is often expected, thereby easily accepted and adopted by customers as compared to disruptive innovations.

However, recent concerns have been the daunting consequences of holding on to sustaining innovation. They have the disadvantage of allowing new entrants to settle into the market and eventually over taking incumbents (Christensen, 2006). By this, new entrant are allowed ample time to observe the process, management and products of the incumbents. In this respect, they are afforded the time to imitate the products and processes of the incumbent. In order words, a cursory observation of sustaining innovation and the market environment suggests it fosters a competitive environment.

2.2.3. Product Innovation

Aside being a sustaining or disruptive innovation, a new idea or concept could be related to either products or systemic innovation (Blockley & McDowell, 2010). Blockley and McDowell reveal that this could possibly be another classification of the types of

innovation available. Product innovation refers to the innovations mostly delivered by individual service providers rather than the whole industry (Blockley & McDowell, 2010). Also, Trott (2008) defines product innovation as an innovation with regard to a new product idea or improvement in a firm's product range. According to some authors, most firms who engage in some form of product innovation do so to gain a competitive edge over their competitors as well as for firm renewal (Bowen et al., 1994; Dougherty, 1992). For example, the introduction of the wise alert, which was an SMS and email notification system, allowed clients to receive updates on their accounts per transaction could be considered a typical example of product innovation in the banking industry (UBA product innovation report, 2014).

Dannel (2002), postulates two types of product innovation namely pure exploitations and pure exploration. According to the author, with regard to pure exploitation firms use their existing technological core competences to provide innovative products for their existing customers. For example, a restaurant using the same space, kitchen facility and gadgets to introduce new products or ideas can be considered as a classical example of pure exploitation. On the other hand, pure exploration refers to the situation where the firm uses the innovative products as a means of building new core competences and reaching new customers. For example, a bank's initiative to open new offices to serve only prestigious and upper class customers can also be classified as pure explorations.

2.2.4. Systemic Innovation

According to Blockley and McDowell (2010), Systemic innovations are very different from product innovation and can be distinguished from it using certain peculiar attributes of systemic innovation. These authors note the main distinguishing factors between

systemic and product innovation are the source as well as the purpose of such innovation. Systemic innovation are usually as a result of a collaborative effort among firms in the industry. For example, the decision of firms in Ghana to have an interconnected system to assess the credit worthiness of clients was a collaborative efforts of several banks in Ghana. In addition, with regards to purpose, systemic innovations are usually not an effort by a single firm to gain competitive advantage in the industry, rather they represent efforts to improve the service offered to clients in the industry. Additionally, it is mostly to ensure the firm can deliver its services and products in efficient and effective way. For example, the introduction of the "visa card" does not necessarily grant a competitive advantage to a particular firm, rather it allows the firms in the industry to offer convenience to their customers.

2.3. Importance of Innovation

The importance of innovation in today's business world and economic environment cannot be overemphasized. Particularly, with its connection with pertinent issues such as survival and sustainability. This nexus is emphasized by Freeman's (1982) quote that "… not to innovate is to die". The statement explicably suggest a relationship between innovation, survival, growth and profitability. Furthermore, the importance of innovation has to some extent increased the discussions on the subject matter, so much that it is almost attaining the reputation of being a cliché (Trott, 2008). The importance of innovation can be discussed along the lines of its contribution to competitive advantage, customer satisfaction and profitability. This section will attempt to provide some illustrations and empirical evidence to this effect.

2.3.1. Competitive advantage

Even though empirical results provide inconclusive results with regard to the nexus between innovation and competitive advantage (Calantone et al., 2002), some scholar are convinced that innovation has a positive correlation with competitive advantage (Langerak and Hultink, 2006). In this respect, these authors explain that a firm's ability to release radical innovations as well as differentiated products will demonstrate that firm's competitive advantage in the market. In a similar vein, Barney (1991) notes that firms that are able to effectively combine human, financial, technological and physical resources into distinctive advantages through an innovation process are likely to have a competitive edge over its competitors.

In some sectors such as financial and banking industry, innovation is considered prime as a result of the ferocity of the competition within which firms in this sector have to operate (Berger, Dick, Goldberg & White, 2006). Baba (2012) and Hinson et al. (2009) in relation to the Ghanaian banking sector, notes that the competitive nature of the industry requires firms to innovatively introduce products tailored to the needs of their customers in order to have competitive edge. Innovation is not only linked to the competitiveness of firms, rather some scholar indicate it as a key player in the competitiveness of nations (Madrid-Guijarro, 2009). In short, myriads of empirical studies prove the impact innovation has on the competitiveness of firms as well as its role in establishing competitive advantage for firms that adopt its processes.

2.3.2. Performance: profitability a

nd number of employees

A plethora of empirical studies indicate a nexus between successful innovation and firm performance and growth (Freeman, 1982). Majority of these studies suggest a positive relationship between innovation and business performance (Keskin, 2006; Li et al., 2007). This relationship has been assessed and affirmed in different business sectors including financial and manufacturing. For example, myriad of studies have investigated this in relation to the banking and financial industry (Baba, 2012). In this respect, scholars affirmed a significant positive relationship between these two variables (innovation and firm performance).

Some scholars in adopting profitability as a measure of firm performance, have also establish a relationship between firm profitability and innovation. In this regards, these scholars explain that firms who adopt the innovation process often have a higher propensity to increase their profitability chances (Gopalakrishnan, 2000). Scholars have tested the rigorousness of this relation in recent times by investigating their relationship through the lens of other related concepts. For example, some scholars assessed the relation between the profitability and innovation in the light of racial diversity and still affirmed a significant positive relationship between the two concepts. In this respect, a very strong argument have been put for the positive relationship between the two constructs.

2.3.3. Customer satisfaction

The key to remaining competitive and surviving in the market, is the firm's ability to provide products tailored to meet the needs of its customers. In a chain relationship,

scholars have suggested that the key to remaining competitive through meeting customer needs is innovation (Darroch & NcNaughton, 2002), as trends, customer needs and perceptions keep evolving with the passage of time. In this respect, firms in attempt to produce superior value at all times, have to adopt the practice and culture of innovation. This is to say that innovation explicably increases the chances of the firm producing to meet the very need of customers, consequently offering opportunity for the firm to satisfy its customers.

Scholars like Narver and Slater (1990), who studied the nexus between market orientation and innovativeness suggest a customer orientation culture is more likely to allow the firm to demonstrate innovativeness. In a similar vein, some scholars admonish firms to shift from the traditional management focused planning and production in order to allow for the firm to adopt a customer focused orientation that allows the firm the opportunity to offer innovative services that would foster customer satisfaction (Otero-Neira, Arias & Lindman, 2013). These conclusions invariably illustrate that innovation aids customer satisfaction and increases a firm chances of retaining its customers.

Furthermore, innovation has not only been linked to customer satisfaction but also service quality in the service industry (Danjuma & Rasli, 2012). These authors explain that innovation is a key player in a firm's ability to achieve customer satisfaction and service quality. In addition, this assertion is not only true for service firms but also true across industries and products (Aranda & Molina-Fernandez, 2002).

2.4. Factors constraining innovation

At the firm level, innovation can be viewed panoramically from two approaches namely the barrier approach (Wziatek-Kubiak et al., 2010) and determinant approach (Holzl & Janger, 2014). According to Holzl and Janger, the determinant approach focuses on the factors that enable innovation, whereas the barrier approach emphasizes the factors hindering innovation within a firm. Wziatek-Kubiak et al. also note that adopting the barrier approach helps to narrow down to the firm level; that is to have a tailored assessment of the innovation process at the firm level, which in effect would aid in the identification of the peculiar bottlenecks likely to constrain innovation in a particular setting.

Some scholars adopt the two approaches simultaneously (Blockley and McDowell, 2009) in order to mitigate the drawbacks of each of these approaches. The current study adopts the barrier approach to innovation, in spite of its methodological drawback (D'Este et al., 2012; Savignac, 2008; Leitao & Mario, 2007). The recent calls for more assessment of the factors that hinder the innovation process necessitated the selection of this approach (Wziatek-Kubiak et al., 2010). Again, the study is adopting this approach because, the assumption upon which the approach is pivoted provides the right impetus for current study. The barrier approach is of the view that once these constraining factors are identified, it is easier to understand their consequences, which allows for the right action to be taken to curb them.

Previous studies assessing the factors constraining innovation view it as an assessment of the obstacles that hinder the innovative activities of firms and the measure of their ability to surmount them (Arundel, 1997; Baldwin & Lin, 2002; Mohnen, & Röller, 2005). In

view of this, previous studies in the subject area seems to be quite skewed, as the focus has been on only innovative firms as well as the ability of these firms to overcome these barriers. This approach raises some methodological questions, as to how innovative firms were identified and differentiated from non-innovative firms. Again, it leaves out non-innovative firms and does not attempt to identify the factors constraining their innovation. However, the current study investigates the factors that impede a firm's effort to add a new dimension to its existing processes and products.

Majority of studies that investigate factors constraining innovation have done this in relation to some peculiar characteristics of the firm (Wziatek-Kubiak et al., 2010), which include firm size, industrial affiliation (technological intensity), type of ownership and competitiveness of the business environment. The authors explain these factors affect how the constraining factors are perceived by the firm. For example, Vossen (1998) notes that larger firms are in a better position to provide the internal resources needed for internal innovation as compared to smaller firms, who demonstrate more flexibility and improvisation to the innovation task (Rothwell, 1989). Tourigny and Lee (2004) note that firms in low and medium-low technology industries have a lower probability of encountering inhibitors to innovation, as compared to those in high and medium-high technology industries. Furthermore, Baldwin and Lin (2002) also postulate that firms in very competitive industries or environments are likely to face cost and labour problems; for example expertise-related problems. An analysis of some these empirical evidence points to the fact that there are some features, both intrinsic and extrinsic factors that contribute to a firm's innovativeness; for example firm's size and competitive environment.

2.4.1. Classification of factors constraining innovation

A plethora of scholars have attempted to classify the factors constraining innovation. These classifications are usually necessary because they aid in the understanding of these factors as well as gives an indication of how they affect firms. Consequently, the analysis also leads to how they can be addressed by firms.

One of the earliest and popular classification is the one postulated by Piatier (1984), which was later adopted by Hadjimanolis (1999) and other scholars. These authors classify factors into external and internal issues in relation to the firms. Alternatively, D'Este, Iammarino, Savona, & Von Tunzelmann, (2008, 2012) categorizes the factors into revealed and deterring factors. This classification is pivoted on the initial classification of firms into non innovative and innovative firms. According to D'Este, revealed barriers/factors are those kinds of barriers that are associated with innovative firms; the firm comes face-to-face with impediment in their attempt to engage in innovations. On the other hand, deterring barriers/factors to innovation includes those barriers that are mostly associated with non-innovative firms. This category of barriers prevents firms from engaging in innovative activities (Hölzl & Janger, 2014).

Larsen and Lewis (2007) also classified the factors constraining innovation on the basis of business activities within the organization, including marketing skills, management, personal characteristics and financial issues. A similar classification was also adopted by Freel (2000). Even still, Segerra-Blasco, Garcia-Quevedo, & Teruel-Carrizosa, (2008) grouped the factors into three basic but distinct categories namely, cost of innovation, lack of knowledge and market conditions. Recently, some scholars have also postulated other classification; for instance, Owen (2010) categorizes factors constraining innovation base

on the individual or group contribution of members of a firm, which include individual barriers, group barriers, organizational barriers, industry barriers and social barriers. Again, Lekovic (2013) suggests barriers to innovation can be classified into organizational, formal and informal barriers.

A careful scrutiny of these classifications would reveal that in spite of the distinctiveness of these suggested categorizes, it is still possible for one to classify each one of them under the humongous umbrella of either internal or external factors constraining innovation. In view of this, the current study would adopt the classification posited by Piaiter (1984) and Hadjimanolis (1999), thus the internal and external factors, as this allows the researcher to compare and adopt a wider range of barriers.

2.4.2. Internal Factors

According to Hadjimanolis (1999) citing Piatier (1984), internal factors constraining innovation are endogenous elements and can further be classified into three broad categories namely: resource related barriers, culture and system related barriers as well as human nature factors.

2.4.2.1 Resource related factors

According to the Hadjimanolis (1999), the resource based factors include such elements as the lack of internal funds (financial related), technical expertise and management time.

2.4.2.1.1 Finance related factors

Several scholars have cited cost as one of the most important factors, as it is considered a common internal inhibitor of innovation (Segerra-Blasco et al. 2008; Larsen & Lewis,

2007; McAdam, McConvery & Armstrong, 2004). A critical analysis of the evidence in this respect, demonstrate the dual role of the financial inhibitor or factor. Some scholars associates the financial factor with the firm's difficulty in mobilizing internal resources to fund their innovation process (Freel, 2000; Saatcioglu & Ozmen, 2010). According to Freel (2000), firms have difficulty deploying financial resources to undertake innovation as a result of the risk (Brigham & Ehrhardii, 2005) and high monitoring cost associated with innovation. Additionally, internal financial issues are often associated with small firms (SMEs) as a result of the limited resources of these firms (Saatcioglu & Ozmen, 2010).

Alternatively, another group of scholars also associate the financial factors with the small enterprises as a result of their inability to access financial supports from banks and credit institutions (Madrid-Guijarro et al, 2009; Necadova & Scholleova, 2011). Drawing from the transactional and agency theory, Madrid-Guijarro et al. indicates that the limited financial resources and risk of diverting funds into innovation is circuitously precipitated by the financing option adopted by the firm. The authors explain that firms that opt for the debt financing option are at the mercy of the uncertain viability of the innovation they have invested into. By implication, a failure of the innovation to survive in the market would have an adverse impact on transaction and agency relationship (between lenders and the firm) of the firm. In conclusion, the financial constraint variable, in recent studies still proves to be a very important obstacle as it impedes innovation in most developed countries across Europe (Alessandrini et al., 2010; Mohnen et al., 2008).

2.4.2.1.2. Technical expertise

Baldwin and Lin (2002) views this phenomenon in two perspectives, which includes situations where firms lack the ability to attract qualified expertise that can foster the innovation process as well as instances where the firm is unable to train and enhance the skills and knowledge of its employees. According to Baldwin and Lin (2002), employee skills and training can consequentially lead to resistance to innovation and change. Additionally**,** Hausman (2005) points out that small business managers often lack the necessary education and training that can propel them to successfully suggest and implement an innovation strategy. Additionally, Baldwin and Lin add that lack of expertise is much more frequent and likely in highly competitive industries and environments, thereby associating the lack of expertise to limited financial resources and the lack proper training education as suggested by Freel (2000).

2.4.2.1.3. Management time

Some studies suggested and identified time as one of the internal factors constraining innovation (Hadjimaolis, 1999; Larsen & Lewis, 2007; Saatcioglu, 2010). Hadjimanolis (1999) finds that among three of the most important internal barriers, time management or lack of time was the top ranking internal barrier, with R&D and inadequate resources coming behind it in second and third place respectively. Moreover, Loewe and Dominiquini (2006) also identified that most firms have a limited time period for new product development and innovation. Even though studies have not indicated this empirically in developing nations like Ghana, a cursory observation of the operations of the small and medium enterprises in Ghana suggest this menace is likely to be proven in the Ghanaian context.

2.4.2.2. Culture and system related barriers

Saatcioglu and Ozmen (2010) note that one factor that inhibits the flow of the innovation process, particularly in the second stage of the process, (commencing the innovation) is the lack of a supportive culture and system. Several scholars have also identified this factor as one of the constraint of innovation (Napier et al., 2004; Sund, 2008). The lack of an innovation culture and system according to some scholars, is much more peculiar to service companies than with manufacturing firms (Oke, 2004). However, this assertion is debated by some scholars, who also explain the lack of an innovation culture is familiar in both manufacturing and service firms, and should be curbed for the effective accomplishment of the innovation process (Lawson & Samson, 2001; Lekovic, 2013). According to Hadjimanolis (1999), examples of a culture and system related obstacles may include the out-dated accountancy, out-dated marketing strategies and the likes. Other examples of the culture and system related barriers include unfavorable organizational structure (McAdam, McConvery & Armstrong, 2004), bureaucracy (Sund, 2008), innovation not a priority (Stendhal & Rose, 2008), long internal decision making (Sund, 2008) and existing configuration (Ren, 2009).

2.4.2.3 Human nature related factors

According to Hadjimanolis (1999), some example of the human nature related factors that constrain innovation include; attitude of top managers to risk and employee resistance to change. McAdam and McConvery (2004) note these kinds of factors include resistance to innovation and weak management commitment to the innovation process, which is indicative of an organizational culture that does not enhance innovation.

Some studies have tied the resistive attitude of employees to the lack of training and education and have suggested that employees with technical know-how are more likely to be receptive to the innovation process compared to those with very little education and training (Baldwin and Lin, 2002). This assumption is supported by Zwick (2002) and Osterman (2000). Again, Zwick emphasizes that poor communication; weak human resources practices and lack of top management commitment are the main reasons for which employees often resist innovation and change.

Some of examples of factors that may fit within this category include resistance to change (Stendhall & Rose, 2008), concern for job security (Ren, 2009), just to mention a few. Drawing a nexus between creativity and innovation (Okpara, 2007; Mihalyi, 1997; Elias, 2012), some variables have proven vital for creativity as well as innovation. For example, Ind and Watt (2004) identified such human related factors as *trust, care and commitment* as very important attitudinal variables that determines how employees relate to new ideas or initiatives. In addition, these scholars also add that apart from the fact these are human related characteristics, it should be imbibed into the organizational culture of the firm, if creativity and innovation are to be promoted. They also explain that a person will have a higher proclivity to be innovative and creative, when that person is committed to the organization, feels cared for and trusted. In addition, Ind and Watt explains that an organization must be able to create an atmosphere of trust within and amongst its employees and top management. This should be a two way relationship, in which employees must be able to trust top management, likewise, top management must also be able to trust their first line employees.

2.4.3. External Factors

Madrid-Guijarro et al. (2009) notes the firm's external environment could include a variety of influences, for example competition, government policy and economic uncertainty. Frishammar and Horte (2005) explain that facing these external factors necessitates the firm's pursuit of innovation to ensure it upholds and gains a competitive edge over its competitors.

Piatier's study suggests top five external barriers that were very popular among the eight countries considered in his study. The study indicated that amongst other equally important external factors, the effect of quality of education and training, which resulted in lack of skilled labour for innovation was the top most problem. In addition, Piatier also indicated that the norms and standards (product controls) and their effect on new product and export into community countries were the least important in his top five barriers.

Lastly, Piatier's study considered the financial factor as an external factor to the firm. This is illustrated by the views posited by such scholars as Madrid-Guijarro et al (2009) and Necadova and Scholleova (2011), who explain that a firm might be hindered from pursuing innovative initiatives because of the lack of bank financing and credit facilities.

All these factors have also been identified as important by other scholars including Hadjimanolis (1999) and Madrid-Guijarro et al. (2009). For example, two of the factors that ranked as very important in Piatier's top five, were also affirmed by Hadjimanolis (1999). It is interesting that in spite of the economical difference between the study settings (developed and under developed countries respectively), there are still some similarities in addition to other pertinent differences between the two studies (Piatier, 1985

and Hadjimanilis, 1999). For example, similar to Piatier (1985), Hadjimanolis found that shortage of skilled labour and lack of access to financial support or credit were among the most important factors impeding innovation.

In view of this, it is the hope of the current author that such a study with regard to a developing countries will reveal the similarity and difference between these classes of countries with regard to factors that impede innovation.

Some of Piatier's top five factors have been affirmed in several other developed economies in recent time. For instance, Madrid-Guijarro et al. (2009), also assessed the internal and external factors constraining innovation in Spain and identified the shortage of qualified and skilled labour as part of the top five factors that constrains innovation in the country. However, the difference between the two lies in the fact that the aforementioned factor is in considered in Madrid-Guijarro et al.'s study as an internal variable, to demonstrate the lack of skills of the firms' labour, whereas it was considered as an external variable in Piatier's study. The current study would also adopt from the internal variable perspective, as most SMEs in developing countries assess their ability to generate internal resources as well as look to access funds and support from external sources for their innovative activities.

Hadjimanolis (1999) notes that external barriers can be further classified into three categories namely supply, demand and environment related barriers.

2.4.3.1. Supply related factors

According to Hadjimanolis (1999), supply related factors constraining innovations include difficulties in assessing raw materials, information and finances. These constraining

factors results from the difficulties that emanates from the external sourcing of funds, information and raw materials. With regard to the difficulty of externally sourcing of finances, whereas some scholars perceive it to be related to all firms irrespective of their size, others also argue it is more peculiar to smaller firms (Wziatek-Kubiak et al., 2010; Blanchard et al., 2012). Blanchard et al. (2012) note large firms to have little financial issues as a result of their diversity, strong networks, investment in tangible goods and access to information.

Blanchard et al. (2012) and Alessandrini et al. (2010) emphasize the importance of the financial barriers among European countries and how it impedes the process of innovation. Alessandrini et al., in a study of Italian firms note the differences in patterns, process and product innovation of firms does not expose them to the same financial constraint. In other words, the authors explain that the complexity of a firm's processes as well as the level of change required in their processes often informs the level of financial provision required for innovation, hence, the level of impediment. In relation to this, Bond and van Reenen (2007) reveal a nexus between financial obstacles and the firm's ability to acquire plant and machinery. Bond and van Reenen further explain that firm require financial assistance in order to acquire most of the machinery and modern plants they need to implement their innovation. In this respect, a lack of financial assistance would place a limit on the firm's ability to purchase such plants and machineries, hence, innovation is impeded. In summary some scholars have argued that financial obstacles are what cause firms' to abandon, prematurely stop, seriously slow down, or not start an innovative project (Mohnen et al., 2008). With respect to the current study, the financial factor is considered as an internal element.

Lack of information as a factor that contributes to low level of innovation is suggested by Galia and Legros (2004), who specifies it as one of the main impediment to innovation in the French community. According to Galia and Legros, this lack of information is mostly in relation to technological knowledge. Blanchard et al. (2012) explains that the lack of information is as a result of the lack of interaction between the firms and the organizations that could be possible sources of information. In this respect, Blanchard et al suggest five sources of information namely universities, government, suppliers, customers and competitors with whom a firm must be in constant interactions with.

Again, Blanchard et al. (2012) suggest that the firm's propensity to innovate is dependents on the firm's relationship and ability to organize the sources of information, which include: internal sources within the enterprise and external sources such as universities, government, suppliers, competitors and customers. Piatier also affirmed this thought by indicating lack of information on science, technology and patent as some of the factors that impede innovation. In other words, Piatier postulates that the information asymmetry between particularly SMEs and these information centres is the source of other obstacles to innovation, such as lack of access to finance, manpower and better technological processes and tools.

Lastly, with regard to the supply related barriers, scholars have also investigated the inadequacy or lack of raw materials as well as difficulty of acquiring the needed raw material as a potential factor that impedes innovation among SMEs. Saatcioglu and Ozmen (2010) in assessing the barriers encountered by firms in Turkey, found that most firms (SMEs) faced problems acquiring raw materials for their innovative products. In addition, the authors found that the problem with raw material was impacted by the lack of

finance for innovation, difficulty of controlling innovation cost and R&D. Furthermore, Saatcioglu and Ozmen also indicates that the lack/inadequacy of raw material as a as a factor that contributes to low level of innovation also impacts the firm's competition policy and foreign trade policy; as firm's would not want to compete along lines where they have inadequate sources of raw material for production.

In an attempt to stretch the devastating impact of material constraint on innovation, Xie et al (2010) found that the capability and material constraints faced by most Chinese SMEs could possibly be the reason why most of the SMEs in China engage in extra regional collaboration and international cooperation. This, to a large extent, illustrates the importance of the material constraint of innovation.

2.4.3.2. Demand related factors

Demand related barriers consider such factors as customer need, customer perception of risk as well as limitations in domestic and foreign market (Hadjimanolis, 1999). Blanchard et al. (2012) also affirms that the lack of a market or customer need for a product is one of the main constraints of innovation. Several scholars have argued that innovation must be explicably linked to the need of the customers (Xie et al., 2010; Piatier, 1984). Piatier (1984) explains that the innovation process can basically be described as an input-output process. According to Piatier, the marketing and design presupposes some form input material offered into the innovation process. On the other hand, outputs refer to products suited to the needs of customers. Consequently, Piatier notes that the nexus between output and customer need is necessary because it is one of the most important determinant of the success of innovations.

According to some scholars, what fosters a firm's introduction of a potential innovation is the interactivity between the firm and customers, which is as a result of the closeness of the firm with its customers. Several studies have revealed lack of customer need and market for innovation as a constraint that impedes the introduction of innovative products (Freel, 2000; Wren, Souder & Berkowitz, 2000). Hadjimanolis (1999) reveals that 81% of 294 firms interviewed in Cyprus indicates the lack of customer responsiveness to new products and processes as an important hindrance to the pursuit of innovation. In relation to the market, Mohnen et al. (2008) notes that market uncertainty with regard to changes in customer needs and taste could be one of the inhibitors of innovation. Additionally, D'Este et al (2012) also affirms Mohnen et al.'s notion by explaining that a firm requires a comprehensive understanding of the market need coupled with other factors in order to have a successful innovation.

2.4.3.3. Environment related factors

Finally, the environment related factors include such elements as government regulations, policy actions and antitrust measures (Hadjimanolis, 1999). Feldens et al. (2012) explains that bureaucratic business environment, legal barriers and social environment barriers are components of the environment related issues. Frenkel (2003) and Hadjimanolis (1999) note that uncertainty and ignorance about government policy, especially among European countries and less developed countries can become a significant constraints of innovation among SMEs. In a similar vein, Galia and Legros (2004) emphasize the point that government policy and initiatives to promote innovation has the proclivity to reinforce the potential and capabilities of small firms to be innovative.

In addition, Hadjimanolis (1999) notes that government bureaucracy, lack of assistance and policy to assist small firms were crucial impediment identified in their study. Their study showed that at least 80% of the sampled firms indicated three factors were of some importance to their innovation process. In a similar light, Piatier (1984) found that lack of government assistance in creating a favorable business for the private businesses via enacting regulations and policies that enhance innovation was the third most important factor that contribute to the low level of innovation among European countries. Additionally, Hadjimanolis (1999) reveals that 93% of SMEs studied in less developed countries indicates that lack of government assistance is an important hindrance to innovation.

Some scholars posit competition in the market as a barrier to innovation (Mohnen and Rosa, 1999; Baldwin and Lin, 2002; Tourigny & Lee, 2004). Baldwin and Lin (2002) postulates that higher competition is suggestive of a low level of innovation. This, according these authors, is as a result of the high cost of labour, scarcity of experts and pressure on raw materials leading to potential shortages, which may further hype prices. However, some group of scholars also emphasize competition as a possible booster for innovation (Katila & Shane, 2005; Souitaris, 2001; Porter, 1985). Katila and Shane (2005) and Souitaris (2001) explains that economic turbulence as a result of competition could be a catalyst for innovation among firm. These authors found a positive significant relation between competition and the rate of innovation. This argument is also affirmed by Necadova and Scholloeva (2011), who indicates competition as a double sided sword that may facilitate and impede at the same time. In this respect, the place of competition and economic turbulence as factors constraining innovation is inconclusive and more studies

need to be conducted to establish its place. With respect to the current study, competition was assessed as a factor that constrains innovation rather than facilitates it.

2.5 Conceptual Framework

Scholars conceptualize the drivers of innovation on the basis of two broad concepts namely; the market based view and the resource based view (Rothwell, 1992; Trott, 2008). Proponents of the market based view of innovation ultimately suggest innovation is identified by scanning the market environment of the firm (Slater and Narver, 1994; Porter, 1985). Slater and Narver (1994) explain that the market based view suggest a firm's direction and quantity of innovation is dictated by the prevailing market conditions. Zahra (1991) explains that these precipitating factors can either be obstacles or stimulants of innovation, which may either hinder or foster innovation respectively.

Some scholars argue a need for the market based view to be stretched; in that most of the scholars in support of this view, only argue the importance of the prevailing market conditions as precipitator of innovation and do not consider the firm's perception of the potential opportunities and threats identified in the market (Dosi, 1984). Scholars who postulate the latter are often ardent followers of the resource based view, which explains that a market based orientation does not offer the right footing for pursuing innovation, particularly in dynamic and volatile markets (Andreu & Ciborra, 1996). Again, the resource based view argues that the firm ability to possess distinct and less imitable resources provides it a better foundation to develop its innovative strategies as well as pursue the innovation process (Grant, 1997).

Some scholars suggest that adopting one of the two approaches (resource based or market based view) to explain the drivers of innovation does not facilitate dynamism and not comprehensive (Rothwell & Zegveld, 1985). In view of this, some scholars argue that a more dynamic and holistic approach involves the adoption of the dominant coupling model of innovation (Rothwell & Zegveld, 1985), which is pivoted on the assumption that independent market based or resource based analysis cannot adequately reveal the diversity of factors influencing the innovation process of firms (Dosi & Malerba, 1996).

Arguably, these scholars postulate that a good balance of the market based and resource based view in assessing the drivers of innovation at the firm level is the best. This view is not entirely supported by the current author, who argues that certain contextual factors such as the developmental stage of the country in question is also an important consideration for selecting the best approach for assessing the drivers. In most developing and under-developed countries, a firm's innovativeness and ability to pursue innovation is more dependent on their perception of the hindrance and stimulants in the market (Dosi, 1984), which is further informed by the resources available to such a firm. Thus, the availability of resources to a firm determines whether the firm is ready to respond to stimulants for innovation or willing to surmount obstacles in their face. This view is also accentuated by Hadjimanolis (1999), who independently adopted the resource based view in assessing innovation among firms in less developed countries.

In discussing the resource based theory, Barney (1991) and Peteraf (1993) explain that the theory does not consider the internal environment of a firm to the neglect of the external environment. In addition, these authors explain that these analysis are performed to reveal the resource related effect it has on the firm's ability to be innovative and to maintain a

competitive advantage. In view of this, Sciarelli (2008) reveals that firms ought to adopt the strategy of taking advantage of external resources, generating internal resources and creating network that facilitates sharing of resources with other companies. This point further iterates the categorization of a firm's resources and constraints into internal and external factors.

In view of this, most scholars adopting the resources based view in their attempt to investigate the drivers of factors that hinder innovation categorize the factors into internal and external factors base on the explanation above (previous paragraph) (Hadjimanolis, 1999; Madrid-Guijarro, 2009). These scholars view these factors as the elements or resources lacking in a firm, resulting in their low level of innovation. Additionally, most scholars adopt this categorization of the resources and constraint of innovation, because of its comprehensive and holistic nature. It is mostly the foundation for other classification postulated by other scholars (see for instance, Piatier, 1985).

In view of this, the current study also adopts the internal and external classification in its attempt to assess the factors constraining innovation among SMEs in Ghana. This would allow the researcher to consider a broad spectrum of constraints. The figure below provides a summary of the framework adopted in this study.

Diagrammatic representation of conceptual framework

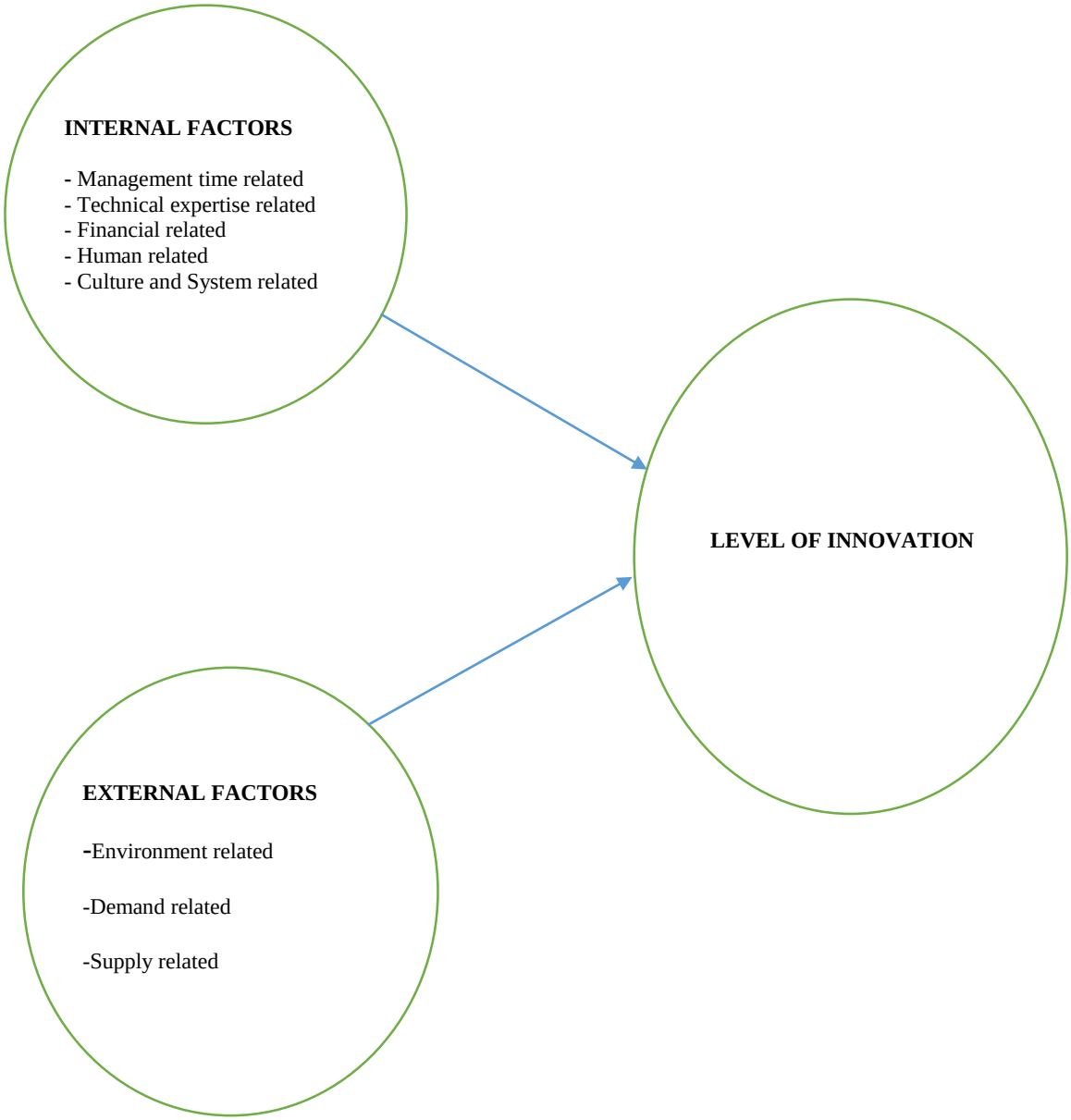

Figure 1 Conceptual Framework

The diagram above reveals how the factors constraining innovation among SMEs culminates into the low level of innovation. The diagram demonstrates that the current study suggests this phenomenon is caused by both internal and external factors. These internal factors are grouped into five categories, in addition to three external factors. From the diagram, the combined effect of both the internal and external factors contributes to

low level of innovation. In Addition, independently, these factors also constrain a firm's effort to pursue innovation. The current study seeks to identify these factors in relation to developing economies, using Ghana as a case in point.

CHAPTER THREE

CONTEXT OF THE STUDY

3.0. Introduction

This chapter of the study attempts to ground the study on the background issues underpinning the subject of innovation among SMEs in Ghana. Here, the discussion pivots on an analysis of the small and medium scale landscape in Ghana as well as the innovation in the sector.

3.1. Concept of SMEs

The concept of SME has been discussed extensively around the world, probably as a result of their contribution and potential to impact national and economic development (Felden et al, 2012). In spite of the myriad of literature in this facet, the term is still left ambiguous, and lacking a definitive understanding (Gibson & Van Der Vaart, 2008). The ambiguity rest in our understanding of what constitute small and medium; as scholars and practitioners are not able to agree on a standard definition of these terms. In the wake of these confusions, several institutions, countries and scholars have attempted to offer a working definition for SMEs, which rather than providing clarity has raised questions about the applicability of these definitions.

Some international institutions, in response to the recent disparity in the definition have postulated some standard threshold to define SME. Scholars note that these thresholds will aid the standardization of the definition as well as postulate common measuring parameters for assessing and identifying SMEs. Still discussing the importance of such thresholds, EU-SME User Guide (2003) revealed that in order for the institutions to

successfully promote SMEs in the region, there is the urgent need for the review of the thresholds used to define what constitutes SMEs in the region. According to the report by the institute, this review of the thresholds would aid the promotion of micro enterprises; improve access to financial assistance; promote innovation and improve access to R&D. In addition, Gibson and Van Der Vaart (2008) note the establishment of these thresholds will aid fairness in the distribution of financial and technical assistance as well as other skewed policy consideration.

In view of this, the SME User Guide (European Union) proposes three main thresholds namely; staff head counts, annual turnover, and/or annual balance sheet. According to the SME User Guide, comparing a firm's data to the above mentioned threshold should reveal whether that firm is a micro, small or medium scale firm. Additionally, Mcadam (2000) identifies that the situation is quite similar to that of the United States of America. The authors note that in spite of the diverse of definitions of SMEs in the USA, there is a general agreement on the thresholds to be adopted, which includes number of employees and revenue generated.

Even though a working and clearer definition for SME is lacking among developed nations, the situation among developing nations, is rather alarming, with no clearer definition of SMEs. This contributes to unfairness in the distribution of donor funds for private sector development, which is currently emerging as the engine of growth in these countries (Gibson & Van Der Vaart, 2008). Gibson and Van Der Vaart (2008) notes that international institutions like the World Bank, Multilateral International Fund (MIF), Africa Development Bank, Asian Development Bank just to mention few that deal often with developing countries, have postulated several inconsistent official definitions that

makes collaboration between these institutions on issues with regard to SMEs very difficult; because each holds a different definitions.

Table 1: **SME Definitions Used by Multilateral Organizations**

Institution	Maximum # of employees	Maximum revenues or turnovers	Maximum assets.
World Bank	300	15,000,000	15,000,000
MIF	100	3,000,000	-
African Development Bank	50	-	-
Asian Development Bank	-	-	-
UNDP	200	-	-

Adopted from Gibson and Van Der Vaart (2008)

The table above displays the disparity between the definitions adopted by some institutions. For example, an SME with employee numbering 300 would not qualify for an SME with respect to the MIF definition; yet the same firm would be classified as an SME under the World Bank statutes.

In view of these un-precipitous definitions**,** Gibson and Van Der Vaart (2008) propose the adoption of a formula that would not only be based on the revenues of companies. Gibson and Van Der Vaart (2008) disagree with the use of staff headcount as a threshold for defining SME. They explain adopting this threshold might result in classifying firms based on their inefficiency with labour management rather than performance. The current researcher also disagrees with the use of only staff headcount as the sole threshold for firms' classification. This is because a cursory observation of the definition adopted by some countries demonstrates a relationship between the country's population and the staff headcount threshold. For example, in Vietnam, companies with a staff headcount of 300

employees would qualify as SME, where Norway has only 100 as its staff headcount threshold for SMEs. A comparison of the populations of these two countries may perhaps be the explanation for this difference, as Vietnam has a population of about 92 million people compared to Norway's 5 million population. In view of this, one can infer that a country's population is somewhat related to the staff headcount adopted by that country.

In this regard, Gibson and Van Der Vaart (2008) suggest that aside adopting the revenues of a company to define whether that firm is an SME, some consideration must be given to the country specific economic context in which the firm operates. These may include cost of labour. A low cost of labour may allow a firm to employ huge numbers of employees, whereas her turnover may actually be low. According to Gibson and Van Der Vaart (2008, 18), "An SME is a formal enterprise with annual turnover, in U.S. dollar terms, of between 10 and 1000 times the mean per capita gross national income, at purchasing power parity, of the country in which it operates". In view of this, in attempt to adopt a country specific economic context, the current study explains that an SME will be considered as a business activity with more than five employees, which operates above the micro level and is undertaken within the formal sector; with a starting capital base not exceeding US$5,000 (Quaye & Acheampong, 2013).

3.2. SMEs in Ghana

The SME sector in Ghana has been identified by both practitioners and some scholars as one of the promising sectors as a result of the financial and economic return potential engrossed within its wings. Several scholars concur that SMEs are one of the major contributors to national, economic development and wealth creation (Nijkamp & Poot,

1997) in most developing countries, which ultimately led to improved standard of living via new employments and job creation.

According to data from the Registrars' General Department, 90% of companies registered are micro, small and medium enterprises. This affirms the massive influx of SMEs in the past decade (Abor, 2011). In view of their contribution and influence on economic growth, some scholars suggest they (SMEs) are the backbone of the economy (Gibson & Van Der Vaart (2008). In support of this fact, it has been revealed that 49% of Ghana's contribution to the Gross Domestic Products emanates from SMEs (Ghana Banking Survey, 2013). Furthermore, these SMEs are the firms that turn into large corporations, including multinationals and transnationals, generating income and revenue to individuals and governments respectively.

In an attempt to categorize SMEs on the basis of the various sectors as well as their impact on economic growth and national development, data from the Ghana Banking Survey (2013) indicates that SMEs in the commerce sector were in the majority, representing 77% of the total. Within this estimation, the service sector, held up to 54% of the stated commerce sector figure. SMEs grouped under the industry and construction held only 15%. Mining, education, churches and oil and gas were each holding 8% of the SMEs population.

3.3. Characteristics of SMEs

In recent times, increasing discussions on business owner-manager and entrepreneurship has forced scholars to examine the relationship that exist between SMEs and entrepreneurial orientation (Quaye & Acheampong, 2013; Esuh & Adebayo, 2012).

Whereas, Quaye and Acheampong attempted to establish this differentiation in Ghana**,** Esuh & Adebayo also conducted their study in Nigeria. Their findings, aside revealing the similarity and differences between entrepreneurship (entrepreneurial orientation) and SME ownership in these settings, also outlines some characteristics of SMEs in developing countries. These characteristics are defined in relation to size, number of employees, purpose, degree of risk, sector, growth focus and key attributes. The following paragraphs reveals some discussion on these characteristics.

3.3.1. Size of SMEs and Number of employees

Discussions with respect to the ideal size of SMEs, have been considered on several forums and platform in global business. Yet, a concise, precise and standardized definition has not emanated from these discussions (Arowomole, 2000). In other words, several scholars and institutions hold and define SMEs with respect to size, in diverse ways. The lack of agreement on a concise and standardized definition has forced countries and institutions to individually posit definitions that construe with their geographical and demographical characteristics (Dada, 2014). In spite of the ambiguity with regard to the standardized size of SMEs, most scholars agree SMEs' constitutes a considerably smaller business organization; mostly ranging from 11-100 employees (Alarape, 2008). This assertion, according to Alarape (2008), is explicably justified by its acronym; SMEs (Small and Medium Scale Enterprises). Esuh and Adebayo (2012) also explain that size can also refer to the extent of business, market size and share as well as size of investment. Also in this respect, SMEs were found to be relatively smaller in size.

In this respect, the current study adopts the definition posited by Quaye and Acheampong (2013), which suggests a minimum of five employees for SMEs with starting capital not more than $5000 as the ideal size of an SME.

3.3.2 Degree of risk and reward

Scholarly discussion on SMEs and entrepreneurship emphasize the risk factor associated with such ventures (Ogundele, 2007). This risk is as a result of the varied investment both SME-owner- managers and entrepreneurs have to invest in their ventures. These may include social, psychological as well as economic risks. On the basis of this explanation, scholars note that the risk associated to SMEs in this respect is relatively small compared to large firms (Esuh & Adebayo, 2012). Similarly, Hisrich and Peters (2002) also affirms that the SMEs have a relatively low degree of risk as a result of their low level of investment. In addition, these scholars also concur that the reward for such small venture are usually small.

However, the current researcher is of the view that SMEs, in spite of their low investment, proportionately bear higher risk in business compared to large firms. This is because large firms relative to their size may enjoy certain economies of scale, high and sustainable profit patterns as well as well-structured organizational systems. These characteristics of large firm immunes them against failure and reduces their risk on losses. On the other hand, SMEs most of the times experience the direct opposite of the aforementioned characteristics of large firms, and in addition, they also have a high probability of discontinuity, which may be as a result of the low profit margins. In this respect, the current researcher is of the view that SMEs proportionately have a higher risk of operation compared to large firms.

3.3.3. Sector

A plethora of empirical studies around the world show that SMEs are more likely to belong to some sectors than others. Chea (2009) notes in Singapore that 92% of the SMEs in the country's industrial establishment include firms from three main sectors namely; manufacturing, service and commercial. With respect to Ghana, data from the Ghana Banking Survey (2013) indicates that SMEs in the commerce sector are in the majority, representing 77% of the total. Within this estimation, the service sector, held up to 54% of the stated commerce sector figure. SMEs grouped under the industry and construction category held only 15%. Mining, education, churches and oil and gas categories were each holding 8% of the SMEs population.

Additionally, Kayanula and Quartey (2000) also explained that the majority of the activities of SMEs in Ghana and Malawi were in relation to soap and detergents, textile and leather, clothing and tailoring, ceramics, timber and mining, bricks and cement, beverages, food processing, bakeries, wood furniture, electronic assembly and agro processing. This goes to prove that SMEs in most developing nations often belong to the manufacturing, agro and service sector. For this reason, these three sectors were considered in the current study.

3.3.4. Key attributes

As found in recent literature, another characteristic of SMEs popularized especially among most developing nations is the organizational skills to manage efficiently, moderate growth, moderate need for achievement and chief of all, with regard to current study, is the little innovation in such firms (World Bank Latin America report, 2013; Esuh & Adebayo, 2012). This characteristic was not only true with respect to developing

economies, Hadjimanolis (1999) found this to be true also with firms in underdeveloped economies. Furthermore, a similar finding has been found among developed economies, for example, Spain (Madrid-Guijarro et al., 2009). The current study was necessitated by this characteristic; little innovation and in view of this seeks to identify and to understand the factors constraining innovation.

3.4. Importance of SMEs

The importance of SMEs in an economy is often associated with the role played by these institutions in their respective capacities. Several scholarly works have accentuated the positive impact SMEs have on the overall economic and national development (See for example, Kayanula & Quartey, 2000); as they play a vital role in both poverty alleviation (Mosley & Hulme, 1998) and empowerment of marginalized groups like women and the disabled. This section discusses the importance of SMEs in Ghana as well as in other developing countries, in the lens of the role these institutions play in national development.

3.4.1. Economic growth

Small and medium scales enterprises coupled with entrepreneurship has been identified by both policy makers and academics as the engine of growth for most developing countries (Robson, 2012**;** Kayanula & Quartey, 2000**).** According to Kayanula and Quartey (2000), this assertion is as a result of the employment and income provided by these SMEs to the citizens of the nation. In this respect, such individuals are able to pay both direct and indirect taxes to the government. Additionally, these authors also note that SMEs offer opportunity for mobilization of funds which otherwise would have been idle and depreciating. It allows for the use of such funds to provide economic opportunities that

provide employment and income to the individual as well as others who may be employed. This directly contributes to both national and economic development, as it is a source of income to government through the instrument of taxation.

However, some scholars are of the view that the impact and role of SMEs is exaggerated, as some factors that would aid in a much more realistic assessment of their impact are not considered (Biggs, Grindle & Snodgrass, 1988). For example, these authors explain that some scholars' association of employment as an indicator of productivity is statistically erroneous and flawed. This is because such factors as the cost as well as the availability of labour may not be considered in such calculations. In spite of the above argument, these scholars still accent that the impact of SMEs cannot be overlooked.

3.4.2. Role in Innovation

Several scholarly works indicate a low level of innovation among SMEs, especially in developing economies (World Bank Latin American report, 2013) like Ghana as well as underdeveloped countries (Hadjimanolis, 1999). The situation is not too different in some developed countries, even though, most scholars note it is relatively better in such economies, as several SMEs have grown into large and internationalized firms.

This situation is worrying because these institutions (SMEs) have the best framework and structure for innovation, especially in the developing economies context. A plethora of studies have established that SMEs are more susceptive to the innovation approach and consequently, have a huge potential to grow (Christensen & Bower, 1996; Ferriani, Garnsey & Probert, 2008). This, according to some scholars is as a result of their small

size, which allows them to be more flexible and susceptible to change as well as less bureaucratic (Nečadová & Scholleová, 2011).

Even though minimal and unexploited, SMEs play a very important role in the introduction and adoption of innovation in Ghana. For example, the recent influx of microfinance and migration of "susu" operators (micro-level saving and loans enterprises) in Ghana into the microcredit businesses is a limpid example of the adoption and introduction of innovation among SMEs. As a result, SMEs in the microfinance and credit businesses have forced some big banks to also consider shrinking down to target customers at the base of the economic pyramid, who in this part of the world, are in the majority.

3.5 Innovation in Ghana

The subject of innovation, even though gaining relevance in practice and literature among developed nations around the early 1900's (Piatier, 1985), it is just recently gaining eminence in some developing and under-developing economies (Hadjimanolis, 1999). This is because innovation in recent empirical and practical discussions have been identified as the mainstay of the entrepreneurial process and a major determinant of the success and growth of businesses (Mahemba & De Bruijn, 2003). Furthermore, in developed economies, numerous scholars have identified that innovation has immense impact on employment (Birch, 1979; World Bank Latin America Report, 2013) and competitiveness (Porter, 1990; Schumpeter, 1942). In short, recent discussions on the subject have established a nexus between innovation, national and economic development (Calantone et al., 2002).

In Ghana, though the concept of innovation has not gained much popularity in empirical literature, the concept has been evidently applied in several facets of the Ghanaian economic and industrial spheres. Innovation, even though not a practice that can be associated with most small and medium scale enterprise owner-managers in recent times (Quaye & Acheampong, 2013), the concept was evidently applied in the several industries after independence, with the inception of several state owned companies channeling out very competitive products.

According to an article published by Osei (2010), the "independence period" saw the introduction of the shoe factory in Kumasi, assembling of Tata cars and the establishment of the GIHOC cannery. In addition, several other state owned innovations were started as pacesetters in innovation in Africa and Ghana for that matter. These included the establishment of the Bonsu tyre factory, dairy farms at Amrahia, gold processing factory and Komenda sugar factory, which were supposed to process and produce finished innovative products from their respective raw materials. In the view of the current author, these innovative initiatives, aside creating jobs, also positioned Ghana as one the most competitive African country on the global commodity market and were to set the pace for future private sector and small scale innovations. However, the gap between the innovativeness of firms in those era and SMEs in recent times cannot be overemphasized (Quaye and Acheampong, 2013). It is to this end that a study to assess the factors constraining innovation among SMEs in Ghana is relevant.

However, with regard to literature in Ghana, in spite of the paucity of previous empirical researches, there have been significant boost in the stream of studies flowing in with regard to innovation. These studies have assessed varied aspects of innovation, prominent

among them, is the focus on innovation adoption (Domeher, Frimpong & Appiah, 2014; Boahene, Snijders & Henk Folmer, 1999; Adam, Atengdem & Al-Hassan, 2010; Baba, 2012; Dzogbenuku, 2013). Most of the studies that investigated the adoption of innovation mostly focused on the financial and banking sectors (see for instance, Domeher, Frimpong & Appiah, 2014; Baba, 2012). Whereas, some scholars also assessed innovation adoption within the agricultural industry (for example; Adam, Atengdem & Al-Hassan, 2010; Opare, 1979). Additionally, Doss & Morris (2001) examined the relationship between innovation adoption and gender. Still, Boahene et al (1999) provided a general assessment of innovation adoption across multiple sectors in Ghana.

The literature have also considered other facets of innovation apart from innovation adoption. In this respect, scholars have assessed the relationship shared between innovation and such concepts as market orientation and corporate social responsibility (Mahmoud & Hinson, 2012); governance (Odingo et al., 2014); business ownership and human capital (Robson et al., 2012); sustainable growth in agriculture (Amankwah et al., 2012) and new product performance (Story et al., 2015). More relevant to the current study, some previous studies on innovation assessed the nexus between the subject matter and entrepreneurship (Iyayi et al., 2012; Robson et al., 2009). Robson et al. revealed the importance of innovativeness to entrepreneurship development as well as the relationship between entrepreneur characteristics and the types of innovation.

Furthermore, the concentration of most of the empirical works were focused on small and medium scale firms (see for instance, Van Dijk & Sandee, 2002; Robson et al., 2009). Scholars note this focus on small and medium scale is necessary as a result of the established nexus between the role of SMEs and poverty alleviation, employment creation

as well as promotion of economic development [Chipika & Wilson 2006; Small and Medium Industries Development Organisation (SMIDO), 2004]. Nonetheless, a considerable number of scholars have also performed some investigations with respect to large companies such as firms in the banking industry (see for instance: Dzogbenuku, 2013; Baba, 2012) as well as some firms in the energy sector (Agbemabiese, Nkomo & Sokona, 2012).

Notably, in spite of the paucity of empirical evidence available with regard to innovation in Ghana, a cursory consideration of the available evidence show a tangential and circuitous assessment of the subject matter. This is evidently proven by the lack of a substantial review of literature on the subject of innovation in most of these empirical works. In connection to this, most of these studies made no attempt whatsoever to provide an operational definition for the term. In this respect, the current researcher is of the view that most of these scholars only adopted the descriptive use of the word and were not attempting to provide an in-depth analysis of innovation in the Ghanaian setting. In conclusion, the current researcher is of the view that even though most of these previous studies provide relevant literature with respect to the industry, they do not aid an in-depth understanding of the concept of innovation in Ghana.

3.6 Indicators of the low level of innovation among SMEs in Ghana

A myriad of literature in the ambit of innovation explains that firms that adopt the innovation approach have a huge propensity to grow (Hoogstraaten, 2005). Furthermore, some scholars affirm that SMEs, more than large firms, are susceptive to adopting the innovation approach. In view of this, scholars note that SMEs have a huge potential to grow (Christensen & Bower, 1996; Ferriani, Garnsey & Probert, 2008). However, scholars also note that in spite of this potential to grow and innovate, recent evidence in literature and practice demonstrate the low level of innovation among most SMEs (Wang & Costello, 2009). Robson et al. (2009) adopts the term "low level of innovation" in the description of this phenomena among SMEs in Ghana.

Recent arguments in literature and in practice have demonstrated that most developing economies have a low degree of innovation within their SME sectors (Patel, 2007; Wziatek-Kubiak et al., 2010). This, according to scholars like Patel (2007), accounts for the stale growth of SMEs as well as the low degree of competitiveness of these firms in relation to their international counterpart and stands as one of the indicators of the low level of innovation among SMEs in Ghana. Patel (2007) explains that the fear emanating from the proposal in the EPA agreement recently, is mainly as a result of the low degree of competitiveness of small and medium scale firms in these economies. By this, Patel claims the low level of innovation accounts for the pessimistic posture adopted by most of the ACP countries, who fear to get involved in the agreement. This point was also affirmed by Necadova and Scholleova (2011), who also indicated that the reason for their reluctance to sign on was the low competitiveness of SMEs in these countries, which is a firm indication of their low level of innovation.

As postulated by Patel (2007) and Economic Composite Index (ECI) (2013), one scintilla of the low level of innovation of SMEs in developing countries like Ghana, is the low level of exports against the high level of imports. According to data from the Association of Ghana Industries (2008), Ghana's imports far outweighs its exports. The data further shows that the average percentage of imported processed goods in the economy accounted for 73.92 % within the periods of 1999-2006. This, to a large extent suggests and demonstrates the inability of SMEs within Ghana to channel out competitive products in supply to the local market. Furthermore, according to some data from the Ministry of Trade and Industry (2014) Ghana recorded her highest trade deficit in its history, which amounted to a figure around 4billion dollars in 2014. This is to suggest that the import figure exceeded the export estimates by 4 billion dollars.

Another, indicator of the low level of innovation among SMEs in the sub-Saharan region, Ghana for that matter, is the low productivity of small firms in these regions (Necadova & Scholloeva, 2011). Even though, some of these firms may be channeling out products important to the global market, they are often unable to meet the quantity and quality standard of most of their international buyers. Additionally, the low productivity ultimately results in low exports and high import, as Ghana recorded her highest trade deficit of 4billion dollars in 2014 (Ministry of Trade and industry, 2014).

On a broader spectrum, there have also been some objective investigation to assess the innovativeness of countries around the world. Examples of these organizations and ranking include the Economic Composite Index (ECI) and United Nations Industrial Development Organization (UNIDO) composite index rankings. The UNIDO composite index ranking is based on the ability of firms in member states to engage in continuous

improvement, institutional and technological innovative efforts, as well as innovativeness in particularly the manufacturing industry. With regard to these two rankings, Ghana plummeted from the 113th position in 2000 to 118th in 2013; further affirming the fact that the low level of innovation among SMEs in Ghana has gotten worse over the period. Most developing economies in Africa ranked very low on the table; with Egypt being the highest ranked in Africa at the 65th position.

As illustrated above, the low level of innovation is not a phenomenon limited to Africa; it is also a common thing with most underdeveloped (Hadjimanolis, 1999), developing and some developed economies (Madrid-Guijarro, 2009) around Europe, Asia, North and South America. For example, a World Bank article published in South America revealed the low level of innovation among small scale firms in Latin America (World Bank Latin America Report, 2013).

The current study considered all these indicators in determining the level of innovation among SMEs in Ghana. These indicators were selected because they provided a good balance of both the subjective (for example: low competitiveness) and objective (for example: UNIDO and ECI rankings) considerations useful for assessing country innovativeness.

CHAPTER FOUR

METHODOLOGY

4.0 Introduction

This section considers a description of the methodology adopted in the current research. In this respect, the chapter reveals in relation to the objectives of the study, the research design, research purpose, sampling technique, sampling size, as well as offers a summary of the methodological paradigms and principles underlining the study. In addition, it provides details on the data collection and analysis process adopted in the study. This section is a very important facet of the study, as the methodology adopted informs and has a gross impact on the results attained at the end of the study. In view of this, the current study would discuss within this chapter, the validity and reliability of the methodological framework adopted in the study.

The chapter also presents some details with regard to some of the ethical considerations adopted in this study, which includes the oath of confidentiality and protection of respondents' interest.

4.1 Philosophical worldview of the study

The researcher agrees that in order to define the methodological, epistemological and ontological perspective of a student or researcher, it is important for researcher to define and identify the particular philosophical perspective guiding and influencing their choice of these elements (Creswell, 2007). Again, according to Creswell, the philosophical worldview of the researcher also informs the research design adopted as well as the research strategy appropriate for the study. This philosophical perspective is described in

scholarly works as philosophical worldviews (Guba, 1990), and is explained as the basic set of the principles and views that affects and guides the researcher's actions. Again, some scholars describe it as the philosophical paradigms (Lincoln & Guba, 2000). In this respect, the current study adopts the term philosophical worldview as it provides an obvious description of the perspective, belief and dogmas of the researcher. Also of note, these philosophical worldviews, according to Creswell (2007) are often shaped by the field of study, supervisors and trends in previous studies. Creswell (2007) postulates four main philosophical worldviews namely post-positivism, constructivism, pragmatism and advocacy/participatory.

4.1.1. Post-positivism worldview

The Post-positivism view has evolved from the 19th century, as such scholars as Comte, Mill, Durkheim, Newton, and Locke have all adopted the worldview in their description of human behaviour (Smith, 1987). Recent scholars like Phillips & Burbules (2000) have also popularized the use of the term in human action research. In this respect, the view has been adopted and discussed by scholars, thereby further popularizing the term and urging more scholars to adopt the view.

Creswell (2007) notes this worldview is also known as the positivist paradigm or empirical science. This philosophical worldview disputes the notion of absolute truth (Phillips & Burbules, 2000) and suggest that we cannot be absolute about our claims when researching human behaviour and actions. In other words, Creswell (2008) explains that the meaning that is developed under this worldview adopts an objective measurement of the reality that exist out there in the world. In this respect, several scholars have argued

that the post-positivist worldview is more related to quantitative research than qualitative studies (Creswell, 2007).

Additionally, it has been noted by some scholars that the positivist worldview holds a deterministic and reductionist philosophy. The former because it explains that causes most likely determine the effect or outcome; whereas, it holds the latter because it attempts to reduce the idea into minute, discrete set of ideas.

4.1.2. Advocacy worldview

Some group of scholars adopts the advocacy world view in their attempt to offer meaning to human behaviour and reality. This worldview was birthed as a means of incorporating the views of marginalized groups or individuals in society. In this respect, the advocacy worldview explains that while the post-positivist worldview instituted theories and structural laws that offered no assistance to the marginalized, the constructivist worldview also offered no aid in this direction. In this regard, popular proponents such as Marx (Neuman, 2000) suggested the need to advocate for an action agenda to assist marginalized groups. Also noted by Creswell (2008), there is the need for studies that address such issues as domination, empowerment, inequality and suppression to be carried out using the framework of the advocacy worldview to advocate for the minorities suffering under such instances.

4.1.3. Constructivism worldview

This worldview is sometimes referred to as the social constructivist view and is associated with the interpretivist worldview (Merten, 1998). Berger and Luekmann's (1967) and Lincoln and Guba's (1985) were the earliest proponents of the school of thought, even though attempts have being made by some recent scholars to summarize, expatiate and

illustrate the worldview to suit modern research methodology (see for instance: Schwandt, 2001; Neuman, 2000).

The social constructivist view explains that each individual seeks to understand the world in which they have their livelihood. By this, some authors explain that each individual attempts to create a subjective meaning of the experience in their life and work. In this respect, the aim of the social interpretivist is to uncover the complexity and diversity of the subjective meaning people associate with their experiences. In a comprehensive review of the social constructivist worldview, Crotty (1998) notes that the worldview assumes that meaning are created by human beings as they engage the reality around them. In addition, these meanings are often dependent upon the historical and social perspectives of the individual and is constructed out of one's interaction with the human community.

4.1.4. Pragmatism worldview

This worldview originates from the works of some earlier researchers such as James, Dewey and Mead (Cherryholmes, 1992). Furthermore, the worldview has been discussed by some recent scholars, including Patton (1990), and Cherryholmes (1992). According to several scholars, unlike other worldviews, the pragmatic worldview arises out of consequences, actions and situations rather than antecedent conditions (for example postpositivist) (Creswell, 2008). Again, the worldview is pivoted on the applicability, workability and the ability of the posited explanation or meaning to provide solutions (Patton, 1990). In this respect, the pragmatic worldview's framework emphasizes the research problem and searches out the best approach to study the phenomenon (Rossman & Wilson, 1985). Creswell (2008) notes that this worldview underpins the mixed method approach.

In this view, the current research adopted the mixed method approach and sought to understand and identify the factors constraining innovation among SMEs in Ghana.

4.2. Research Purpose

Some scholars postulate that there are basically three purposes of conducting a study, which include explanatory, descriptive or explorative (Robson, 2002). However, Saunders et al. (2007) indicate that a study can be both descriptive and explanatory at the same time depending on how the researcher postulates the questions. Robson (2002), again indicates the purpose of a study may change, thereby making it necessary for the researcher to ensure flexibility in this respect.

According to Robson (2002), exploratory research seeks to investigate what is happening; assesses phenomenon in novel ways as well as seeks new insights. Saunder et al (2007) note that this research purpose is best when the researcher seeks to have a precipitous understanding of events. Metaphorically, exploratory research can be related to the activities of a traveler or explorer (Adam & Schvaneveldt, 1991), seeking to find and to search out new things and relationships. Scholars have suggested exploratory research as a better approach option compared to the others mentioned above. This, according to these scholars, is as a result of the flexibility and adaptability of the exploratory approach (Saunder et al, 2007). In an attempt to emphasize the above established point, Adam and Schvaneveldt (1991) note most exploratory researchers begin with a broader focus and often find themselves narrowing in as they approach the tail end of the research.

Robson (2002) suggests descriptive research refers to an accurate, expressive definition of a person, situation or event. Saunder et al. (2007) suggest strongly that descriptive studies are often forerunner or extension of either an exploratory or most likely an explanatory research. In view of this, the authors suggest the term "descripto-explanatory studies" (Saunder et al., 2007). This is in a situation where the descriptive approach is used as the precursor to explain the phenomenon being studied.

Explanatory research often attempts to establish causal relationship between variables (Saunder et al., 2007). Saunder et al. (2007) also explain that to establish the causal relationship is to establish antecedent variables as well as their resultant variables. The purpose of the current study is to illustrate a descriptive account of the factors that account and contribute to the low level of innovation among small and medium scale enterprise among developing economies, thus the constraining factors, with Ghana as a case in point. In addition, attempts are made by the current researcher to explore the factors responsible for the low level of innovation of SMEs in Ghana; which would include attempts to identify the factors constraining SMEs' innovation efforts. In view of this, the purpose of the current study can be described as a descripto-exploratory study, as postulated by Saunder et al. (2007).

4.3. Research Design

Scholars often describe the research design as the blueprint or framework that describes the data collection, measurement and analysis of the study (Copper & Schinder, 2001; Malhotra, 2007). This is to serve as a guide for the researcher throughout the research process**.** McGivern (2006) iterates that research design serves as a structure that guides the

researcher to accurately, limpidly and logically answer the research questions posed in the research. In other words, Guy et al. (1987) notes that the adoption of a research design is triggered as a result of the need for objectivity. According to Kinnear and Taylor (1996), the research design provides the nexus between the information collected and the purpose of the study as well as giving direction for the right data collection method to be adopted.

The current study adopts a cross-sectional non experimental survey design, which comprises the adoption of both probability and non-probability sampling via self-administered structured questionnaire for collection of the quantitative data, whereas a semi-structured interview instrument was used to pilot the study, in order to affirm and contextualize the variables essential for the study. The study is considered a cross-sectional study because it was within a snapshot period (one year). The current study also adopted the non-experimental survey because it attempts to assess the concept of innovation and to provide a descriptive data of the factors constraining innovation.

The appropriateness of this approach was affirmed by Saunder et al (2007), who explain that it is the best method for examining relationships, concepts and providing descriptive data from a relatively large sample using a quantitative approach. Notably, Saunder et al explain that the survey method allows the researcher to have control over the research process and allows the researcher to also generate and apply a sample that is representative of the whole population. The current researcher adopted a combination of the purposive and convenience sampling approach, which is described by Creswell (2007) as the combination or mixed sampling method. According to Creswell, this method allows the researcher to triangulate, be flexible as well as meet multiple interests and specifications.

These two sampling types were considered appropriate for the study because the study was focused on only registered firms in the NBSSI data records. This data record represent a list of registered firm all over the country, however, the researcher's limitation in time and resources forced the adoption of convenient and purposive sampling approach. In this respect, firms on the list, who were located within areas familiar and close to the researcher were selected for the study. Here too, only those that were available and responsive were considered for the study, as some SME owner-managers were reluctant and unwilling to aid the research.

In respect of the purposive sampling approach, the current study only focused on SMEs that met the specification of the definition adopted from Quaye and Acheampong (2013) for the current study. In addition, the study adopted the self-administered questionnaire for the collection of its quantitative descriptive data and adopted the semi-structured interview guide, as this allows the flow of a natural conversation between the researcher and the respondents.

4.4. Research approach

Scholars have generally popularized two main basic approaches, namely the qualitative design and the quantitative design. Scholars who favour the qualitative or exploratory approach indicate it is suitable in instances where the researchers seek to discover new relationships; whereas on the other side, some scholars also posit that quantitative studies are usually specified for studies that make decisions and attempt to establish conclusions (Boyd et al., 1993; Malhotra, 2007). Some scholars also associate the quantitative approach to the deductive design and the qualitative design to the inductive approach.

According to Saunders et al. (2007) and Amaratunga et al. (2002), one can either adopt the deductive or inductive approach to conducting research. These authors explain that with respect to the deductive approach, data collection and analysis precedes theory formulation; whereas, with regard to the inductive approach, hypothesis formulation precedes data collection and analysis.

Notably, each of these approaches have their merits and demerits; scholars also hold it that one is not necessarily competing with the other for superiority, rather each has specific situations and instances that suits its usage depending on the objective of the study (Cassell & Symon, 2006). Some scholars favour a combination of the two approaches; popularly called the mixed method approach. This method harnesses the combined strength of the two approaches and also offsets the drawbacks of the individual approaches. Baker and Edwards (2012) explain they favour the qualitative approach because the approach allows the researcher to delve very deep into the individual, situation and phenomenon. Whereas, other scholars like the Saunders et al (2007) explains that the quantitative approach allows the researcher to test for a relationship between concepts rather than just understanding it. These arguments draw discussions of a comprehensive method that offsets the drawbacks and harnesses the strengths of these two methods. In view of this, the current researcher proposed a mixed method approach.

Earlier proponents of the mixed method approach favour this method because it helps to triangulate the data sources and results, which is a means of seeking convergence with the qualitative and quantitative method. Greene, Caracelli, and Graham (1989) also notes that the mixed method aids in developing and improving the other methods.

The current study adopts the convergence approach, which is a combination of the quantitative and qualitative approach. As indicated above, the method will help the current researcher to develop other methods. In this respect, the qualitative approach would be used to develop and to affirm the areas of interest and of significance to the study. Furthermore, the quantitative approach would be used to validate the variables identified in the review of extant literature in the field of the study. Lastly, the adoption of the convergence method allows the current researcher to include the opinion of marginalized women and disabled entrepreneurs, who may not have been considered in previous studies. In view of this, a substantial number of disabled and female SME owner-managers were considered for the current study.

4.5. Sample Design and Sample Size

According to Miles & Huberman (1994; 2002), it is important to specify the sample design and size, because the researcher cannot consider everybody for the study. The sample design stipulates the population, sample frame, unit of analysis, sampling technique and the sampling criteria or inclusion criteria for the study.

As indicated by Salant and Dillman (1994), it is important for every study to identify and define the target population. This, according to the authors must be as narrow as possible in order for the researcher to achieve the desired results. This is absolutely important, as it may be impossible or difficult for the researcher to reach the entire population. More so, defining the target population helps the researcher to save time, money and effort. Additionally, it also helps to focus the research and gives the study a contextual base for understanding its findings. In view of this, the target population for the current study

includes all registered enterprises on the NBSSI list of registered firms. Supporting a claim made by Miles and Huberman (2002), Denscombe (2007) explains that it is almost impossible in most cases for the researcher to be able to reach the entire target population. In view of this, it is crucial for the study to define a sample frame, from within which a sample would be selected, based on the predetermined sample size and inclusion criteria.

In this respect, the sampling frame for the current study includes all registered enterprises in the Greater Accra Region listed on the NBSSI database, which has over 10,000 SMEs registered in Greater Accra alone. The sample frame was limited to only firms based in the Greater Accra Region because of the limitation imposed by time and finance. However, this limitation does not suggest the perspective of firms outside the capital city were ignored, rather some of the firms considered had branches in other regions, whereas others had migrated from other regions to be based in the capital and still others do business across regions. In view of this, their views as captured, demonstrate the broadness of the perspectives considered in the study, thereby warranting the generalizability of the findings.

A sample size of 132 respondents was considered for the current study. In this respect, 12 respondents were considered for the pilot study, which was a qualitative study that preceded the quantitative study. The quantitative study considered sample size of 120 respondent, however only a hundred (100). This figure (120) has been justified in extant literature as being sufficient for quantitative analysis (MacCallum, Widaman, Zhang, & Hong, 1999; Guadagnoli, & Velicer, 1988). For example, Guadagnoli, & Velicer explain that a sample size between 100 and 200 at least, is sufficient for a quantitative study.

The current study adopted two main sampling techniques or methods, namely the purposive and convenient sampling approach. The purposive sampling technique was considered appropriate for the study because the current study only focused on SMEs that met the specification of the definition adopted from Quaye and Acheampong (2013) for the current study; thus, such firms must have more than five employees and have a starting capital not more than $5000 (Quaye & Acheampong, 2013). In connection with the convenient sampling technique, only those that were available (within the environs of Accra) and responsive were considered for the study as some SME owner-managers were reluctant.

4.6. Selection of unit of analysis

The unit of analysis for the current study was carefully selected to enhance the reliability and validity of the study. In this respect, the current author ensured that the sampling unit considered had the requisite qualification and met the selection criterion specified in the study.

The chosen units of analysis were firms registered with the registrar general department as a legal entity. This is to ensure that businesses selected for the study were recognized by the state and had gone through the rigors of the company registration process. In view of this, the enterprises selected for the study were compiled from the NBSSI list of small and medium scale enterprises, which has over 10,000 SMEs registered in Greater Accra alone. Additionally, another inclusion characteristic considered for the current study was that the firm should have at least 5 employees as well as a maximum 100 (Trondsen, 1997). It was necessary to set the lower limit in order to eliminate 'man/wife' enterprises, which are mostly established to provide additional income to its owner(s) and often do not have the

full concentration of the owner. Furthermore, such firms with at least five employees are likely to have a manager assigned, thereby proving that such firms are likely to have a "more formal" and detailed Organogram. On the other hand, the upper limit was also to ensure that firms considered for the study were within the small and medium scale range.

4.7. Sources of Data and Data collection method

A study can either adopt a secondary or the primary sources of data. Primary data refers to data that is collected specifically for the study's use; often by the researcher from selected participants, whereas Secondary data refers to already compiled data that can provide useful answers to a researcher or a study, either in full or partially (Saunder et al., 2007). Secondary data can either be in the form of raw data and/ or published summaries. Some popular examples of secondary data are the Census data, sales reports and accounts, minutes of previous meeting, payroll details and many others in these categories. On the other hand, primary data are often collected in the absence of secondary sources or at events where the researcher is unable to access the secondary data for some reason (Ghauri & Grønhaug, 2005).

The decision to adopt either secondary data source or primary data sources is often hinged on several factors and circumstances. The most famous for adopting primary source of data as indicated by Ghauri and Grønhaug (2005) is often in the absence of adequate secondary data. Additionally, in some events, the available secondary source may not be appropriate data for the study; this may be as a result of changes in the demographic characteristics of the previous participants; changes in trends and fashions, which may also affect the response of the previous participants in the present. In short, adopting secondary

data for some studies would mean to use outmoded data for your research, as several of the responses would change if re-assessed. In spite of this, some researchers still stick to secondary sources because of the difficulty of accessing the primary respondents, time and cost implications.

The current research adopted the primary sources of data and adopted the use of self-administered questionnaires for collecting the quantitative data, while adopting in-depth semi-structured interview for the qualitative aspect of the study. The in-depth interview approach was adopted to provide insight into the current situation, with respect to innovation among SMEs in Ghana. With respect to the self-administered questionnaires, aside it is a less expensive option, both in terms of cost and time (Kumekpor, 2002); it was also used to affirm variables identified in the qualitative data.

4.8. Questionnaire design

As indicated earlier in previous discussions, the current study employed two data collection instruments; namely the self-administered survey questionnaire and a semi-structured interview guide. In view of this, both instruments were developed based on the objectives of the study; thereby ensuring coherence. The adoption of the two data collection instruments was warranted by the research approach adopted, which was a mixed method approach. As indicated in the discussion, the qualitative instrument is to provide the basis as well as inform the quantitative instrument. Thus, the quantitative instrument (self-administered survey questionnaire) would be based on constructs extracted from the qualitative results.

With respect to the semi-structured interview guide, the guide was divided into two broad sections. The first section concentrated on the demographic details of the respondents and the second had 8 open ended questions. Alternatively, the self-administered survey questionnaire includes constructs identified from the results of the qualitative data gathered from respondents. The self-administered survey questionnaire also had two sections; the first being the section that collected data on the demographic characteristic of the respondents, whereas the second section has two broad classifications of variables namely external and the internal factors. Under these two broad categorizations, the sections in all have eight (8) sub-divisions including human related, culture and system related, management time, technical expertise, financial, supply related, demand related and environment related factors. The internal and external variables numbered 5 and 3 respectively. With an average of three constructs to measure each variable, in all 46 constructs were used to assess the factors constraining innovation among SMEs.

Respondents were to assess all eight variables on a four scale questionnaire (Hadjimanolis, 1999; Allen & Seaman, 2007; Ehrich, Davies, Watson, Bolognese, Seidenberg, & Bellamy, 2000), spanning from no impact to high impact. The four scale questionnaire was adopted because the approach has been adopted by a myriad of scholars in assessing the barriers to innovation in other part of the world (Hadjimanolis, 1999). For example, Hadjimanolis (1999) assessed the barriers to innovation among underdeveloped countries and adopted a four scale questionnaire that had as scales, such measures as, "not applicable; little importance; moderate importance and high importance". Additionally, Ehrich et al. (2000) and Allen and Seaman (2007) explain that such scales (if Likert scale) allows the researcher to force an answer from the respondents, in order to avoid a majority of the respondents indicating neutral or indifferent responses.

4.9 Pilot Test

Piloting refers to the process of assessing the validity of the questionnaire as well as the data collection process, in order to identify and exclude problematic processes. This testing allows the researcher to assess the suitability and applicability of the survey questionnaire, which includes assessing the rightness and limpidness of the variables and constructs. In the process, the researcher is offered the opportunity to identify and clarify every ambiguity with regard to the questions as well as effect changes, if necessary. In view of this, a pretest was conducted for the current study in order to assess the clarity and validity of the questionnaire design.

In the case of the current study, the qualitative section of the study was performed as the pretest to assess the applicability, validity and suitability of the various constructs identified in the extant literature. In this respect, 12 SME owner-managers were interviewed using the semi structured interview guide (see interview guide in appendix B). Based on the finding from the qualitative data, the constructs for the questionnaire were revised and adapted. Some new contextual constructs like *trust; commitment; care and government taxation policy* were identified respectively as human and environment related factors that affect innovation. This constructs were incorporated into the questionnaire design for the actual study.

4.10. Analysis of Data

Two main methods of analysis were employed for the study; these include a qualitative and quantitative data analysis techniques. This is because the study adopted a mixed method approach in the data collection process. The Statistical Package for Social

Sciences (SPSS) version 20.0 software was used to analyze the survey data. This statistical instrument was used to clean and prepare the data for analysis. The package also allows its users to draw inferences from the data as well as provides descriptive information from the data. It was used to estimate the various means as well as compare these means and standard deviation values. This aided in achieving the first objective, which was to identify the factors constraining innovation among SMEs in Ghana.

In attempt to establish the reliability of the data and result the statistical package was used to investigate the reliability values and internal consistency measures. In view of this, such analytical tool as the one sample t-test, KMO and Bartlett's Test were used to assess the data. In order to ensure that only relevant and related variables were adopted for the study, the researcher employed the exploratory factor analysis and Cronbach's alpha to assess the reliability of the constructs. This rigorousness was ensured to guarantee the reliability and validity of the outcome data.

The t – test analysis was used to illustrates the standard deviations and means of the various variables adopted and adapted. The means and standard deviations were used to indicate the extent to which the respondents agreed or disagreed with the statements in the questionnaire.

In addition, a thematic analysis was performed to analyze the qualitative data. This analysis allowed the researcher to identify and affirm the factors constraining innovation among SMEs in Ghana. Furthermore, the content analysis also aided the researcher to contextualize the factors assessed in the study.

4.11. Ethical Consideration

Several important ethical considerations were made in the course of the current study. This was mainly with respect to respondent-researcher relationship and interaction. Even though, the study did not hinge much on personal and sensitive information, it however, required respondents to provide certain pertinent and quite sensitive information about the operations of their businesses. Again, because the study focused on SMEs, the owners-managers had very close ties with the business and were therefore likely to reveal information about themselves as they discussed their enterprises. In view of this, ethical issues were considered paramount in the current study. Consequently, respondents were assured of the confidentiality duty of the researcher towards them as well as the duty to ensure that all information provided were to be used only for academic purposes. In an attempt to ensure that all ethical requirements are met, the researcher also ensured that only respondents or business owners who consented were involved in the study.

CHAPTER FIVE

DATA ANALYSIS

5.0 Introduction

This chapter discusses the findings of the study. The findings have been illustrated in the form of frequency, percentages and tables, in relation to the objectives of the study. The study considers 100 SMEs-owner managers and attempts to identify the internal and external factors constraining innovation among SME firms. The presentation of the analysis is subdivided into three sections; the first part of the findings consider the demographic information of the participants. The second part of the findings reveals the identification of the internal variables that contribute to the low level of innovation, whereas, the final aspect of the findings illustrates the external variables responsible for the low level of innovation among SMEs in Ghana. Also of note, in section and others such terms as "factors that impede innovation" and "barriers to innovation" were used interchangeably with the term "factors constraining innovation". Again, the constraining factors are considered in the present study as the factors contributing to the low level of innovation among SMEs.

5.1 Demographic Information of SME owner-managers and businesses

In an attempt to offer a lucid description of the respondents for the current study, the researcher, in relation to the objectives of the study gathered some demographic information on the businesses as well as the owners of the SMEs. This was done to assess the background of the respondents as well as how such information impact the overall finding of the study. Additionally, these discussions allowed the researcher to contextualize the findings of the study to the type of SMEs considered. In view of this, the

researcher investigated the educational background of the owner-managers, as this is likely to have some impact on the innovative propensity of their business. Moreover, with regard to the firm, the study gathered information on the sector, number of employees, control of activities and the number of years of operation.

Table 2 Demographic Information of SME owner-managers and business

Variables		Frequency	Percentage (%)
Education	Primary	11	11.0
	Junior High	1	1.0
	Senior High	18	18.0
	Professional	19	19.0
	Tertiary	51	51.0
	Total	**100**	**100**
Sector	Manufacturing	44	44
	Service	56	56
Number of employees	5-10	61	61
	11-20	15	15
	21-30	10	10
	31-40	11	11
	41 and Above	3	3
	Total	**100**	**100**
Years of operations	1-5	70	70
	6-10	27	27
	11-15	3	3
	16 and above	-	-
	Total	**100**	**100**
Control of activities	Controlled by a Family	33	33
	Managers who are not relatives	67	67
	Total	**100**	**100**

Source: field data (2015)

The table above (table 2) shows the demographic details of the respondents and SME firms considered for the study. The study investigated the educational background of the

respondents and found that the majority of the respondents, representing 51 (51%) of the total number of respondents had attained formal education up to the tertiary level, whereas 18 (18%) and 19 (19%) had attained high school education and professional skills respectively. Only 11 (11%) and 1 (1%) of the respondents had up to a primary and junior high education. This result shows a kind of a paradigm shift in entrepreneurship and business ownership, where in time past, most business owners were likely to be less educated or school dropouts. This may also have a circuitous impact on innovation, as the researcher is of the view that persons with higher education are likely to comprehend and appreciate the need and processes of innovation.

The study also sought the respondents to identify the sector their firms operated in. In this respect, three sectors were considered, namely: agribusiness, manufacturing and services. The result showed that majority, 56 (56%) of the firms were in the service industry, whereas 44 (44%) were in the manufacturing sector. None of the firms included in the study identified with the agri-business sector. This turns to affirm the fact that the Ghanaian SMEs sectors have more firms in the service sector compared to other sectors (Ghana Banking Survey, 2013).

With regard to the number of employees, the finding revealed that majority of the firms, 61 (61%) had employees between the ranging from 5 and 10. Whereas 15 (15%) and 10 (10%) of the firms had employees within the ranges of 11-20 and 21-30 respectively. Again, only 11 (11%) and 3 (3%) of the respondents' employees were within the 31-40 and 41 and above range respectively. This shows that most of the SMEs considered for the study could be classified as smaller SMEs rather large ones.

The current research also found that most of the respondents (SMEs), 70 (70%) had existed for only 1 to 5 years in operation. Additionally, 27 (27%) had existed for a period between 6 to 10 years. Whereas, only 3 (3%) had existed for a period between 11 and 15 years. None of the respondents had existed pass 16 years. This could either suggest that SMEs in this category are very few and affirms the notion that most SMEs lack a well-structured succession plan, and therefore do not survive pass this age limit. The current researcher is of the view that a firm's length of years of operations can have an impact on the innovation propensity of that SME. The current researcher suggests that such a firm would have existed long enough to gather some internal funds to hire qualified expertise as well as be able to afford the innovation processes.

Finally, 67 (67%) of the respondents indicated their business was managed by persons who were not family members. Whereas, 33 (33%) of the respondents revealed that their businesses were managed by persons from their family.

5.2 Internal consistency and reliability

Owing to the aim of the study to identify factors constraining innovation among SMEs, the data collected were put under rigorous analysis to examine its reliability. In view of this, such analytical tool as the one sample t-test, KMO and Bartlett's Test were used to assess the data. In addition, in an attempt to ensure that only relevant and related variables were adopted for the study, the researcher employed factor analysis and Cronbach's alpha to assess the reliability of the constructs. This rigorousness was ensured to guarantee the reliability and validity of the outcome data. Furthermore, the researcher also used frequency tables and means to identify the factors constraining innovation.

Table 3 T-test of the statement in the question

Statement	Mean	Std. Deviation	*T*	df	ρ
Human related factors					
Resistance to change	2.9300	1.02745	28.517	99	.000
Poor working conditions	3.2400	.84232	38.465	99	.000
Poor communication	3.4200	.86667	39.462	99	.000
Weak management commitment	3.2200	1.10627	29.107	99	.000
Trust in the workplace	3.5300	.55877	63.175	99	.000
Commitment of employees	3.5400	.50091	70.672	99	.000
Culture and system related factors					
Lack of supportive culture	2.6700	1.01559	26.290	99	.000
Outmoded operational systems	3.1400	1.06382	29.516	99	.000
Little priority for innovation	3.0500	1.00880	30.234	99	.000
Long internal decisions	2.8100	1.03177	27.235	99	.000
Management time					
Owner has little time	3.1800	1.00885	31.521	99	.000
Too much work because of one man activities	3.4200	.69892	48.933	99	.000
Poor time management	3.5000	.70353	49.749	99	.000
Technical expertise					
Difficulty attracting qualified experts	3.3500	.84537	39.628	99	.000
Inadequate technical training of employees	3.1500	1.01876	30.920	99	.000
Difficulty in finding suitable human resources	2.9000	1.10554	26.231	99	.000
Financial factors					
Unfavorable bank credit conditions	2.8400	1.17825	24.103	99	.000
Lack of opportunity for cooperation	2.7800	1.04040	26.721	99	.000
High cost of innovation	2.9300	1.01757	28.794	99	.000
Limited internal resources	3.1300	.98119	31.900	99	.000
Supply related factors					
Limited access to research institution	2.2100	1.02784	21.501	99	.000
Access to technology providers	2.4300	1.06605	22.794	99	.000
Demand related factors					
Lack of consumer responsiveness to new product development	3.0500	1.12254	27.170	99	.000
Uncertain demand	2.6100	.99387	26.261	99	.000
Environment related factors					
Government market regulation policy	2.9000	1.11464	26.017	99	.000
Government bureaucracy	2.8500	1.11351	25.595	99	.000
Lack of government assistance	2.8800	1.09434	26.317	99	.000
Effect of technical standards on new product	2.8400	1.01225	28.056	99	.000
Government policy to assist small firms	2.8700	1.06983	26.827	99	.000
Short term economic, monetary and financial policies	2.8200	.97835	28.824	99	.000
Innovation too easily copied by competitors	3.0600	.93008	32.900	99	.000
Government taxation policy	3.2000	.65134	49.130	99	.000

Source: field data (2015)

5.2.1. T-Test and Reliability Analysis of Data

The t – test analysis shown in table 3 illustrates the standard deviations and means of the various variables adopted and adapted. The means and standard deviations were used to indicate the extent to which the respondents agreed or disagreed with the statements in the questionnaire. In order to assess the performance of each of the 100 respondents against the statements in the questionnaire, the mean scores of these constructs were considered and analyzed. As illustrated from table 3 above, the table summarizes the means scores, standard deviation, t-test, degree of freedom (df) and p-value of the t-test. The means score reflect the average of the scores of the respondents, whereas the standard deviation reveals how different and deviated the constructs are from each other. The t-test assesses how distinct each construct or statement is and ensures that an idea is not represented repeatedly in another construct. In other words, the t-test assesses the uniqueness of each variable and construct adopted. Furthermore, the p-value represent the level significance of that uniqueness between the variables.

In this respect, the highest means were attained by the following constructs- "employee commitment"; "trust in the workplace"; "poor communications"; "too much work because of one man activities" and "difficulty in attracting expertise". These statements attained such means as 3.5400, 3.5300, 3.4200, 3.4200 and 3.3500 respectively. While the highest was 3.5400 (employee commitment), the lowest mean was also found to be 2.2100 (limited access to research institutions). In this regards, the respondents opined that the greatest constraint of innovation is the low level of employee commitment, whereas, they also suggested that the limited access to research institution is rather a minor constraint. With respect to the standard deviation, the result shows a good dispersion between the

variables. The standard deviation ranges from 1.17825 to 0.50091, as the upper limit and the lower limit respectively.

Again, the t-values with their respective p-values revealed that the construct measured unique ideas and were significantly different from each other. In order to assess the construct validity of the variables adopted for the study, table 4 below shows the Bartlett test of Sphericity (Approx: Chi-square= 1074.033, *df*= 120, *p*< 0.001) and the KMO measure of sampling adequacy (Value of .855). This confirmed that the variables correlated well enough to warrant the performance of an exploratory factor analysis. Table 4 below displays the findings of the KMO test which was ran for the data obtained from the respondents. As indicated earlier, the KMO overall statistic of .855 suggest a high possibility that the variables measured are inter-correlated.

Table 4: KMO and Bartlett's Test of the questionnaire

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.855
Bartlett's Test of Sphericity	Approx: Chi-square	1074.033
	Df	120
	P	0.000

Some scholars posit that variables should have loadings greater than 0.5 in order to be considered for further analysis (Hair, Black, Babin, Anderson & Tatham, 2010). With regard to the social sciences and humanities, a variable with a low to moderate loading of 0.40 can be considered for further analysis. In this respect, Costello and Osborne (2005) explain that in such a situation, the researcher has the option of either considering the

relevance of the variable in the study or exploring additional variables that can strengthen the relationship and loading of the variable.

As shown in table 5 below, the variables, aside having some common variance also kept some unique variance attributable to only those specific constructs. This is illustrated by the communality values indicated in table 5 above. In addition, the table presents some results on the factor loadings of various constructs or variables. In this respect, most of the loading of the variables considered exceeded the accepted threshold of 0.70 (Asiedu & Sarfo, 2013). The variables loading ranged from 0.859 as the lower limit and 0.940 as the upper limit. This suggested high reliability for the variables considered in the current study.

Additionally, the table also shows the corrected inter-item correlation coefficient. Similar to the factor loading, these values also represent the correlation that exist between the variables and can simply understand as such. Even though some of the factor survived the factor analysis and loaded quite well, they could not survive the rigorousness of the corrected inter-item correlation coefficient scale. Ofori and Dampson (2011) note that depending on the sample, a threshold of 0.3 could be considered, whereas some scholars also suggest a threshold of 0.5. However, as a result of the sample size in this case (100 SMEs), all coefficients below 0.5 would not be considered for the current study. In this respect, 12 out of the 45 constructs were deleted from the data. In connection with this, two constructs each were deleted from the human and supply related factor categories, whereas one each was deleted from financial, management, environmental and culture related factors respectively.

In the relation to assessing the reliability of the variables, the study adopted the Cronbach alpha scale. In this regard, the current study found that all the alpha value for the 8 variables considered in the study were either equal or higher than the 0.7 threshold for Cronbach alpha values. Furthermore, this goes to prove the reliability and internal consistency of the data collected.

Table 5 Internal consistency and reliability

Statement	Communalities	Loading	Inter-item correlation	Alpha (α)
Human related factors				**.746**
Resistance to change	.826	.861	.595	
Poor working conditions	.839	.861	.574	
Poor communication	.940	.863	.500	
Weak management commitment	.810	.860	.539	
Trust in the workplace	.851	.866	.651	
Commitment of employees	.840	.866	.522	
Culture and system related factors				**.700**
Lack of supportive culture	.823	.863	.563	
Outmoded operational systems	.847	.858	.682	
Little priority for innovation	.844	.858	.703	
Long internal decisions	.808	.860	.612	
Management time				**.871**
Owner has little time	.912	.860	.608	
Too much work because of one man activities	.886	.862	.582	
Poor time management	.836	.861	.633	
Technical expertise				**.700**
Difficulty attracting qualified experts	.894	.862	.597	
Inadequate technical training of employees	.899	.858	.718	
Difficulty in finding suitable human resources	.917	.860	.542	
Financial factors				**.723**
Unfavorable bank credit conditions	.880	.860	.537	
Lack of opportunity for cooperation	.863	.860	.579	
High cost of innovation	.902	.861	.543	
Limited internal resources	.925	.860	.628	
Supply related factors				**.740**
Limited access to research institution	.922	.861	.543	
Access to technology providers	.844	.859	.666	
Demand related factors				**.751**
Lack of consumer responsiveness to new product development	.886	.859	.606	
Uncertain demand	.881	.859	.657	
Environment related factors				**.737**
Government market regulation policy	.890	.860	.571	
Government bureaucracy	.875	.859	.635	
Lack of government assistance	.925	.859	.611	
Effect of technical standards on new product	.809	.860	.559	
Government policy to assist small firms	.896	.861	.521	
Short term economic, monetary and financial policies	.862	.861	.527	
Innovation too easily copied by competitors	.864	.862	.591	
Government taxation policy	.652	.866	.050	

Table 5 further presents findings on the Cronbach alpha values of the variables of the study. As shown above, the alpha values ranged from 0.70 and 0.871 as the lower limits and the upper limit respectively.

5.3. Internal factors constraining innovation among SMEs

In relation to the first objective of the study, the current study sought to identify the internal factors constraining innovation among SMEs in Ghana.

Table 6 Internal factors constraining innovation

Statement	Mean	Composite Mean
Human related factors		**3.3133**
Resistance to change	2.9300	
Poor working conditions	3.2400	
Poor communication	3.4200	
Weak management commitment	3.2200	
Trust in the workplace	3.5300	
Commitment of employees	3.5400	
Culture and system related factors		**2.9175**
Lack of supportive culture	2.6700	
Outmoded operational systems	3.1400	
Little priority for innovation	3.0500	
Long internal decisions	2.8100	
Management time		**3.3667**
Owner has little time	3.1800	
Too much work because of one man activities	3.4200	
Poor time management	3.5000	
Technical expertise		**3.1333**
Difficulty attracting qualified experts	3.3500	
Inadequate technical training of employees	3.1500	
Difficulty in finding suitable human resources	2.9000	
Financial factors		**2.9200**
Unfavorable bank credit conditions	2.8400	
Lack of opportunity for cooperation	2.7800	
High cost of innovation	2.9300	
Limited internal resources	3.1300	

(*Null constraints-0.0001-1; Low constraints-1.0001-.2; Moderate constraints -2.0001-.3; High constraints -3.0001-4*)

Table 6 displays the internal contributors to the lack of the low level of innovation among SMEs. In this regard, the researcher categorized the internal factors under five distinct groups, namely; management time related, human related, financial related, technical expertise related and culture and system related factors. The means for the internal contributors ranged from 3.3667 to 2.9175 as the upper limit and the lower limit. Thus, within the scope of the internal factors constraining innovation, the respondents hold the view that management of time related factors are the most impactful blockage of innovation, while culture and system related factors were considered as the least impactful constraints of innovation among SMEs in Ghana. This goes to suggest that while respondents suggest that poor time management is a major constraint of innovation among SME, they also opine that culture and system related factors mildly to the low level of innovation among SMEs. Human related factors were viewed by the respondents as the next most impactful constraints of innovation with a mean value of 3.3133. This was followed by technical expertise (3.1333) and financial related factors (2.9200) respectively.

With regard to the human related factors, the study found that the most impactful constructs were the employee commitment and trust in the work place, with means of 3.5400 and 3.5300 respectively. This goes to shows that in a developing nation context, employee commitment and trust within the work place can siphon innovation and creativity. The low commitment to the organization's vision and mission could prevent the employees from suggesting innovative ideas as well as spending time to think through the organization's processes to suggest some innovations. Again, the low trust in the workplace could be as a result of low management commitment to employees, poor working conditions and poor communication. In view of the current study also identified

poor communication (3.4200) and poor working condition (3.2400) as highly impactful constraints of innovation. In order words, the current researcher is of the view that trust in the workplace is identified by the respondents as a high constraint of innovation because it is an underlining factor that may affect several other factors as well as culminate into a weak management system.

With regard to culture and system related factors, among the variables that emerged as constraints of innovation, outmoded operational systems (3.1400) and the little priority for innovation (3.0500) were identified as the most impactful constraints of innovation. With regard to the outmoded operational systems, the current researcher suggests that most SMEs use outmoded management systems, organizational structure and still holds on to the outmoded informal ways of managing a firm without accountability or any checks and balances. This ultimately leads to over reliance on the owner-manager, bureaucracy and delay in the internal decision making processes (2.8100). "Delay in the internal decision making processes" was also identified as a moderate impact constraint of innovation.

All three of the variables considered under the management time related factors were identified as high impact constraints of innovation, namely; owner has little time (3.1800), too much work because of one man activities (3.4200) and poor time management (3.500), as these construct recorded a mean greater than 3.0. Among these three, the respondents identified that "too much work because of one activities" was the most impactful constraint of innovation as it had the highest mean. This goes to affirm the fact that most SMEs in Ghana, in spite of having other employees, have most of their activities centered on the owner-managers, leaving such persons with a very heavy work load and very little

time to plan for any future innovations. Additionally, for the same reason as mention in the latter, most owner-managers are not able to plan and manage their time.

The study also found that two variables under the technical expertise related factors were found to be high impact constraints of innovation, namely, difficulty attracting qualified experts (3.3500) and inadequate technical training of employees (3.1500). According to the current researcher, this goes to affirm the point that technical know-how is important for innovation, as employees would have to understand the processes of the service or manufacturing, if they are to effectively think through for an innovative idea. The result also shows that the respondents indicated difficulty in finding suitable human resources as a moderate impact constraint of innovation.

Finally, with regard to the financial related factors, the study identified that "limited internal resources" was viewed by respondents as a high constraint of innovation with a mean of 3.1300. In this same section, the current study identified that three of the variables under the financial related factors were moderate constraints of innovation in SMEs. These include "unfavorable bank credit conditions" (2.8400), "Lack of opportunity for cooperation" (2.7800) and "high cost of innovation" (2.9300). The current study suggests that SMEs experience limited internal resources as a result of the low plough back profit from the business. In other words, SMEs are not able to set aside enough of their present profits for future projects and programs. Relating the internal factors to the external factors identified in the current study, one could possibly suggest that SMEs have limited internal resources as a result of some adverse environmental factors such as a high taxation policy, which squeezes out all the profit from the SMEs and reduces their working capital.

5.4. External factors constraining innovation among SMEs

In addition to the internal constraints of innovation identified, the current study in relation to its second objective also specified via its data analysis some external constraints of innovation. In this respect, the external contributing factors were grouped under three broad categories namely supply related, demand related and environmental related factors.

Table 7 External factors constraining innovation among SMEs

Statement	Mean	Composite Mean
Supply related factors		**2.3200**
Limited access to research institution	2.2100	
Access to technology providers	2.4300	
Demand related factors		**2.9000**
Lack of consumer responsiveness to new product development	3.0500	
Uncertain demand	2.6100	
Environment related factors		**2.9314**
Government market regulation policy	2.9000	
Government bureaucracy	2.8500	
Lack of government assistance	2.8800	
Effect of technical standards on new product	2.8400	
Government policy to assist small firms	2.8700	
Short term economic, monetary and financial policies	2.8200	
Innovation too easily copied by competitors	3.0600	
Government taxation policy	3.2000	

(*Null constraints-0.0001-1; Low constraints-1.0001-.2; Moderate constraints -2.0001-.3; High constraints -3.0001-4*)

As indicated from table 7, generally, government taxation policy was found to have the highest mean (2.9314), suggesting it is the highest external contributing variable to low level of innovation among SMEs. This could possibly be as a result of its impact on the working capital of SMEs. As these firms are not able to plough back enough of their profit because of high taxes, hence, resulting in limited internal resources. On a broader spectrum, the environmental related factors were found to be the highest constrains of innovation among SMEs, with a mean of 2.9314. It is also important to note that per their means, all the broad categories of external constraining factors namely, supply related

(2.3200), demand related (2.9000) and environmental related factors (2.9314) were identified as moderate constraints of innovation.

With respect to the supply related constraining factors, "access to technology providers" and "limited access to research institution" were identified as moderate constraints of innovation. However, among the two, access to technology providers was identified by the respondents as the most dominant constraining construct. The current author suggests that most of the ultramodern equipment for such activities as packaging and processing are often not available in the local market and thereby requires strenuous efforts to acquire, in terms of cost and search.

The demand related factors had the second highest mean (2.9000). In this regard, two constructs namely "lack of consumer responsiveness" and "uncertain demand" were considered under this category. Among the two, Lack of consumer responsiveness to new product development was identified as the most impactful constraint of innovation with a mean of 3.0500. This mean suggests that this construct is a high constraint of innovation. The respondents also indicated that "uncertain demand for innovation" was a moderate constraints of innovation, with a mean of 2.6100.

Furthermore, most of the respondents agreed that the environment related factors were the most dominant constraints of innovation (2.9314). In this category, government taxation policy placed first on the list of contributors and was identified as a high contributing construct to the low level of innovation. This could partly be because high taxes leaves the firm with very little internal resources to plan and plough back into the business for possible future innovations. Another high constraining construct identified was

"innovation too easily copied by competitors", with a high mean of 3.0600. This construct suggests that firms are discouraged to undertake any form of innovation because of the fear that their innovation will be easily imitated by their competitors. This is as a result of the weak patent and copyright system in Ghana.

Additionally, most of the respondents specified that government market regulation (2.9000), government bureaucracy (2.8500) and lack of government assistance (2.8800) contributed substantially to the low level of innovation among SMEs in developing economies like Ghana. The current researcher suggests that the lack of government assistance could be as a result of the lack of government aid in ascertaining external financial support as well as advisory support. Moreover, government's strict and stringent registration procedures could also account for the lack of assistance as well as government bureaucracy.

Table 8 Magnitude of contribution of the factors to the low level of innovation

Factors	Magnitude of contribution					
	Null contributors	Low contributors	Moderate contributors		High contributors	
Human related	-	-			**3.3133**	**(2)**
Culture and outmoded systems related	-	-	**2.9175**	**(6)**		
Technical expertise					**3.1333**	**(3)**
Management time related	-	-			**3.3667**	**(1)**
Financial related	-	-	**2.9200**	**(5)**		
Supply related	-	-	**2.3200**	**(8)**		
Demand related	-	-	**2.9000**	**(7)**		
Environmental related	-	-	**2.9314**	**(4)**		

(*Null constraints-0.0001-1; Low constraints-1.0001-.2; Moderate constraints -2.0001-.3; High constraints -3.0001-4*)

Table 8 displays the magnitude of the impacts these internal and external factors have on innovation, whether as null, low, moderate and high constrains. In addition, the various composite means of the factors were ranked to demonstrate their comparative impact on the low level of innovation. With respect to the magnitude of impact of the factors, respondents were required to indicate the level of impact the various constructs had on their innovation process, ranging from 1 to 4. With 1, 2, 3 and 4 representing "no constraint (null); low constraint factors; moderate constraint factors and high constraint factors respectively. In view of this, a factor's composite mean was used to determine whether that factor had high, moderate, low or no contribution to the low level of innovation among SMEs.

Three of the factors identified in the current study were specified as high constraints of innovation, with management time related issues being the highest constraints of innovation. This was followed by the human related factors and technical expertise related factors respectively. Additionally, five of the factors identified via the current study were moderate constraints of innovation among SMEs.

None of the factors was identified as a "null constraints" or "low constraints"; further suggesting that all the factors have some degree of impact on the low level of innovation. Another interesting finding emerging from the data analysis is that three of the factors identified as high constraints of innovation were all the internal factors. This findings goes to suggest that the internal factors affects innovation more than the external factors. Again, since most of the internal factors are controllable factors, this somewhat suggest SME owner-managers are perhaps not doing much to be innovative.

5.5. Discussion of results

According to first objective of the study, the current researcher seeks to identify the internal constraints of innovation among SMEs in Ghana. In this respect, the current study identified five categories of factors constraining innovation, namely financial related, technical expertise related, culture and system related, management time related and human related factors. These factors were also affirmed as internal constraints in the works of scholars like Piatiers (1984), Hadjimanolis (1999) and Madrid-Guijarro (2009). Additionally, some scholars have also identified most of these factors as important constraints of innovation, which have resulted in the low level of innovation among SMEs, even though, most of these scholars did not adopt the internal and external classification (Blanchard et al, 2012, Lekovic, 2013).

With regard to the individual internal factors, the management time related factors were identified as the highest constraints of innovation. These factors include such constructs as "one man activities" and "little owner time". This finding suggests that management time related factors are important when it comes to innovation among SMEs in developing economies like Ghana. In extant literature, Hadjimanolis (1999) and Saatcioglu and Ozmen (2010) identified time management as one of the important internal factors constraining innovation, as it constrains innovation among SMEs. According to findings from Hadjimanolis' study, which was conducted in an underdeveloped nation, time management was identified as the most important internal factor constraining innovation. Additionally, Loewe and Dominiquini (2006), also in relation to time management, explains that as a result of poor time management, SMEs are not able to set aside time for new product development. This affirmation in literature from various developed and

underdeveloped countries suggest time related factors are important contributing factors in all these context.

In connection to the human related factors, which were identified as the second most important internal constraining factors to low level of innovation, the current study notes that such factors as employee commitment and trust in the workplace contribute enormously to the low level of innovation among SMEs. These two variables (employee commitment and trust in the workplace) had the highest individual construct means (compared with other constructs) respectively. This result is partially affirmed in previous literature; for example Madrid-Guijarro et al (2009) notes that weak management commitment can contribute to constraining innovation among SMEs.

In addition, Acemoglu and Pishke (1999) notes that employee commitment is necessary for successful innovation adoption. Even though these findings were closely related to the findings in the current study, the former focused on only management commitment and innovation adoption respectively. However, the finding in the current study focuses on employee commitment, innovation creation and adoption. In this respect, the current researcher is of the view that this suggest a contextual difference between factors constraining innovation in developed economy and developing economies, this variable was identified in previous literature.

Again, the current study found that the lack of technical expertise was also the third most impactful constraint of innovation among SMEs. It was identified as a high constraints of innovation. The findings from the current study revealed that SMEs found it difficult to attract qualified expertise and did not have adequate training for their employees. This

results were also accentuated by Baldwin and Lin (2002), who also added that aside constraining innovation, lack of technical expertise may result in resistance to innovation. In addition, Freel (2000) and Baldwin and Lin (2002) also explain that lack of expertise in SMEs is often associated to limited financial resources.

Financial related factors were also identified as one of the impactful internal contributing factors to low level of innovation among SMEs. In the current study, it was identified as a moderate constraint of innovation. This was also in line with previous literature in this area. For example, some scholars suggest it is the most common internal factor that inhibits innovation (Segerra-Blasco et al., 2008; Larsen & Lewis, 2007).

Additionally, culture and system related factors such as lack of supportive culture and little priority for innovation were identified as factors constraining innovation among SMEs. In affirmation to the finding to the current study, Saatcioglu and Ozmen (2010) note that one factor that inhibits the flow of the innovation process, particularly in the second stage of the process, is the lack of a supportive culture and system.

In an attempt to answer the second objective, the current study identified some of the external factors constraining innovation among SMEs in Ghana. In view of this, three factors were identified namely the supply related, demand related and environment related factors. This finding is in line with the finding of Hadjimanolis (1999), who first categorized these factors under the above heading.

With regard to the individual external factors, the environmental factors was found to be most impactful constraining factor, with the highest mean. On the whole, the factors were

identified as moderate constraints of innovation among SMEs. These factors included such items as "government market regulation", "government bureaucracy", "innovation being too easy to copy", "lack of government", "government taxation policy" and several others. In this respect, "government taxation policy" was found to be most impactful constraining item under the environmental category, even though, this construct was not singularly assessed in most previous studies. This was followed by "innovation being too easy to copy" and "government market regulation". These results are well supported in previous literature; Hadjimanolis (1999) noted government market regulation and lack of government support as important constraints of innovation. This was also affirmed by Piatier's (1984), Galia and Legros' (2004) and Frenkel (2003) works; who also noted that lack of government assistance for SMEs via the enacting of market regulation and policies that enhance innovation was very important factors constraining innovation among SMEs. Additionally, the current study also noted that competition and "innovation being easy to copy" were identified as important constraints of innovation (Baldwin & Lin, 2002; Hadjimanolis, 1999).

The supply related factors were found to be the second most important external factor that contribute to the low level of innovation. These include such construct as limited access to technology providers as well as limited to access to research information, further culminating into the lack of information and lack ultramodern technology for innovation. This finding is also supported in previous literature. Blanchard et al. (2012) notes that the reason most SMEs are not able to innovate is because of their lack of information, which is ultimately as a result of their limited access to research institution. Piatier (1984) also postulates a nexus between access to information and access the technology. The author explains that firms that have limited access to information as a result of lack of access to

research institution are not also likely to have knowledge of the right technological processes or tools that can be used to bring about innovation.

Finally, with respect to external factors, the current study also identified that demand related factors were also important constraints of innovation among SMEs. These factors were also identified as moderate constraints of innovation. The demand related factors includes such constructs as "lack of responsiveness to new products" and "uncertainty of demand". The current finding reveals that the "lack of responsiveness to new products" contributes more to the low level of innovation, as a result of its high mean. This finding is supported by some previous empirical evidence in the subject area. For example, Hadjimanolis (1990) reveals that 81% of 294 firms interviewed in Cyprus indicated that the lack of customer responsiveness to new products and processes were major hindrances to the pursuit of innovation. In relation to the market, Mohnen et al. (2008) notes that market uncertainty with regard to changes in customer needs and taste, could be one of the inhibitors of innovation. Additionally, D'Este et al (2012) also affirms Mohnen et al.'s notion by explaining that a firm requires a comprehensive understanding of the market need coupled with other factors in order to have a successful innovation.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter provides a summary of all results analyzed, presented and discussed. Additionally, drawing from the results of the current study, the researcher illustrates the major findings as well as conclusions from the study. Furthermore, the chapter proposes recommendations from the findings of the study and draws managerial, policy and industrial implications of the current research.

6.2 Summary of Results

The current study sought to investigate the factors constraining innovation among SMEs in developing economies using Ghana as a case in point. In this respect, the current researcher investigated the internal and external factors constraining innovation among SMEs. The current study has aided the contextual comprehension of contributing factors to the low level of innovation among SMEs, as similar studies have been undertaken with respect to underdeveloped economies (Hadjimanolis, 1999) and developed economies (Madrid-Guijarro et al., 2009; Blanchard et al., 2012). In view of this, a study focused on developing economies like Ghana has contributed some insight in the subject area.

A consideration of the demographic characteristics of the respondents for the study, who were owner-managers of SMEs revealed that approximately one out every two respondents had attained formal education up to the tertiary level. This suggested a changing trend in SME development and entrepreneurship, which has seen more graduates being pushed to set up their own firms as a result of the high unemployment rates in

Ghana. Again, the study identified the sectors under which the respondent operated. In view of this, three sectors were considered, namely: agri-business, manufacturing and services. The result showed an approximated ratio of 3:2 for the service and manufacturing sector respectively. This turns to affirm the notion that the Ghanaian SMEs sectors has more firms in the service sector than in any other sector (Ghana Banking Survey, 2013). None of the firm considered in the study belonged to the agri-business sector.

With regard to the number of employees, the finding also revealed an approximated ratio of 3:2 illustrated the fact that two-third of the total respondents were within the ranges of 5 and 10 years. The threshold of five suggested only SMEs in the formal sector were considered. With regard to the years of operation, 7 out of 10 had existed for 1 to 5 years, while the same proportion of respondent also indicated their firms were controlled by managers who were not relatives.

With respect to the methodology adopted, the current study adopted a cross sectional and mixed method approach that considered a sample size of 100 respondents. The unit of analysis were SMEs with more than five employees as well as a maximum starting capital of $5000 (Quaye & Acheampong, 2013). This inclusion criteria ensured that only SMEs in the formal sector were considered. Additionally, the study adopted both the convenience and purposive sampling approach. The purposive sampling approach was used to select the qualified SMEs, while the convenience sampling was used to select only firms in the Greater Accra Region.

With respect to the finding, the study identified eight categories of factors constraining innovation among SMEs in Ghana. Five of the factors identified were classified as internal constraining factors, whereas the remaining three fell under external constraining factors. With regard to these categories, management time related factors were identified as the most impactful constraining factors of innovation, followed by the human related and technical expertise related factors respectively. Additionally, the current study also made some contextual in-roads; in that the findings suggested that employee commitment and trust in the workplace are very important factors in developing economies like Ghana with respect to innovation.

6.3 Discussion of major findings

The study sought to identify the factors constraining innovation among SMEs in Ghana. In connection to the above, the current study established two main objectives that aided its investigation. These objectives includes an attempt to identify the internal and external factors constraining innovation among SMEs. With respect to the objectives of the current study, this session attempts to highlight some of the peculiar findings in the light of previous literature, in order to establish the deviation as well as affirmation of previous scholarly results in the field.

6.3.1 Internal factors constraining innovation

With regard to the individual internal factors, the management time related factors were identified as the highest constraints of innovation. This finding revealed that most formal SMEs, in spite of having more than five employees were characterised by “one man activities” and “little owner time”. This offered these SMEs no opportunity to plan as well

as implement innovation, as most of these firms do not have systems that can enable innovation without the owner-managers. These findings were also supported by Hadjimanolis (1999) and Saatcioglu and Ozmen (2010). This affirmation in literature from various developed and underdeveloped countries suggest that management time related factors are important contributing factors in all these context.

The human related factors were identified as the second most important internal contributing factors to the low level of innovation. This factor revealed that weak management commitment to innovation and employee commitment to the firm, coupled with lack of trust at the workplace are individually and collaboratively very impactful constraints of innovation. In relation to previous studies, this result is partially affirmed in previous literature (see for instance, Madrid-Guijarro et al, 2009). Even though several human related factors have been affirmed in previous literature, employee commitment to the organisation as well as trust in the workplace seem to be peculiar to developing countries, as these are rarely mentioned in previous studies focused on developed and underdeveloped economies.

Again, the findings from the current study revealed that SMEs found it difficult to attract qualified expertise and did not have adequate training for their employees, thus, SMEs lack technical expertise. This results were also accentuated by Baldwin and Lin (2002), who also added that aside constraining innovation, lack of technical expertise may result in resistance to innovation because they feel technically inadequate to carry out the innovation. Financial related factors were also identified as one of the impactful internal contributing factors to low level of innovation among SMEs. This was also in line with previous literature in this area (Segerra-Blasco et al., 2008; Larsen & Lewis, 2007).

Additionally, culture and system related factors such as lack of supportive culture and little priority for innovation were identified as factors constraining innovation among SMEs. In affirmation of the current findings, Saatcioglu and Ozmen (2010) note that one factor that inhibits the flow of the innovation process, particularly in the second stage of the process, is the lack of a supportive culture and system.

6.3.2 External factors constraining innovation

In an attempt to answer the second objective, the current study identified some of the external factors constraining innovation among SMEs in Ghana. In view of this, three factors were identified namely the supply related, demand related and environment related factors. This finding is in line with the finding of Hadjimanolis (1999), who first categorized these factors under the above heading. These factors were also accentuated in Piatier's (1984) landmark study of the barriers to innovation.

With regard to the individual external factors, the environmental factors was found to be most the impactful constraints of innovation. This factor considered such items as "government market regulation", "government bureaucracy", "innovation being too easy to copy", "lack of government support", "government taxation policy" and several others. Hadjimanolis (1999) noted government market regulation and lack of government support was an important constraints of innovation. This was also affirmed by Piatier's (1984), Galia and Legros' (2004) and Frenkel (2003) works; who also noted that lack of government assistance for SMEs via the enacting of market regulation and policies that enhance innovation was a very important factor contributing to the low level of innovation among SMEs. Additionally, the current study noted that competition and "innovation

being easy copy" were identified as important constraints of innovation (Baldwin & Lin, 2002; Hadjimanolis, 1999).

"Government taxation policy" was found to be most impactful contributing item considered under the environmental category and the external factors as a whole. Even though, this construct was not singularly assessed in most previous studies. However, Xie et al. (2010) in discussing how to overcome barriers to innovation posits that a "preferential tax policy" is the best approach to encouraging innovation among SMEs.

The supply related factors were found to be the next impactful external factors constraining innovation after the environment related factors. These include such constructs as "limited access to technology providers" as well as "limited to access to research information", further culminating into the lack of information and lack ultramodern technology for innovation. This finding is also supported in previous literature. Blanchard et al. (2012) notes that the reason most SMEs are not able to innovate is as a result of their lack of information, which is ultimately as a result of their limited access to research institution.

The current study also identified that demand related factors were also important constraints of innovation among SMEs. These factors include such constructs as "lack of responsiveness to new products" and "uncertainty of demand". The current finding reveal that the "lack of responsiveness to new products" item as the most impactful constraints of innovation among SMEs. This finding is supported by some previous empirical evidence; see for instance, Hadjimanolis (1990), Mohnen et al. (2008) and D'Este et al (2012).

6.4 Conclusion

The current study was hinged on the subject matter of innovation and small and medium scale enterprise (SME) sector in Ghana. Consequently, it sought to investigate factors constraining innovation among these firms. Furthermore, the current study aimed at identifying the internal and external factors constraining innovation among SMEs.

In this respect, the current study identified five categories of internal factors constraining innovation among SMEs in Ghana namely management time related, human related, technical expertise related, culture and system related and financial related factors. Consequently, management time related factors were identified as the most impactful contributors, as most SMEs in Ghana are structured as one man activity businesses. This goes to suggest that even though most of these SMEs have not less than five employees, there is very little delegation, probably as a result of the lack of trust in the workplace. This "one man activity business" phenomenon has also resulted in limited owner time to plan for future innovation.

The management time related factors was followed by the human related factors. In this regard, the study found that employee commitment and weak management commitment to innovation as well as lack of trust at workplace are very important issues constraining innovation. These findings suggest that in developing economies like Ghana, the low level of innovation among SMEs are as a result of the low employee commitment to the vision and mission of the firms and lack of trust among management and employees.

Also of note, the current study found that technical expertise related issues followed human related factors in terms of level of contribution to the low level of innovation. In

connection to this, the study found that it was very difficult for SMEs as a result of their limited internal resources to attract highly qualified experts.

Even though the financial related issues were ranked among the top three constraints of innovation in some previous studies in developed nations, it proved less impactful in a developing economy like Ghana, as the factor ranked fifth among eight categories of factors. This suggest that even though, this variable is rightly identified as a constraint of innovation, other factors such as management time related, human related, technical expertise related and environment related factors are more important issues in the developing economies' context.

With regard to the external factors constraining innovation, the current study identified three main factors namely demand related, supply related and environment related factors. Environment related factors were identified as the most impactful constraints of innovation. In this regard, the high taxation policy and easiness of innovation to be copied were found as the main cause of the environmental challenges.

In short, the current study, even though revealing some similar findings as those indicated in previous literature, the study also identified peculiar factors, which either vary in intensity or are not considered in most of the previous studies. For example, financial related factors were identified to be less intensive compared to findings of some landmark studies like Madrid-Guijarro (2009) and Hadjimanolis (1999). Again, employee commitment and trust in workplace were identified under the human related factors as one of important issues impeding SME innovation. However, management time related factors

were equally found to be important in developing, underdeveloped and developed economy contexts.

6.5 Recommendations

The current study focused on identifying the factors constraining innovation among SMEs in Ghana, hence the study has immense implication for both practice and academia. Furthermore, on the basis of the findings of the current study, the researcher posits the following recommendations:

- The current study found that poor time management was identified as the major constraints of innovation in Ghana. In view of this, Management of SMEs must learn to plan their time and to apportion time to the innovation process. Government and other agencies that purport to aid SMEs growth and development, especially with regard to innovation must focus some of these trainings on time management practices. Again, SME owner-managers must learn to delegate some of their activities to their subordinates. This would require these owner-managers to ensure their employees are well trained and trustworthy.

- Management must endeavor to build an environment of trust amongst employees and top management. In addition, the management must work hard to improve employee commitment to the organization as well as management commitment to employees and innovation. In this respect, some scholars suggest that management must be trained to adopt some internal marketing practices. These include enhancing internal communication; motivating; training and empowering firm's employees.

- The finding of the study also show that firms indicate limited internal resources as one of the constraints of innovation among SMEs. This, according to the current author could be as a result of the taxation policy, which as a result of its high rates does not allow SMEs to have high working capital, as much of the revenue generated is used to settle their tax obligations. In view of this, the current study recommends a preferential taxation system as posited by Xie et al (2010). This policy suggest that government should impose lighter tax burdens on SMEs.

- The study also found that the belief that innovation was easily copied by competitors was one of the major environment related factor contributing to the low level. This belief does not allow SMEs to want to invest in innovation, because of the lack of well-structured patent and copyright laws as well as enforcement. In this view, the current researcher recommends that government must work to improve the patent and copyrights laws as well as ensure the enforcement of such laws.

- Even though the findings from the current study indicated that financial related factors were not one of the top priority hindrances (top three contributors), it was still identified as one of the constraints of innovation among SMEs in Ghana. The current study recommends that SMEs can consider collaborative innovations. This means that SMEs in the same or complementary industries can collectively fund innovations, so as to reduce the risk involved.

- With regard to the supply related factors, the findings of the study revealed the lack of access to research institutions and technology providers as the main constraining

factors. In this respect, the current researcher suggests that research institutions like universities and government research institutions must form collaborative partnerships with SMEs, so as conduct researches that can reveal findings that will enhance SMEs growth and development via innovation. Furthermore, with regard to access to technology and technology providers, government can finance the acquisition of expensive ultramodern equipment for SMEs either as grants or loans to be repaid by these firms. In addition, government can, with the aid of its ministries and foreign department facilitate interaction between foreign technology providers and local SMEs firms. Furthermore, the government must endeavor to provide an enabling environment that can encourage such foreign technology providers to set up branches in Ghana, in order to enhance their accessibility to the SME firms.

6.4 future research directions

Future and further studies could consider to

- Assess the inter-variable relationship between the factors that contributes to low level of innovation to identify possible links
- Investigate the nexus between firm/ owner-manager characteristics and the factors constraining innovation
- To assess the relationship between components of employee commitment and firm innovativeness.

6.5 Research limitations

The scope of the study was limited geographically and numerically in terms of the sample size; as the researcher is considering using only 112 SME owners within the Greater Accra region. However, this is not likely to affect the representativeness of the result, as the capital city has the concentration of a variety of SMEs within the catchment area. In addition, a sample size of 112 SME owners is assumed to be sufficient, as several studies have used figures around this figure (Freel, 2000). Moreover, the study was limited in terms of time and finances because a study of this nature requires larger samples and considerably more time and money to complete it.

In order to increase the credibility of the current study, it would have been appropriate to provide for the readers, a copy of NBSSI listing, which was used as the sampling frame for the current study; however, this document is too voluminous. The database had listed more 10,000 SMEs in Accre alone as of 2006. Hence, the database could not be added.

With this in mind, the researcher endeavored to work within the time apportioned for the study. Despite these inadequacies, the generalizability of the results to the target population was not compromised.

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APPENDICES

Appendix A- Questionnaire

The current researcher seeks to investigate some of the factors affect our effort to innovate; either in our attempt to introduce new products, change management style or reform business model. Listed below are some of common factors that affects innovation and innovators. In view of this, the researcher seeks to interview business owners or key managers of SMEs. Please indicate the ones that are peculiar to your organization or affect your organization. Confidentiality is held as prime in this study and your interest is protected.

Education: (a) Primary (b) Secondary (c) Professional Training (d) Tertiary

Control of activities: (a) Controlled by a Family (b) Managers who are not relatives

Type of innovation undertaken by your firm in the last three years:

Changes or Improvements in the Current Products: (a) Yes (b) No

Market New Products (a) Yes (b) No

Changes or Improvements in Manufacturing Processes (a) Yes (b) No

Acquisition of New Equipment (a) Yes (b) No

Changes or Improvements in Management Issues (a) Yes (b) No

Changes or Improvements in Purchases or Provisioning (a) Yes (b) No

Changes or Improvements in Sales (a) Yes (b) No

Sector: (a) Manufacturing (b) service (c) Agro sector

Number of employees: (a) 5-10 (b) 11-20 (c) 21-30 (d) 31-40 (e) 40 and above

Years of operation: (a) 1-5 (b) 6-10 (c) 11-15 (d) above and 16

Please indicate how these statements impact or affect innovation in your firm:

Statement	**Has no impact**	**Low impact**	**Moderate Impact**	**High impact**
INTERNAL FACTORS				
Human nature related factors				
Resistance to change				
Poor working conditions				
Poor communication				

Weak management commitment				
Concern for job security				
Trust at workplace				
Attitude to work				
Employee commitment				
Culture and system related factors				
Lack of supportive culture				
Statement	**Has no impact**	**Low impact**	**Moderate Impact**	**High impact**
Outmoded operational systems				
Bureaucracy				
Little priority for Innovation				
Long internal decisions				
Management time				
Limited time period for new product development				
Manager or owner have little time				
Too much work load as a result of one man activities				
Poor time management at times				
Technical expertise				
Difficulty in attracting qualified expertise				
Shortage of skilled labour				
Inadequate university education of employees				
Inadequate technical training of employees				
Difficulty in finding suitable human resource				
Financial factors				
Unfavorable bank conditions on credit				
Rigid bank policies				
Lack of opportunities for cooperation with other firms				

and technological institutions				
High cost for implementing and monitoring innovation				
Limited internal resources				
EXTERNAL				
Supply related factors				
Problems with inputs (raw material and component)				
Lack of testing institution				
Limited access to research institution				
Access to technology provider				
Demand related factors				
Lack of consumer responsiveness to new product				
Lack for market for new product				
High perceived risk				
Uncertain demand				
Size of local market				
Environment related factors				
Government market regulation policy				
Governmental bureaucracy				
Lack of government assistance				
Effect of technical standards on new product				
Government policy to assist small firms				
Foreign trade policy (import tariffs)				
Short term economic, monetary and financial policies				
Innovation too easily copied by competitors				

Appendix B: **Interview guide**

The current researcher seeks to investigate some of the factors affect our effort to innovate; either in our attempt to introduce new products, change management style or reform business model. Listed below are some of common factors that affects innovation and innovators. In view of this, the researcher seeks to interview business owners or key managers of SMEs. Please indicate the ones that are peculiar to your organization or affect your organization. Confidentiality is held as prime in this study and your interest is protected.

Education: (a) Primary (b) Secondary (c) Professional Training (d) Tertiary

Control of activities: (a) Controlled by a Family (b) Managers who are not relatives

Number of employees: (a) 1-10 (b) 11-20 (c) 21-30 (d) 31-40 (e) 40 and above

Years of operation: (a) 1-5 (b) 6-10 (c) 11-15 (d) above and 16

Gender: (a) Male (b) Female

Section B

1. What are some of the human related factors?
2. Is your innovative hindered by the culture and system related factors?
3. Does availability of time and management of time affect your productivity and innovation? Are you able to have time to think through some innovative things or you have do everything?
4. Does your present employee technical expertise have required skill that you need in order to be able try some of the innovative ideas you have? What is wrong? Are they difficult to find or difficult to train?
5. Do you have financial fire power to undertake your innovative ideas?
6. Do you have access to the raw material you need for the kind innovative things you want to pursue?
7. Do you think there is a market for your innovative idea?
8. Does the government policy affect you in anyway? Which environmental factors hinders growth and development?