

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,
KUMASI**

INSTITUTE OF DISTANCE LEARNING

**THE IMPACT OF SUPPLY CHAIN MANAGEMENT PRACTICES ON
THE PERFORMANCE OF SMEs IN THE MANUFACTURING
SECTOR: A CASE STUDY OF AKUAPEM NORTH MUNICIPAL
ASSEMBLY IN THE EASTERN REGION**

BY

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DECLARATION

I hereby declare that this thesis is the result of my original work towards the MSc. in Procurement and Supply Chain Management, and that to the best of my knowledge, it neither contains material published by another person nor materials which have been accepted for the award of any other degree of the University, except where due acknowledgments have been made in the text.

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DEDICATION

I wholeheartedly dedicate this thesis to my lovely sister, Mr. Princess Asiedu.

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My profound gratitude first of all, goes to the Almighty God for his strength and mercy throughout this work. Special appreciation also goes to my supervisor Dr Emmanuel Quansah for his excellent supervision, guidance and motivations which helped me to successfully complete this thesis. May God continue to bless and keep him.

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ABSTRACT

The main objective of this study was to examine the impact of supply chain management practices on the performance of Small and Medium Enterprises (SMEs) in the manufacturing sector in Akuapem Municipality. The study evaluated the effect of strategic supplier partnership, customer relationship management, level of information and supply chain postponement on performance of the SME firms. The study employed descriptive design and survey strategy together with quantitative approach to carry out the study. The purposive sampling technique was used to select 100 manufacturing SME firms operating in the manufacturing subsector of melting, fabricating, textiles including dress making, wood processing, food processors including gari operators, palm oil extractors, bread and pastries makers, sachet water producers. A convenient sampling method was used to select 3 workers from each of the 100 SME firms until a total sample size of 300 employees were selected and interviewed. The findings of the study revealed that there was a positive significant effect on strategic supplier partnerships, customer relationship management, business information sharing and supply chain postponement on the performance of the SMEs. But among these supply chain management practices, the most commonly used one is strategic supplier partnership and customer relationship management. The study is recommending that SMEs in Akuapem Municipality should adopt appropriate supply chain management practices to improve the performance of their firms.

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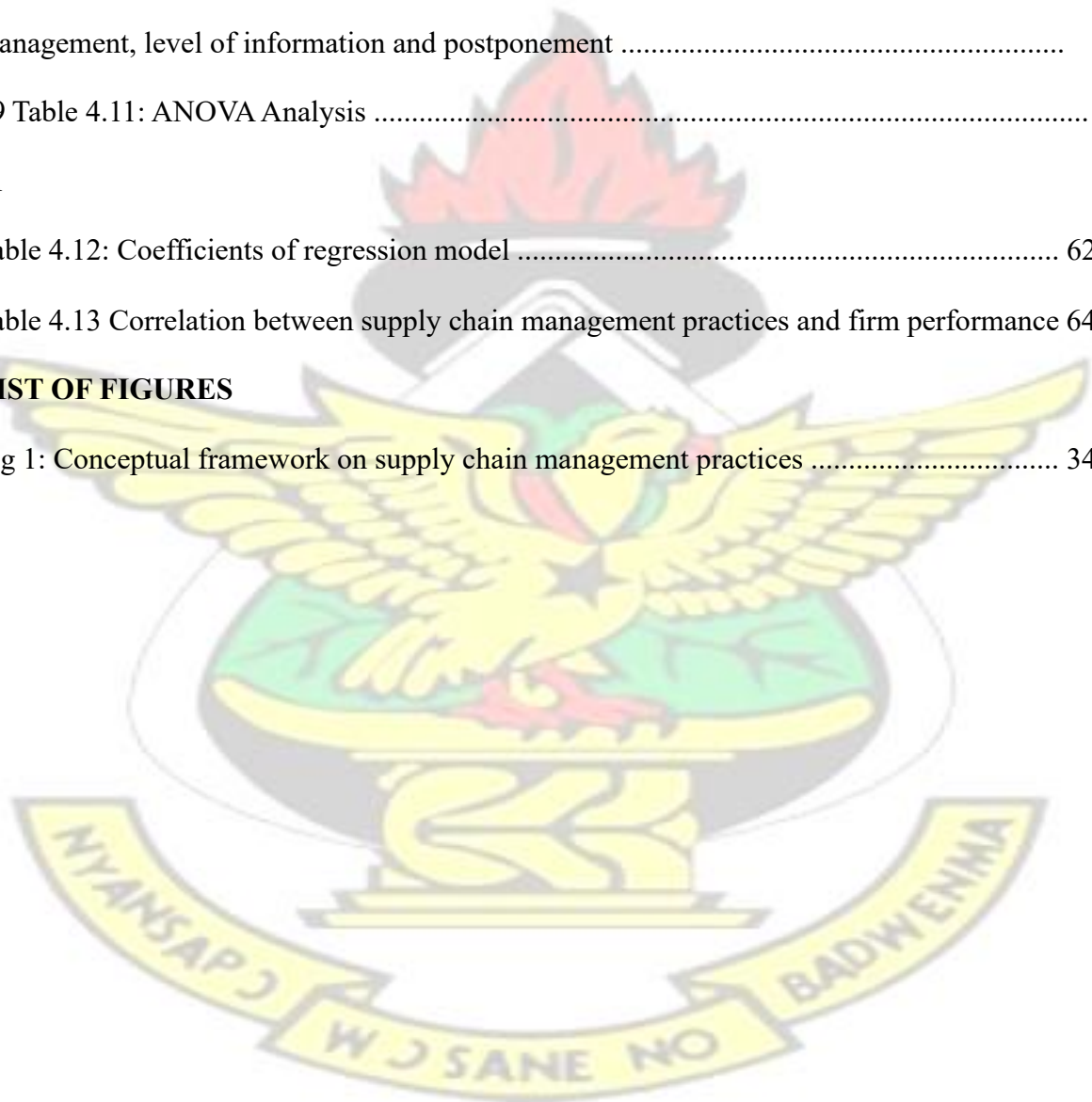
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LIST OF ABBREVIATIONS

SMEs	Small and Medium Enterprises
GDP	Gross Domestic Product
NBSSI	National Board for Small Scale Industries
SPSS	Statistical Package for Social Science
GSS	Ghana Statistical Service
TCA	Transaction Cost Analysis
EOQ	Economic Order Quantity
OECD	Organisation of European Commission on Development
RBV	Resources Based View
SCM	Supply Chain Management
CSCMP	Council of Supply Chain Management Professionals
UNDP	United Nations and Development Programmes

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Globalisation together with the development of information technology has created a high level of uncertainties among businesses across the world. It was argued by Hong and Jeong (2018) that firms and corporate entities throughout the world have no choice about the level of competition of business in the world but to improve their products and service delivery if they are to survive in business. Business to business competition is no more against firm to firm but the entire supply chain from upstream to downstream supply chain Hsu (2005). It means that businesses including Small and Medium Enterprises (SMEs) in the manufacturing sector have to manage their supply chain competitive strategies very well so as to survive in real business environment.

It was argued by (Nguyen, 2001 and Olutayo et al., 2015) that supply chain management practices play a very critical role as a key factor for an organization to gain competitive advantage and improve organizational performance. Therefore, organizations including SMEs in the manufacturing sector have begun to realize that it is crucial to have competitive supply chain management practices so that they are able to stay in the competitive global business environment. In this global business environment, the demands of customers are varied and complex, faster introduction of innovations and information technology together with shorter lead time and product life cycle. It implies that SMEs like all other business units should employ pragmatic supply chain management practices to respond to these various demands of the modern market environment.

It seems that inefficient supply chain management practices adopt by the SMEs in the manufacturing sector will reduce the rate of their competition, profit, mode of delivery and market share Abor & Quartey (2010). The type of supply chain management practices initiated and apply by management of the SMEs manufacturing firms in Ghana will respond to the level of their competition against the vibrant and large local firms as well as international corporate organisations. It is against this bedrock, that the present thesis wants to investigate the effect of supply chain management practices on the performance of SMEs in the manufacturing sector. The performance of the SMEs in the manufacturing sector are influenced by the forms, types and blend of supply chain management practices employ by the SME manufacturing firms (Agus & Noor 2017).

The SMEs in the manufacturing sector in developing countries like Ghana are catalyst to the growth and development of such countries. SMEs in the manufacturing sector in Ghana create jobs and employment to the teeming youth, innovations and industrial technology and value creation. The importance of supply chain management practices of SMEs has increased since it is now known as an important tool and driver for the striving SMEs to gain success in high competition Gibson, et al (2005). It seems that SMEs with demand driving supply chain management practices is likely to manage the needs of the target customers and the market in general for survival and sustenance (Gibson et al.; 2005, Kamau, 2011 and Quayle, (2003).)

1.2 Statement of the Problem

SMEs are the backbone of most economies in both developing and developed countries. The SMEs are the starting point of industrialisation in most countries by serving as subcontractors, suppliers of manufacturing products or materials and link to the large

industries. In the OECD countries, SMEs are the predominant form of enterprise, accounting for approximately 99% of all firms. They provide the main source of employment, accounting for about 70% of jobs on average, and are major contributors to value creation, generating between 50% and 60% of value added on average (OECD, 2017). In an emerging economy including Ghana, SMEs contribute up to 45% of total employment and 33% of GDP. When taking the contribution of informal businesses into account, SMEs contribute to more than half of employment and Gross Domestic Product (GDP) in most countries (IFC, 2010).

In Ghana, the SMEs are everywhere operating in various forms of businesses including manufacturing of all forms. The SMEs sector in Ghana is a major contributor to Gross Domestic Product (GDP), employment, incomes of households and poverty reduction in most communities especially the rural and poor urban communities Kasim et al., (2015). The sustenance of the economy is mostly dependent on the survival of the SMEs sector as most people are operating in this sector of the economy. For instance, most workers in the formal including public and private sectors of the economy of Ghana also have small firms to operate in order to improve their household incomes and livelihood.

It seems various studies on supply chain management have strongly established a positive strong relationship between supply chain management and performance of SMEs manufacturing firms Apopa (2012), Blowfield & Dolan (2010), Kasomi (2012) and Roath (2012) Gunasekaran, 2017. Moving away from this, the present study wants to investigate the effects of supply chain management practices on the performance of SMEs in the manufacturing subsector in Akuapem North Municipal Assembly.

It is argued that the SMEs business today is facing various forms of challenges including fierce competitions from the local large and international markets. In today's world of

small manufacturing businesses, the customer has various forms and degrees of expectations, more products with shorter life spans are produced or supplied, flexible mode of payments, difference in product packaging, flexible means of delivery and shorter lead times. It is argued that for the SME manufacturing firms to compete in these local and global markets, the firms need to re-organise and re-strategies their supply chain practices to reflect the demands of today's business. It is against this background that this study wants to assess the impact of supply chain management practices on the performance of SME firms operating in the manufacturing sector in the Akuapem North Municipal Assembly, Ghana.

1.3 Objectives of the study

The main purpose of the study is to assess the impact of supply chain management practices on the performance of SMEs in the manufacturing sub sector.

The specific objectives of the study include:

1. To determine the types of supply chain management practices, use by the manufacturing SMEs in Akuapem North Municipal Assembly
2. To examine the effect of supply chain management practices on the performance of manufacturing SMEs in the Akuapem North Municipal Assembly
3. To assess the challenges of adopting supply chain management practices by the manufacturing SMEs in the Akuapem North Municipal Assembly

1.4 Research questions

1. What are the types of supply chain management practices use by manufacturing SME firms in Akuapem North Municipal Assembly?

2. What is the effect of supply chain management practices on the performance of manufacturing SME firms in Akuapem North Municipal Assembly?
3. What are the challenges of adopting supply chain management practices by the manufacturing SME firms in the Akuapem North Municipal Assembly?

1.5 Overview of Methodology

The study will employ descriptive research design type and quantitative research approach. The study will use primary data that would be collected from the selected SMEs in the manufacturing sector in the Akuapem North Municipal Assembly. The sampling techniques that will be used include purposive and snowballing sampling methods. The snowballing technique means that one SME firm will be identified through purposive means and that firm will help in identifying the others in the same SME operations and business. And the cycle will continue until the required sample size is reached. About 220 SME firms will constitute the sampling size and will be contacted for the survey. The primary respondents will be managers or owners of the selected firms primarily because they have inside information about the firms. The descriptive and inferential statistics will be run to give meaning to the data collected. The Statistical package for Social Sciences (SPSS) version 24 will be used to capture, clean and run the data for further analysis.

1.6 Significance of the study

This study is justified through its contribution to theoretical and managerial contributions in the field of supply chain management practices among SMEs in the Manufacturing Sector.

Theoretically, the study will contribute to the body of literature on supply chain management practices and organisational performance within the SMEs sub-sector. It is

argued from the Resources Based View (RBV) perspective that SMEs with superior knowledge in supply chain management practices that are imitable can strongly out compete their competitors in the industry (Ensafian et al.; 2017, Finnsgård et al.; 2019, Ibrahim et al.; 2014, Gandhi et al.; 2017, Marhamati et al.; (2017).

Practically the study will contribute to managers and operators of SMEs in the manufacturing sub sector to identify and apply appropriate supply chain management practices to enhance the output of the SME manufacturing firms. It will also extend the body of knowledge on the supply management practices and organisational performance to the academia, policy think tanks and other researchers.

1.7 Scope of the study

The thesis would be undertaking within the jurisdiction of Akuapem North Municipal Assembly in the Eastern Region of Ghana. The main purpose of the study is to assess the impact of the supply chain management practices on the performance of SMEs in the study area. The study will be dealt with SMEs in the Manufacturing sector within the Akuapem North Municipal Assembly. The SMEs that will be specifically dealt with will include water manufacturers, metal fabricators, blocks constructions, iron sheets producers, wood processors and food processors. In each of the selected SMEs, the manager or owner and operations managers or officers of the firm would be interviewed through a structured interview questionnaire. The management of the firms are unit of analysis for the study because they know the inside and outside of the types and forms of supply chain practices that their firms are practicing. It seems that supply chain management practices are usually initiated, implemented and monitored by the management of the SME firms and hence are the depository of knowledge in the operations of the firms.

1.8 Limitations of the study

This present study is limited in scope and geographical coverage. As a result of the fragmentation nature of the study unit of analysis (SMEs), reaching them is a little bit challenging. The research will adopt the segmentation and classification of the SMEs by their regulatory body, National Board for Small Scale Industries (NBSSI) to manage the issues of their fragmentations. It seems studies involving collecting primary data from the SMEs is a little bit difficult due to their low level of formal education. As a result of this, the researcher will employ data collection assistants to translate the questions in the questionnaire into the local languages for better understanding and adequate responses by the respondents. The SMEs are geographically dispersed across the length and breadth of the study area. This means that sample representation should cover both the accessible and hard to reach areas of the study area. Notwithstanding this, the researcher will blend information technology tools with face to face interview to collect the needed dataset for the study.

1.9 Organization of the study

This thesis is structured into five major chapters. The chapter one covers the background of the study which include problem statement, research objectives, research questions, and significance, scope, limitations and organisation of the research. The second chapter would made up of the review of the related literature which include conceptual, theoretical and empirical perspective of the study. The third chapter focuses on the methodology of the study. The methodology of the study was made up of research design, study population, sampling techniques and methods, data collection methods and procedures, and finally data analysis and ethical considerations of study. The chapter four presents the results and

discussions of the study. Finally, the chapter five would conclude the study by presenting summary of key findings, conclusion and recommendations of the study.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section of the study is consisting of the review of the related literature. The literature reviewed were gathered under these thematic areas; conceptual review, theoretical review and empirical review. The conceptual review covered the definition of key concepts and terms, explanation of the types of supply chain management practices in the SMEs subsector. The theoretical review of the study identified the key theories underpinning the study. These theories are Resources Based View (RBV), institutional and transactional theories.

2.2 Conceptual review

This section explains the key concepts, terms and definitions of the study.

2.2.1 Definition of concepts and terms of the study

2.2.1.1 Supply chain

The concept of supply chain has been defined by various scholars differently. Lau and Lee (2000) define a supply chain as the establishment of a value chain network made up of distinct functional entities dedicated to supplying resources and information in order to meet the goals of effective supplier management and the flow of parts. From the starting point to the point of consumption, the supply chain encompasses the organization as well as suppliers, clients, and customers. The network often consists of a number of suppliers, including suppliers to suppliers, as well as a number of customers, including customers of customers.

The phrase "supply chain" can also be categorized as "demand chain" to reflect the idea that the market, not the providers, should be in charge of the chain. According to Michael Porter's (1985) "value chain" concept, firms should examine each activity in their value chain and determine whether or not they actually have a competitive advantage in that activity. The supply chain has expanded in length, complexity, and variety across industries and regions of the world.

2.2.1.2 The concept of supply chain management (SCM)

Depending on the goal and focus of the study, different authors have defined the notion of supply chain management in different ways. SCM is described by Christopher (2005) as the strategic view of materials and distribution management that highlights the advantages to the individual from the improvement in supply chain performance overall through the use of business processes that cut across functional and corporate boundaries.

Additionally, the Council of Supply Chain Management Professionals CSCMP defined SCM to include the coordination and collaboration with channel partners as well as the planning and management of all activities related to sourcing and procurement, conversion, and all logistics management activities (Koh et al., 2007).

According to Chopra and Maindl (2001), another definition of SCM is a collection of strategies and tactics used to effectively integrate suppliers, manufacturers, distributors, and customers in order to enhance the long-term performance of both the individual businesses and the supply chain as a whole in order to create high-functioning organizational structures. In order to maximize customer satisfaction and strengthen competitive advantage, Cooper et al. (1997), Lambert (2000), and Somuyiwa et al. (2012) defined SCM as the management of material, money, manpower, and information movement from within and across the supply chain.

As a result, the emphasis of supply chain management is on relationship management in order to provide a more profitable outcome for all parties involved in the supply chain. In order to better serve the end-customers of the supply chain, the parties share information flows to establish an integrated supply chain. The goal of supply chain management is to assure the benefit for the entire supply chain, not just one particular stakeholder. Consequently, the long-term competitiveness of individual organizations is clearly impacted by the successful implementation of supply chain management. Afande and others (2015)

2.2.1.3 Global definition of Small and Medium Enterprises (SMEs)

There is no universal definition of SMEs because it depends on the context in which it is employed, claims Ward (2005). For instance, a small firm in Canada is defined as one with less than 100 employees, and a SME is defined as one with fewer than 500. SMEs are enterprises with fewer than 500 employees, according to the World Bank. SMEs can be categorized in one of two ways: either based on the company's fixed assets or on the total number of employees. When categorizing SMEs based on fixed assets, one must use caution due to the ongoing depreciation in exchange rates, which frequently leaves such criteria out-of-date (Hasnah et al., 2013).

SMEs in developing countries are categorized by the number of employees in a company, per the UNDP Action Plan (2010). Five to nineteen individuals are employed by small

enterprises, such as the common small shops found in cities like chop houses and hair salons. 20 to 99 individuals work for a medium-sized business, which can both manufacture and export goods.

2.2.1.4 Ghanaian definition of Small and Medium Enterprises (SMEs)

The definition of SME in Ghana, given out by the National Board for Small Scale Industries (NBSSI) has combined fixed assets and staffing strength to define SME. NBSSI defined SME as a business entity that has less than 9 workers, and also has plant and machinery (excluding land, buildings and vehicles) not exceeding 10 million Ghanaian cedis (Agyapong, 2011).

As cited by Amoah & Amoah, (2018), there is no generally accepted definition throughout the world for (SMEs) including Micro firms. The definitions of SMEs defer from one country to the other and industry to industry. It seems that each country or industry has its own definition of SME (Dar et al., 2017; Hossain & Kauranen, 2016). Most countries or industries define SME based on the reason for which the entity is defining it. In other countries and industries, SME is defined by the number of people recruited, total resources of the firms and sales' returns of the (Abor & Quartey, 2010). Besides, the European Commission (EC) used the numerical strength of persons employed by the company to define and classified SMEs. From the perspective of EC's definition, firms with workers of 0 - 9 workers are classified as micro enterprise; 10 - 99 persons are small whilst firms with 100 - 499 persons are medium enterprise. The SME has definitional challenges because there is no specific definition that is accepted by the world that all countries and industries can use (Abor & Quartey 2010),

The definition of SME in Ghana is many as each entity is trying to define it to suit its needs for its operations at a time. In Ghana some define SME by using the numerical strength of staff that firms have and the assets based of the firm. For instance, The et al. (2018) used recruitment sealing of 30 individual staff as small scale enterprise whilst (Quartey, 2000) as cited by Abor & Quartey (2010), used numerical strength of persons employed over time to classify small-scale enterprises into three categories. They stated that a company having less than 6 people grouped as micro, employing between 6 - 9 persons as very small and between 10 - 29 employees as small enterprises.

Again, Ghana Statistical Service (GSS) has used staffing strength that an organization to defined SME in Ghana. From the perspective of GSS, SME is described as companies with 1 -5 persons as micro, a firm employing between 6 - 30 as small and an organization with 31-100 persons as medium and a firm with more than 100 workers as large enterprise (Amoah & Amoah, 2018).

2.2.1.6 Contributions of SMEs to national development in Ghana

It is impossible to overstate how important SMEs are to Ghana's socioeconomic development efforts because they have and continue to generate income, create jobs, and spread intermediate technology, among other things. These businesses are seen as the catalysts for achieving developing countries' growth goals, according to Daniels (2004)

It is estimated that SMEs employ 22% of the adult population in developing nations, making them potential sources of employment and income. According to the OECD (2005), some estimates place the contribution of SMEs to total GDP in Ghana at roughly 22%, with the sectors of agriculture, trade, and transportation making up the majority of this contribution. By stating that SMEs in Ghana have been noted to provide about 85% of

manufacturing employment, are also believed to contribute about 70% of Ghana's GDP, and account for about 92 percent of businesses in Ghana, Quartey and Abor (2010) reiterate the sector's contribution to Ghana's development.

According to Lisa (2009), technical talents can enter the industrial sector through small industry operations, and SMEs are claimed to have a favorable impact on income distribution in those new entrepreneurs with low financial means. The expansion of the middle class and a wider distribution of income are the results of this effect that SMEs have on society. Due to their location flexibility, lower infrastructure and technology requirements, ability to serve niche geographic markets, and strong commitment to local development, SMEs can thrive in rural areas of the country. These factors go a long way to supporting efforts to develop rural areas and create jobs.

Additionally, SMEs are thought to be the driving force behind economic innovation. They can lower costs of goods through competition and launch new, superior items more frequently, which will ultimately result in better services for their clients. In this regard, SMEs broaden the range of goods produced by the economy, promote competition, and eliminate monopolistic behavior, which lowers costs and improves service quality (Gichuki et al., 2014).

SMEs are thought to act as training grounds for the development of industrialized workers' and entrepreneurs' abilities (Lisa, 2009). A resourceful worker can create a business at a modest cost, giving them the means to not only support themselves but also hire others. According to reports, SMEs employ a disproportionately high number of unskilled and semi-skilled people, and most training is provided on the job, on-site. SME owners

frequently lack the time and resources to participate in formal training. Setting up a small business allows the beginning entrepreneur to put his knowledge and skills into practice while also allowing him to gradually gain more experience and enhance his abilities as the business expands (the idea that practice makes perfect).

From an economic standpoint, SMEs are not only suppliers but also consumers, and they play a significant role if they can establish a position in a market with purchasing power. Their demand for industrial or consumer goods will stimulate the activity of their suppliers, just as their own activity is stimulated by the demands of their clients, according to Quartey et al. (2010). SMEs also absorb extra money from the economy that would otherwise be spent on food and other household necessities.

As a result, the economy is more likely to save money, which frees up money for the financial sector to lend to firms. Therefore, it is evident that SMEs are essential to the survival of economies and households in particular. However, SME sustainability is crucial to helping organizations endure over time. This is made possible by making financing available to SMEs and promoting a climate that is conducive to business, where rules for business registration, taxes, subsidies, and financial matters are in place to level the playing field for the survival of SMEs.

2.2.1.7 The challenges of implementing inventory management practices

Rajeev (2008) conducted a study in India on inventory management practices used by Small, Micro and Medium Enterprises (SMMEs) with a sample size of 40 SMMEs in the machine-tools enterprise sector. A questionnaire was used as the data collection instrument for the study. The study revealed that there are several challenges of adopting inventory management practices by SMMEs. The major challenges identified by the study include

the rule of thumb as inventory management technique and low perception of the need to use relevant inventory forecasting techniques. The study further indicated that the application of formal inventory ordering policies was not strictly observed by the firms in ordering process but rather random policies were used to acquire for goods by the firms. The formal inventory control methods identified by the study included fixed quantity and fixed-period ordering techniques.

Fatoki (2014) carried out a study to find out working capital practices in South Africa among immigrant who have their own SMMEs. The study used a survey strategy and employed questionnaire as the key instrument for data collection. The study used a sample size of 170

SMMEs and found out that about 51.14 percent reviewed their stock on weekly basis and no firm used the optimal technique of EOQ for replenishing the inventory. It was also revealed by the study that about 61.22 percent of the SMMEs did not apply the use of computers in managing and controlling the stock. Besides, the most popular inventory management technique applied by most firms was ‘run out of time’ technique. This method was described as an inventory management practices whereby the stock is replenish based on the average forecast demand for the period and replenishment is done when stock depletes to the average demand levels.

In another study by Ngubane et al. (2015) in South Africa using a sample of 21 manufacturing SMME firms showed that the four most widely used inventory management models are EOQ with 14 percent, ABC inventory analysis method with 15 percent, ERP representing 14 percent and JIT with 52 percent.

Cressy (1996) conducted a study on the inventory management practices in United Kingdom with a sample of 2000 new small business and concluded that smaller firms were having limited people to work with and as such were relying on the skills and knowledge of the owners in managing the firms. It means that the workers need some level of multiknowledge and skills including inventory management. It was also stated that sometimes inventory management practices are given to only one person with knowledge or no knowledge in inventory management to practices. This makes it extremely difficult to practice efficient and effective inventory management practices. According study some small firms do not consider inventory planning and inventory management as a distinct activity in these firms. Similarly, de Vries (2007) asserted that developing and mapping up inventory management systems are at times time consuming and counterproductive.

Gunasekaran & Lyu (1997) carried out a study on the implementation of JIT in various small automobile lamp producing firms. The study portrayed that there was strict resistance from the worker's perspectives with the implementation of JIT in these firms. The workers and suppliers were struggling to accept the JIT system in the early stages of developing the systems. The study also concluded that the success of JIT system depends on the commitment level of management and the extent of supplier involvement in the process. The study recommended that management of these small firms should map up education and training facilities to the workers to better understand the JIT system so as to reduce the wrong perception of workers with respect to inventory management techniques.

In similar studies, Ramaswamy et al. (2002) employed a case study approach and the use of a questionnaire to collect data from the employees of manufactured apparel firms towards the implementation of JIT systems. The study found out that there was low inventory turnover ratio.

Ladzani & Van Vuuren (2002) conducted a study to examine the application of inventory management practices used by SMEs in South Africa. The sample size for the study was 30 SMEs selected from Kagiso in South Africa to evaluate the issues that contributed to the failure of these firms. They found out that the key contributory factors influencing the failure of SMEs in Kagiso community was poor application of sound inventory management practices. They further concluded that poor inventory management practices increased holding cost of inventories in these firms. These holding costs of inventories included keeping expenses, insurance and the cost of capital locked up in the inventories.

Robert Nyamao & Patrick (2012) used a sample size of 70 SME firms in Kenya and conducted a study on the inventory management practices of these firms. The study concluded that the SMEs found it challenging in determining the actual re-order levels so as to make orders to restock the firm. It was found out from the study that the SMEs were not using computers in monitoring the inventory levels.

Achanga, Shehab, Roy & Nedler (2005) undertook a qualitative study to examine the critical success factors of implementing lean inventory systems in SME firms. Study used a sample size of ten respondents and the use of observation, interviews and delphi techniques for data collection. The study revealed that most of the SME firms are facing a lot of challenges including finances which all together make it extremely difficult to hire qualify and seasoned workers to manage the firms including the inventory management. Hendricks & Singhal (2005) assessed the effect of excess inventory on long term stock prices performance of firms. The findings of the study showed that production curtailment, temporary shutdowns, inventory write offs and effort of liquidating inventory were identified as the main challenges of inventory management.

Cavitt (2010) also observed that even though the firms have some level of lines of communication and levels of authority, at a point there are some distortions in communication, conflicting interest between and among logistical officers and differences in expectations of performance of the inventory system in the firms.

Osoro & Muturi (2013) investigated the problems facing MSEs in inventory management in Kisii Town, Kenya. The study used stratified random sampling technique with a sample size of 308 registered MSEs and found out that changes in demand, material handling, inventory expenditure, insufficient information and stock levels were identified as major challenges facing the small firms.

Finally, a study conducted by (Ferenčíková, 2014) used a sample size of fifty small and medium firms to examine the inventory management practices among these firms. The main challenges identified by the study included unified inventory management systems, non-achievable lead time schedules, disordered production planning and continuous stock outs and shrinkage. These challenges have a negative effect on the output of the organisation.

2.2.1.8 Supply Chain Management Practices (SCMPs)

An organization's set of ways and means to support efficient running of the firm is known as SCMPs. The SCM practices are interrelated concepts. In the past, numerous research has covered a wide range of SCMP-related topics. In a survey of SCM practice literature, Li, B. Ragu-Nathan, T. S. Ragu-Nathan, and Rao (2006) identified five key characteristics of SCMPs: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement. According to Afande et al. (2015), these five constructs address the internal supply chain process of postponement as well as the upstream (strategic supplier partnership) and downstream (customer

relationship) sides of a supply chain. They also address information flow within a supply chain (level and quality of information sharing).

2.3. The types of SCMPs in SMEs manufacturing subsector

There are various forms of SCMPs used by the SMEs manufacturing sector which include customer relationship management, strategic supply chain management, information sharing and postponement in supply chain.

2.3.1 Customer Relationship Management (CRM)

Customer relationship management refers to the full set of techniques used by the management of the focus company to handle client complaints, develop lasting connections with clients, and raise client satisfaction. In both small and large industrial companies, customer relationship management methods are essential components of supply chain management procedures.

Additionally, businesses must gather precise and up-to-date client data. They use a variety of techniques to gather client information that may be used to enhance product development and manufacturing (Azar et al., 2010). Additionally, a greater downstream focus on customer relationships is required by customer focus. Customers could be asked to take part in initiatives aimed at improving the quality (Forza & Filippini 1998). Customer focus has been found to be among the most powerful predictors of organizational performance in earlier studies (Samson & Terziovski 1999). Supply chain productivity is intimately tied to integrating the value proposition of the supply chain with the needs of the customers (Zokaei & Simons, 2006).

2.3.2 Strategic supplier partnership

A company's long-term engagement with its suppliers is referred to as a "strategic supplier partnership". By implementing their management techniques, contributing firms are encouraged to generate considerable long-term benefits (Peng et al., 2011). A strategic partnership encourages mutual planning and problem-solving activities by focusing on direct, long-term relationship (Zhao & Lee, 2009). These alliances are formed to offer complementary advantages and continued involvement in important strategic domains including technology, production, and markets (Lambert & Cooper, 2000).

Organizations can run more successfully by developing strategic connections with a select group of important suppliers who are prepared to share responsibility for the success of the products. Early involvement of suppliers can aid in more cost-effective design options, the choice of the best mechanisms and innovations, and design evaluation (Jie et al., 2013, Fauziah et al., 2019). Together, firms that are strategically aligned can function efficiently and save time (Kroes & Ghosh, 2010). A contemporary supply chain may depend heavily on its interaction with its suppliers (Kronmeyer Filho et al., 2004, Kamau, 2011, Stuart, 2004)

2.3.3 Level of Information Sharing

According to Khan and Siddiqui (2018), information sharing is the movement of products and its associated information to all business partners. Additionally, Rached et al. (2015), argued that business information sharing is critical to the survival of the business. The information circulating in the business is serving as the life blood to the running of the firm. It is information that puts up all the pieces and part of the transactions of the firm to make it a whole or integrated for the survival of the entire supply chain. It was also argued by (Marinagi et al., 2015, Rached et al. 2015 and Fauver et al., 2017) that supply chain

information distribution will enhance the functioning and smooth running of the chain for maximum impact.

From the perspective of these writers (McKnight et al., 2017), the quality of information sharing and the extend at which each partner will have access to the information will improve the performance of the firm.

2.3.4 Postponement in supply chain

The act of advancing some operations and or activities to be undertaking future is known as postponement in supply chain. Postponement has two forms; how many stages to be shifted to a later date or which action to be performed later (Beamon, 1998). An organization can diversify a product or change a demand function by deferring production in order to be flexible in coming out with new versions of the product to meet shifting client wants (Waller, 2006). The longer you can keep your goods generic, the more adaptable your company will be to customer variability.

2.4 Organizational performance

Firms are established to achieve certain targets and standards. The achievement or otherwise of these standards and targets is known as performance. Firms have various ways of measuring their performances against their own set standards and objectives (Manyuru, 2005). From the perspective of Richard et al. (2009) and Li et al, 2006), organizational performance are of three forms namely; financial, market and operational performances. The financial indicators of measuring the performance of firms include profits, return on assets, return on investment and so on, whilst the market oriented performance indications are among market share, customer satisfaction, shorter lead times, quality of products or services and other indicators. Thompson et al, (2007) also noted that there are other non-

financial measures to firm's performance such as goodwill of the firm. Besides, Kaplan and Morton (1992) and (Li et al, 2006) listed various measures of assessing firm's performance.

For the purpose of this study, the researcher will consider both financial and market level performance measures or indicators. The financial performance indicators that will be used include returns on investment, profitability and the market indicators would include market share, customer satisfaction, lead time and so on.

2.4.1 Supply Chain Management Practices and Organizational Performance

According to Li et al. (2006), competitive advantage is the extent to which a company can establish a defensible position over its rivals, consisting of capabilities that enable an organization to set itself apart from its rivals, and is the result of important management decisions. Five competitive advantage structures were proposed by them: price/cost, product quality, reliability of delivery, production innovation, and time to market. Organizations increasingly look for ways to maintain their competitive advantages over rivals as supply chains become more competitive on the global market.

(Elgazzar et al. and Leach, 2012, Shin et al. 2000; Prasad and Tata 2000). contend that by tying supply chain process performance to a company's financial strategic goal, businesses can gain a competitive edge and create strategies for better SCM. These strategies can then be tied to the goal of improving financial performance.

According to Li et al. (2006), customer relations (CR) is defined as the broad range of techniques used to handle customer complaints, develop lasting connections with customers, and boost customer satisfaction. By easing coordination difficulties and assisting sellers in understanding linked buyers' utility, improving CR can increase benefits

(Shi, 2016 and Fathali, 2016).). According to Bettencourt, Blocker, Houston, and Flint (2015), businesses should cultivate deep relationships with their clients since market success necessitates more than just positive customer interactions.

As a result of suppliers being able to change their wholesale and acquisition prices to achieve an equilibrium between forward and reverse flows, information sharing benefits both suppliers and manufacturers. Sharing of information is anticipated to have a favorable impact on business performance.

Along with the quantity of information shared, the caliber of that information is equally crucial. According to Marinagi, Trivellas, and Reklitis (2015), information sharing among supply chain partners promotes improved overall performance since SCMPs are enforced, which raises the reliability and quality of the information. Information exchange may be facilitated via user-friendly and effective IT applications (Yang & Maxwell, 2011, Brau, Fawcett, & Morgan, 2007)

2.5 Development of the Hypotheses

It seems that there is a link between supply chain management practices and organizational performance in the manufacturing subsector. The resilient of a manufacturing firm is a function of the type and combination of the supply chain management practices use by the firm. The hypothesis of this study would be developed around the association among customer relationship management, strategic supplier partnership, information sharing and postponement.

2.5.1 Customer relationship and organizational performance

In order to better understand how a company's ability to absorb new ideas, progress those ideas, and connect them to its ability to interact with customers, which affects how well the company does overall, Tzokas et al. (2015). The results reveal that a company's efficiency increases by simplifying the creation of new brands, enhancing market performance, and increasing profitability when its absorptive capacity and advanced technology integration programs are combined.

This is referred to as a company's technological capability. The organization's performance is improved when a strong relationship with customers is developed in order to learn more about the customer relation capabilities, which further boosts the firm's absorptive ability.

Social media may help firms create new customer contact skills and enhance marketing strategies and organizational effectiveness, claim Wang & Kim (2017). This study examined social media usage, consumer engagement, company performance, and social customer contact skills. The results of this study show that customer relationship management positively affects customer engagement and that social customer relationship management capabilities positively affect business performance.

The effect of customer relationship management systems on the performance of telecom firms was examined by Al-Weshah et al. in 2019. In this study, the four components of customer relationship management and information quality, user happiness, system quality, and system usage were examined. The results show that system usage, system quality, and customer relationship management do not significantly affect the performance of telecommunication organizations.

H1: The customer relationship management has positive significant effect on the performance of SMEs in the manufacturing subsector

2.5.2 Strategic supplier partnership and organizational performance

Wafula and George's (2015) investigation of the effects of strategic supplier alliances on business performance. For this study, This company is regarded as an important player in Kenya's energy industry. The results of this study show that strategic supplier alliances have helped to enhance networking and communication between companies and suppliers.

The results showed that strategic supplier partnership has shortened period of time. The results also showed that supply chain innovation has increased as a result of strategic supplier alliances, which have led to the computerization of inventory management systems.

Agus (2015) wants to learn more about the function and effects of effective SCM on production effectiveness and product quality. Investigations were also conducted into the role that variable mediators and production efficiency played in the relationship between SCM and product quality. According to the study, improved SCM or strategic supplier partnership features have a big impact on product performance and quality. The investigations also showed a direct relationship between product performance and quality.

Sedyaningrum et al. (2019) examined the role of strategic supplier alliances and their effects on supply chain integration, supply chain performance, and farmer performance. The results showed that none of the criteria of the study were associated to strategic supplier agreements. On the other hand, the performance of the supply chain and the farmer were highly and favourably related.

H2: The strategic supplier partnership has positive significant effect on the performance of SMEs in the manufacturing subsector

2.5.3 Level of Information Sharing and organizational performance

A methodology for investigating the relationship between information quality and supply chain management was put forth by Marinagi et al. (2015). It has been demonstrated, nonetheless, that the direct influence of information quality on information sharing is very significant. Another finding was the significance of information exchange as a mediator in the aforementioned relationship. The improvement of business performance was found to be positively correlated with information sharing.

The effects of sharing financial information on each stakeholder's supply chain were investigated by Rached et al. (2015). It was also investigated how giving different SCM information at once would affect things. Sharing information about product development with partnerships has a significant impact on business performance, according to the research. The study's important findings showed that improving gains or performance required the supplier and retailer to provide accurate and reliable information.

Additionally, it was found that for the information exchange to be most beneficial, the supplier's development must be finished ahead of schedule and all demands must be identified by the store.

Attia (2015) examined the organization of the promoting method and the triple A SC on Egypt's performance. The sample size could make it difficult to generalize the test results. The investigation's delayed findings are consistent with the idea that supply chain efficiency is intrinsically connected to authoritative execution.

H3: The level of information sharing has positive significant effect on the performance of SMEs in the manufacturing subsector

2.5.4 Supply chain postponement and organizational performance

The role of different postponement strategies in supply chains was conducted by Dong et al. (2019), with focus on how quantity and pricing postponement approaches or strategies affect supply chain flexibility while addressing various forms of supply and demand issues. The study's picked a business that elected to postpone both risky decisions. The results show that in as much as supply risks are avoided when quantities are delayed, whatever is send to the market is what the customers need.

The price postponement strategy, however, showed that there was overproduction of certain commodities since supply outpaced market demand. Additionally, it was shown that this deferral reduced supply risk by regulating quantity, but it was also guaranteed to increase profit by reducing supply risk. (Simo et al. 2016, Carbonara and Pellegrino 2018) looked into the relationship between logistics, how well green supply chains perform, and the effects of delaying.

H4: Supply chain postponement has positive significant effect on the performance of SMEs in the manufacturing subsector

2.6 Theoretical review

This study is based on three sets of theories such as the Resources Based View (RBV), Institutional theory and Transactional cost theory. These theories have the potential to explain the supply chain management practices from the top management and bottom up management systems. These models have been adopted for this present study because the decisions by top management of the SME firms have direct and indirect effect of the

behavior of the workers and its resultant effect on the performance of the SME firms in the manufacturing sector.

2.6.1 Transactional cost theory

Transactional cost theory was explained by Gao et al.; (2022) and focus on the cost of internal operations in the organization. Williamson (1981) further expanded the application of transaction cost theory by highlighting the role of transaction cost theory in promoting vertical integration and trust in organizations. These aspects of transactional cost theory are supporting evidences for the role of supply chain management in organizations. Whether we look at supply chain, as a network or as an integrated process, the transaction cost theory explains the vertical connection and integration of various elements of organizational supply chain, from suppliers to customers.

Roeck et al.; (2020) linked the transactional cost theory to the application of supply chain management practices in the firm settings. Roeck et al.; (2020) concluded that application of supply chain management practices to the transactional cost theory has four elements.

These elements are effort, monitor, problem, and advantage from the focal firm's perspective to the supplier to customer management.

The present study has adopted the transactional cost theory to explain the influence of supply chain management practices on organizational performance. The cost of adopting, monitoring and maintaining appropriate supply chain management practices with the downstream customers and upstream suppliers is explained by the transactions cost theory. It implies that the cost of developing and maintaining a particular set of supply chain

management practices by the firms is a function of the cost levels of managing these practices.

2.6.2 Institutional theory

The institutional theory explains factors that move and urge firms to adapt and adopt certain institutional changes in their business operations. The theory asserts that, mostly firms are influenced by external forces and pressure which drives them to adopt certain operational changes including supply chain management practices (Adebanjo et al.; (2013). Institutional change has direct effect on the performance of firms such as influencing internal activities of the firm. Firms note that, the adoption of the institutional theory could serve as a guide to enable them adopt practices that can help promote the growth and development of their institutions such as taken into consideration precautionary measures to ensure that all units operating within the industry operate based on internal objectives (Zhu and Sarkis, 2007). It seems for firms to adopt sound supply chain management practices for optimal operational and managerial performance such firms should consider internal and external pressures from employees and other stakeholders. The acceptance and otherwise of the decisions of management by the internal and external stakeholders holds the key for the success of such managerial decisions. According to Adebanjo et al.; (2013) institutional theory is influenced by three main factors; coercive, mimetic and normative factors.

This present study is adopting the institutional theory to reflect the importance of internal and external stakeholder involvement in the operations of the firms. The efficiency and effectiveness of the SMEs in the manufacturing sector can perform well if they consider the right stakeholders in the industry in their supply chain drive. It seems no firm can perform better without consciously considering the institutions within the industry. It is

against this background that this present study is considering institutional theory as one of the key theories underpinning the study.

2.6.3 Resources based view theory (RBV)

The Resource based view theory (RBV) has become well known in recent times by most researchers from various fields including supply chain management practices (Ray et al., 2004 and Raduanet al., 2009). The RBV theory has demonstrated over the years that differences in supply chain performance of firms is partly attributed to the differences in the resources based of the firms. The level of internal resources of a firm shows the extent of its competition in a particular industry. According to the RBV theory, the internal recourses that a firm has that can withstand strong competition from other rivalry firms should be a resource that is difficult to imitate, reproduce, transfer and be transported between and among firms (Ibrahim and Hamid, 2014 and resources (Arifin and Baihaqi, 2012)

There are two basic assumptions of the RBV theory. These assumptions stipulate that various organizations within an industry may have different resources, and these resources are not fully transportable between industries (Barney, 1991). A resource is described as anything that may be considered a source of power for a company (Arun et al., (2014). Any actual or intangible assets that are semi-permanently linked to the company are referred to as resources (Bahri-Ammari 20131). According to this theory, variations in the development and running of sound supply chain management practices is a function of the level of internal capabilities of the firms. From the propounded of the theory, they postulate that “All assets, capabilities, organizational processes, firm characteristics, information, knowledge, and other resources owned by a business” are among these resources (Barney,

1991). These resources are scarce, precious, non-replaceable, and difficult to replicate, resulting in a competitive advantage by the SMEs manufacturing firms.

2.6.3.1 Criticism of the RBV

The RBV theory is useful in demonstrating and explaining the link between the resources of a firm and its performance. It basically argued that a good blend of internal resources including capabilities of a firm can lead to efficient and effective performance of the organisation. However, the theory has been criticized on various grounds and these include; Competitive advantages and disadvantages that grow over time (Helfat & Peteraf, 2003). The early focus of resource-based theory was not on whether resources were static or dynamic. Recent study, on the other hand, has centered on how resources change, adapt, and develop over time. In reaction to constantly changing settings, research has looked at how companies integrate, create, and reconfigure their resources and capabilities in a dynamic business environment (Bleady et al., (2018).

It seems there are no managerial implications in the RBV theory (Priem & Butler, 2001 and Hoopes et al., 2003). The RBV theory seems to inform managers on how to get internal resources; it does not provide instructions on how to build, mobilise and enhance the resources. The idea also implies that managers have complete control over their resources or that they can forecast the future worth of those resources. In a real business situation, the internal resources of firms are not fully controlled by management of the firms including SMEs. The capabilities in the individual employee are controlled by the person and management cannot fully use such capabilities if the person decides to shield them (Bromiley & Fleming, 2002, Lockett et al.,2009 and Priem & Butler, 2001).

Another critique has been that it is difficult to disprove resource-based theories. Any evidence discovered supports the notion that inter-organizational disparities in resources and capabilities contribute to long-term competitive performance discrepancies. When evidence to the opposite is discovered, it may simply signify that the resources or talents under consideration were not valuable (Hoopes et al., 2003).

Theorists have claimed that the theory ignores circumstances and organizational settings (Priem & Butler, 2001). The way an organization obtains or deploys resources is inextricably linked to the setting in which it operates. The idea hasn't given any thought to where businesses get their resources. Path dependency, social complexity, and causal ambiguity are all possible causes for organizational resource disparities. The method through which organizations build their resources, on the other hand, deserves more attention.

One of the key critique of the RBV theory is that resources and capacities are handled as if they are all the same, regardless of whether they are static or dynamic. Even though resources and capabilities are specified differently, they are managed in the same way as all other types of resources (Hoopes et al., 2003). There has been little consideration of how diverse resources contribute to a firm's long-term competitive advantage in different ways. Critics have claimed that a long-term competitive advantage is impossible to achieve. Fiol (2001) stated that competitive advantages can only be obtained for a limited time since the skills and resources needed to develop strategic advantages are continually changing.

2.7 The conceptual framework of supply chain management practices

Supply Chain Management (SCM) practices include various sets of procedures, processes, activities and conducts use by organization to promote effective management of its supply

chain. Li et al ;(2006). The supply chain practices they identified included customer relationship management, information sharing, postponement, strategic supplier partnerships and quality of information among others. Other schoolars like Saghiri & Barnes, (2016), Lawer et al (2014), Ibrahim et al (2014) and Haislip (2017) have used Li et al; (2006) conceptual framework to pursue similar studies. In line with this, the present study is adopting the Li et al; (2006) conceptual framework model for assessing the impact of supply chain management practices on firm's performance as shown in fig1

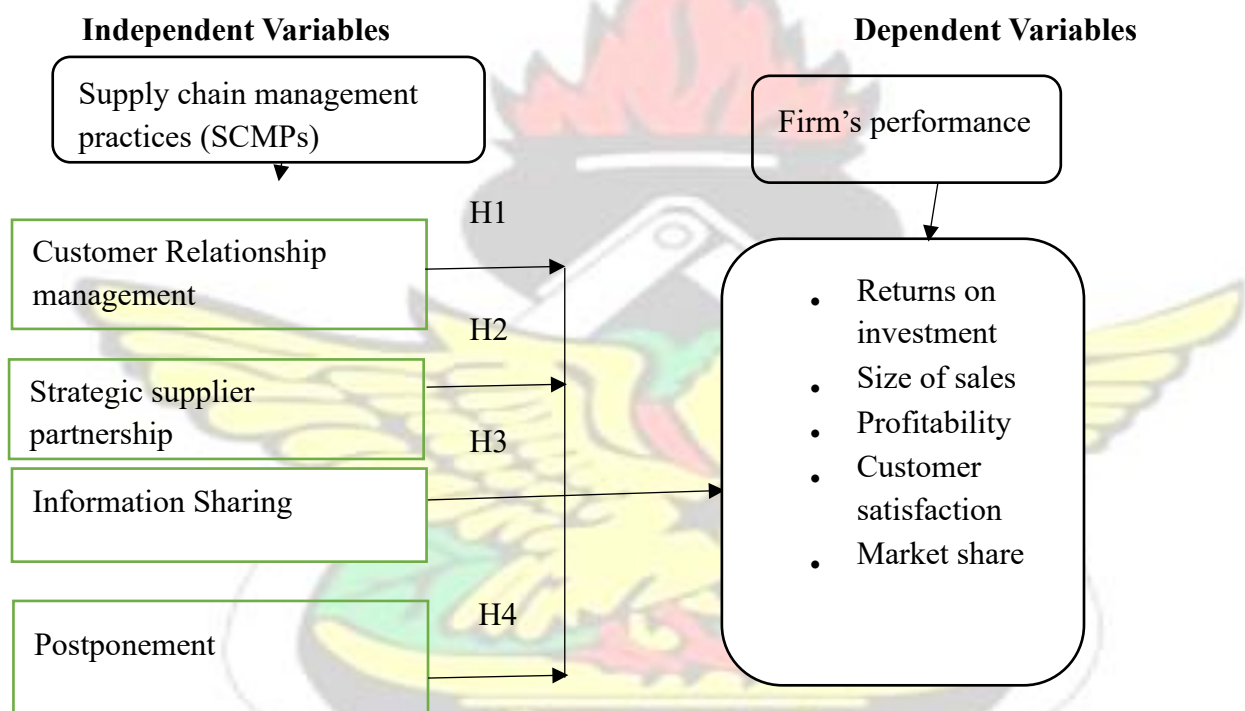


Fig 1: Conceptual framework on supply chain management practices Source: adopted from Li et al.; (2006)

2.8 Empirical review

2.8.1 Customer relationship management (CRM)

So as to ensure a customer's loyalty and fully meet their needs, the management of the relationship of the customer is important to the growth and survival of the supply chain.

Customer relationship management is based on how much the customer is satisfied with services or the product provided by the supplier. It also manages customer complaints about the product and services offered by the service provider (Hussain et al., 2018, Wang & Kim, 2017). (Al-Weshah et al., 2019) assert that sound customer relationship helps firms to grow and improve on performance.

2.8.2 Strategic Supplier Partnership

According to Agus (2015), it is the SC perspective in which the partners collaborate to achieve long-term sustainable performance and the satisfaction of both the customers and the partners. Additionally, (Fauziah et al., 2019) came out that strategic supplier partnership is regarded as the long standing agreement between the supplier and the buyer on the supply chain.

(Gharakhani et al. 2012, Hussain and colleagues 2018) investigated how SCM methods affected management effectiveness and creativity in Iranian businesses. Using a Likert scale with a 5-point range, SCM practices measurements of questions related to new product invention, management performance, and performance. The study's aims to explain the linkages between SCM practices, new product design, and managerial success of firms.

A supply chain that is competitive in the market may be characterized by effective resource management. A company would have the chance to enhance sales by using supply chain benchmarking and becoming an industry leader.

Through information exchange and retrieval, strategic planning can improve integration amongst diverse divisions within a company. This SCM technique creates a plan for the entire organization while lowering departmental barriers. The methods of "JIT supply" and

"few suppliers" are the results of the JIT idea, which historically depends on close coordination at all organizational levels. Only in a well-organized firm can strong relationships with suppliers and consumers pay off. Increasing the level of coordination with suppliers. Coordination with suppliers could be improved by using fewer suppliers, developing close partnerships with them, and using e-procurement. Utilizing fewer suppliers allows for the development of supplier relationships that are more productive. Product, process, and technological advancements could be better achieved by forging strong relationships with suppliers, such as through joint product development, joint efforts to cut down on purchasing lead times, workforce cross-training, etc.

An e-procurement approach could be used to enhance and automate the ordering process. It is clear that information technology is being used in this context to promote cooperation with suppliers since transactions may be controlled more centrally (Rahman, 2004). Customer cooperation will increase. Customers' cooperation may be increased through developing close ties with them. For instance, potential customer orders could be discussed and decided upon cooperatively (Wu et al., 2004).

2.8.3 Level of Information Sharing

According to Khan and Siddiqui (2018), information sharing is the movement of products and its associated information to all business partners. Additionally, Rached et al. (2015), argued that business information sharing is critical to the survival of the business. The information circulating in the business is serving as the life blood to the running of the firm. It is information that puts up all the pieces and part of the transactions of the firm to make it a whole or integrated for the survival of the entire supply chain. It was also argued by (Marinagi et al., 2015, Rached et al. 2015 and Fauver et al., 2017) that supply chain

information distribution will enhance the functioning and smooth running of the chain for maximum impact.

From the perspective of these writers (McKnight et al., 2017), the quality of information sharing and the extend at which each partner will have access to the information will improve the performance of the firm.

2.8.4 Postponement in supply chain

The basic reason for delaying in supply chain is to manage the potential risks and how to improve on performance of the firm (Simo et al., 2016). It seems firms use various forms of delays to achieve chain objectives and strategies. These techniques include delaying part of the production or supply phase and or full postponement. Firms can put on hold full production or supply for some time until the firms are ready to go on full scale or otherwise (Dong et al., 2019). There are various postponement strategies with varies implementing tactics. Some postponement strategies have negative impact on the operations of the firms such as increase in cost, reducing quality of production, increasing lead time in supply and production, and eventually reducing profit levels of the firms (Saghiri & Barnes, 2016, Simo et al. 2016)

CHAPTER THREE

RESEARCH METHODOLOGY AND PROFILE OF STUDY AREA

3.1 Introduction

This chapter presents the methodology that is used in this study. Research methodology is a vital facet of any research. This section addresses issues relevant to the methods employed in order to achieve the objectives of the research. Details of the research design, study population, sample and sampling procedures, data sources, and data collection were covered in this chapter. In addition, the instrument for data collection and analysis were described, as well as the concepts of validity and reliability, as well as ethical reasoning.

3.2 Research design

The research design, according to Haradhan (2017), is the conceptual framework within which the research is conducted. It serves as a blueprint for knowledge collection, measurement, and analysis. In a nutshell, it is a source of inspiration for the planned study project (Akhtar, 2016). Data collection, measurements, and data analysis will be challenging without a research strategy. This could have a negative impact on the research and lead to its failure. As a result, before beginning research activities, an efficient and appropriate design must be established (Akhtar, 2016).

The quantitative research design was employed for this study. It used numerical values to explain the phenomenon under consideration. This makes understanding and interpretations of the situation easier (Patel and Patel, 2019). This is often appropriate for the study because it helped to explain the situations as it existed. This present study employed the use of survey approach because the study covered larger geographical area. It was cost effective to use survey strategy to collect data from well dispersed geographical

area. The respondents was asked to fill out a questionnaire, which was used to collect the primary data. The questionnaire was an institutional type rather than the household questionnaire.

3.3 Population of the study

A study's population is the sum of all potential persons, objects, or measurements of interest (Navarro et al., (2007).). Babbie (2007) on the other hand, believes that a population is a group of people who the researcher is interested in for the sake of generalization. According to Bajpai (2009), the group must have information that is relevant to the investigator. The study's population is made up of the SMEs in the manufacturing subsector in the Akuapim North Municipal Assembly in the Eastern Region of Ghana. The target population of the study will include the managers, owners and management staff of the SME manufacturing subsector in the municipality.

3.4 Sampling techniques and sample size

A sample is a small portion of a larger population (Saunders, 2015). In the research literature, there are several sampling techniques that can be used to determine the sample size for a study. Saunders et al (2015) distinguish between probability and non-probability sampling strategies. The likelihood of members of the population being picked is known in the probability sampling approach, but the probability of members of the population being selected is unknown in the non-probability sampling technique. The non-probability sampling approach was utilized in this research. Specifically, the study used purposive sampling technique to select the SME manufacturing firms in the Municipality. This will assist the researcher in meeting the focus of the study (the manufacturing SMEs).

The process of selecting a subset of a population from which data is collected rather than the complete population is referred to as sampling (Allwood, 2012). The term "sample" refers to all of the people who were chosen for sampling. When funding and time are insufficient to allow data collection on a broad population, sampling is used in research. This concept underpins the need for and execution of sampling in this research. A research sample is defined as a subset of the target population from whom data will be collected. According to Saunders et al. (2009), the sample size of a survey most commonly refers to the number of units chosen from which data was collected. According to Saunders et al. (2009), the quality of any research is determined not only by the suitability of technique and apparatus, but also by the size of the sample utilized.

The purposive sampling technique was used to select the 100 manufacturing SME firms. The manufacturing SME firms operating in the subsector of melting, fabricating, textiles including dress making, wood processing and manufacturing SME firms, food processors including gari operators, palm oil extractors, bread and pastries makers, sachet water producers and many others. A convenient sampling method was used to select 3 workers from the each of the 100 SME firms until a total sample size of 300 employees selected and interviewed. The study would conveniently select the 3 workers who have more information about the SME manufacturing firm. This helped the researcher to have more in-depth information about the firm and enhanced the quality of information gathering and findings of the study.

3.5 Sources of data

The study acknowledges the presence of the two main sources of data; the primary source and secondary source. According to Saunders (2015), primary data are gathered using either questionnaires or structured interview guide. Primary data is first-hand information

gathered from respondents using structured questionnaires and interviews or either of them (Creswell, 2006). On the other hand, secondary data are those data that are obtained from database systems, record books of institutions and others. However, this study used primary data.

Structured questionnaires were employed to gather data from respondents. The questionnaire has two types of questions: open ended and closed ended. The respondents were given a list of different replies to choose from, and they were asked to pick the one that best represented their point of view. The open-ended questions, on the other hand, did not have any options. The responses of the respondents were captured in their entirety as a result of this. The respondents responded to the questions in the way that he or she understood them. It is important to note that respondents were given the time to consider the questions in order to deliver truthful responses. Before conducting the full-scale questionnaire administration, the researcher did informal pretesting of the draft questionnaire with a few probable respondents. Questionnaires were serially numbered to assure correctness, completeness, and quality.

3.6 Data collection methods

There are two main sources of data for the social science research and these are primary and secondary data. A primary data by definition is the data that is collected from the field the first time and it is used for the purpose for which it was collected. In contrast, secondary data is the data that is already collected or generated by other producers for other purposes rather than the reasons for which it was collected. Secondary data already exist (Saunders and Thornhill, 2003; Robson, 2002). This present study used primary data and which was collected from the owners and managers of the SMEs in the study area. The primary source of data is used for this study because secondary data was not available to assess the impact

of inventory management practices and performance of SMEs in Akuapem North Municipal Assembly.

The data for the study was collected through the use of structured questionnaire. The questionnaire was developed and designed by the use of Likert type of questions on the impact of supply chain management practices on the performance of SMEs in Akuapem North Municipal. The Likert types of questions have been used because it will help the researcher to gather the needed information about the subject matter under study. The study also used the Likert measuring scale of 1- 5 as used by (Li et al (2005), Li et al (2006), Lawer et al (2014), Ibrahim et al (2014) and Haislip (2017) to study the impact of supply chain management practices on the performance of SMEs in various countries. The questionnaires were organized into four sections. Section A of the questionnaire collected background information of the respondent and the firm whilst section B covered the supply chain management practices adopted by the SMEs. The section C of the questionnaire gathered information about the performance of the SMEs in adopting supply chain management practices.

The data was collected through internet and the use of Google questionnaire. The google link was developed and forwarded to the respective target population of the study. Some of the critical questions were made mandatory (restricted) so that the respondent cannot skip them without answering them. For the respondent to qualify, the person should be owner or managing SME firm in the selected industry. These questions are also restricted so that the respondent must answer it before the system will allow the respondent to move to the next set of questions. These restrictions in the questionnaire are set to ensure that the respondent does not skip an answerable question and also to check for eligibility of the respondent who will complete the questionnaire.

3.7 Data analysis

Prabhat and Meenu (2015) defined data analysis as the process of systematically applying statistical and logical techniques to describe and illustrate, condense and summaries and evaluate data. The data for this present study was analyzed by the use of Statistical Package for Social Sciences (SPSS) version 25. The data analysis was in two parts; descriptive and inferential statistics. With regards to the descriptive statistics, the study used means, percentages and standard deviation to describe the data. With respect to the inferential statistics, the study used multiple regression and Pearson correlation models to examine the relationship between supply chain management practices and the performance of SMEs. The data was displayed by the use of tables and regression equations.

Multiple regression model specifications: Equation 1

$$P = \alpha_0 + \alpha_1 \text{SAV} + \alpha_2 \text{CAV} + \alpha_3 \text{LAV} + \alpha_4 \text{PAV} + e$$

Where,

P = Performance (dependent variable)

α = Constant

SAV = Strategic Supplier Partnership

CAV = Customer Relationship Management

LAV = Information Sharing

PAV = Postponement

e = error term

$\alpha_1, \alpha_2, \alpha_3, \alpha_4$ = Predictor variables

3.8 Reliability and validity

The reliability and validity of research instruments are not wholly achieved or assured unless pre-testing of the research instrument is conducted (Creswell, 2009). Pre-testing is

conducted to expose the researcher to the results that are to be expected from the field including the challenges that are likely to occur. Through the pre-testing, information gathered allows the researcher remove questions that are likely to cause embarrassment to respondents and amend questions that were not understood by respondents due to its wording. These changes are done in order to fulfil the content validity of the study. The content validity is confirmed after the pretesting and as well, face validity is also assured. By reducing questions that may negatively affect the process of gathering data and possibly improving the quality of data, reliability of the research instrument was met (Saunders et al., 2009). Pre-testing makes it possible for research instrument to measure what they are supposed to measure. This makes the research instrument consistent in terms of repeating the study or replicating the study elsewhere. To satisfy the condition of reliability, questionnaires were adopted from researchers of authority in the chosen field and guided by the professor who supervised the research. Validity was ensured by personally administering the questionnaires to respondents who have enough knowledge and was able to contribute to the study in that effect (Burns and Grove, 1993).

3.9 Ethical considerations

The rightness of the researcher's behavior in respect to the rights of individuals who become the subjects of the researcher's work is described by Saunders et al. (2012). Being professional in what one does necessitates ethical concerns. According to Bryman and Bell (2007), ethical consideration is the commitment made by the researcher to take into account the necessary ethics.

In complying with these ethical standards, this research was conducted in an honest fashion devoid of deception. Prior to administering the questionnaire, informant consent was sought from respondents who were willing to participate in this study by the researcher.

Specifically, the study's purpose and relevance were explained to the informants. In addition, there were four major ethical factors that were applied to the study; (1) anonymity of the respondents, (2) seeking the consent of respondents, (3) information confidentiality and lastly, (4) conducting a study in a safe environment.

3.10 Profile of the Study Area, Akuapem North Municipal Assembly

In order to take over the day-to-day management of the Municipality, the Akuapem North Municipal Assembly (ANMA) was first constituted as a District Assembly by Legislative Instrument 1430 in 1988. It was upgraded by LI 2041 in 2012 to the rank of Municipality. In order to advance the Municipality, the Assembly carries out executive, legislative, and deliberative duties (Akuapem North Municipal Assembly, 2023)

3.10.1 Location and size

The Akuapem North Municipality is 58 kilometers from Accra, Ghana's capital city, and is situated in the eastern region's south-eastern corner. Its neighbors include the YiloKrobo Municipality to the north and north-east, the New Juaben Municipality to the northwest, the Shai Osudoku District (in the Greater Accra Region), the Akuapem South District to the south, and the Suhum Municipality to the south-west. The Municipality has a total land area of 450 square kilometers, which equates to around 2.3% of the Eastern Region's total land mass. It has 280 or so communities, with Akropong serving as the municipal center.

Due to its proximity to both Accra and Koforidua, the regional and national capitals, the Municipality's location is particularly crucial. This proximity enables socioeconomic contact in terms of trade, transportation of commodities and persons, and access to goods,

services, and people between the Municipal and the two capitals. Interactions like these help the economy of the Municipals grow (Akuapem North Municipal Assembly, 2023)

3.10.2 Geology and Soil

Pre-Cambrian rocks can be found in the Municipality in two main categories. These are the Birimian and Togo sandy shales series. The Birimian series, which includes granite and pegmatites as well as gneisses and schist, is found in the Adawso region. On the other side, the Togo series can be found from the Senya-Beraku portion of the Akuapem Range to the south-west, west of Accra. (Municipal Assembly of Akuapem North, 2023)

3.10.2 Climate

Tropical rainfall is experienced in the Municipality. As a result, it features a semi-arid climate with a bimodal rainfall pattern. 1270 millimeters of rainfall per year on average is appropriate for major and minor season agricultural. The major rainy season runs from April to July, while the minor rainy season is from September to November. Averaging about 23.88°C, temperatures range from 20°C in August to 32°C in March. The major dry season does occur each year from December to February, despite the fact that there is a brief dry season in August. While relative humidity is generally moderate, it can be relatively high in the early morning and during rainy seasons. Numerous food and cash crops can be grown more successfully throughout the Municipality due to the even distribution of temperature and rainfall patterns (Akuapem North Municipal Assembly, 2023)

3.10.3 Vegetation

The Municipality is located in an area of semi-deciduous woodland. During the dry season, the majority of trees lose their leaves. On the majority of its hilltops, the Municipality has

broken forest, secondary forest on its slopes and valleys, shrubs and bushes alongside its main routes and motorways, thickets on its slopes that face the Accra Plain, and forest reserves. Sacred groves, little patches of woodland, and two significant forest reserves are dispersed across the Municipality. Towns like Mampong, Gyafiase, Larteh Junction, Bankana near Tutu, Akropong, Obosomase, and Saforo are home to notable ones. However, poor agricultural methods and other activities like real estate construction and unauthorized chain saw use have led to the degradation of the natural vegetation cover.



CHAPTER FOUR

PRESENTATION OF DATA ANALYSIS AND DISCUSSIONS

4.1 Introduction

This part of the study covered the analysis and findings of the study. The analysis of the data for the study was done with the objectives of the study in mind. The background of the respondents was analyzed using the frequencies whilst descriptive statistics were run on the main constructs of the study.

Again, reliability test was computed on the constructs using Cronbach's Alpha and multicollinearity tests. The inferential statistics were run by using regression model. The results of the study were discussed in relation to other research works around the fields of supply chain management practices and organisational performance.

4.2 Responses rate of the study

The study used questionnaires to collect the data for the study. The data for the research was collected through e-questionnaire and administered online. For about 20 respondents did not complete some parts of the e-questionnaire and rather submitted it. These 20 questionnaires were not included in the analysis due to non-completeness. The sample size for the study was 300 SMEs out of which 20 questionnaires were not fully completed by the respondent. It means that the questionnaires that were fully completed for the study were 280. Based on this, the response rate for the study was 93 percent ($280/300 \times 100$). The response rate for this study was enough to measure the variables of the study. Cooper and Schindler (2006) argued that a response rate of about 50 percent should be appropriate to analyse the data of the study and generate the necessary reports. They further argued that despite the minimum threshold of 50 percent, the higher the percentage the better the result of the study. It implies that the response rate of 93 percent for this present study would be sufficient to carry out the analysis for the study.

4.3 Background information of the respondent

This part of the study dealt with the analysis of the general information of the respondents. This background features of the respondents include age, gender, position of the worker, the experience level of the employee, educational level and the number of workers employed by the manufacturing firms.

KNUST



Table 4.1: Background characteristics of the respondent

Categories		Frequency	Percent (%)
Gender	Male	122	43.6
	Female	158	56.4
	Total	280	100
Age	21 – 30 Years	43	15.4
	31 - 40 Year	108	38.6
	41- 50 Years	127	45.4
	50 Years and Above	2	0.7
	Total	280	100
Position	Manager/CEO	128	45.7
	Assistant Manager	55	19.6
	Supervisor	66	23.6
	Accountant	31	11.1
	Total	280	100
Experience	1-5 Years	54	19.3
	5-10 Years	162	57.9
	Over 10 Years	64	22.9
	Total	280	100
Educational level	None	20	7.1
	JHS	118	42.1
	SHS/VOC	53	18.9
	Diploma	81	28.9
	Bachelor's Degree	8	2.9
	Total	280	100
Number of Workers	1 - 5 workers	82	29.3
	6 - 30 Workers	113	40.4
	31 - 100 Workers	74	26.4
	More than 100 Workers	11	3.9
	Total	280	100

Source: Field Data, 2023

Table 4.1 presents the results of the study on background information of the respondents which include; the gender, age position, experience, educational level and number of workers employed by the firms. The gender distribution of the study showed that about 56.4 percent of the target respondents were females whilst about 43.6 percent were males.

This implies that the females were dominated in the study because they form majority of the SME firms especially in the manufacturing subsector in the Region of the study.

The study further showed that the SMEs employing workers from 1 to 5 employees were 29.3 percent, those SMEs employee workers between 6 to 30 employees constituted about 40.4 percent whilst 26.4 percent are for those SMEs who employed workers between 31 to 100 employees. About 3.9 percent of the study covered large enterprises in Ghana.

Table 4.1 of the study also revealed that about 19.3 percent of the SME workers have working experience between 1 to 5 years who are the majority whilst 57.9 percent of the SME workers have 6 to 10 years working experience. The long serving workers of the SME firms were made up of 22.9 percent. Apart from this, the study showed that about 32 percent of the operators of the SME firms were having tertiary level education including diploma and bachelor's degrees and other higher leaning degrees. Secondly, the workers with secondary level education were made up of 19 percent whilst basic educational level with no education and were 42 percent and 7 percent respectively.

Table 4.2: The interpretation of the study's responses

Grading (mean scores)	Responding Variables	Meaning of the responding variables	Interpretation of the responding variables
0.0-0.99	strongly disagree	Very poor	Below expectation
1.0-1.99.	Disagree	poor	within expectation
2.0-2.99	Neither Agree nor Disagree	neither poor nor good	Neither below or above expectation
3.0-3.99	Agree	Good	Achieved expectation

4.0 -4.99	Strongly Agree	Very good	Exceeded Expectation
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Source: Field Data, 2023

A Likert scale of 1 to 5 was used as the measuring unit for both the questionnaire and the descriptive analysis of the study. The measuring scale ranges from 1 for strongly disagree to 5 standing for strongly agree. The mean values were used to interpret the descriptive statistics as shown in Table 4.2 The more the mean value is moving closer to the upper limit of this mean ranges, the better the indicator is performing.

4.4. Descriptive statistics of the study

This section of the study covered the descriptive statics of the study. The descriptive statistics were run on the main construct of the research such as strategic supplier partnership, level of information sharing, customer relationship management, postponement and organizational performance.

Table 4.3: Descriptive statistics on strategic supplier partnership (SSP)

Statements	N	Mini	Maxi	Mean	Std. Dev
We consider quality as our number one criterion in selecting suppliers.	280	1	5	3.59	1.25
We regularly solve problems jointly with our suppliers.	280	1	5	3.43	1.37
We have helped our suppliers to improve their product quality.	280	1	5	3.52	1.34
We have continuous improvement programs that include our key suppliers.	280	1	5	3.35	1.31
We include our key suppliers in our planning and goalsetting activities.	280	1	5	3.49	1.30

We actively involve our key suppliers in new product development process

280 1 5 3.44 1.34

Composite mean

3.47

Source: Field Data, 2023

Table 4.3 portrays that the SMEs in Akuapem North Municipal Assembly employed strategic supplier partnership practices in managing their supply chain processes to some extent with a composite mean score of 3.47. The larger proportions of the SMEs include quality factors in screening and selecting their suppliers with a mean average of 3.59. The SMEs also help their suppliers to improve on the quality of their products by given them the needed on the ground information about their supplier's product acceptance and quality levels (mean of 3.52). The study's revealed that most of the SMEs do plan with their strategic suppliers in dealing with their supply chain related issues with a mean score of 3.49 whilst the SME manufacturing firms involve their key partners in new product development process right from day one throughout the product life cycle. In all, about large percentage of the SME manufacturing firms in the Akuapem North Municipal Assembly make use of strategic supplier partnership as one the key supply chain management practices.

Table 4.4: Descriptive statistics on customer relationship management (CRM)

Statement	N	Mini	Maxi	Mean	Std. Dev
We frequently interact with customers to set reliability, responsiveness standards	280	1	5	3.57	1.219
We frequently measure and evaluate customer satisfaction.	280	1	5	3.54	1.319
We frequently determine future customer expectations.	280	1	5	3.51	1.224

We facilitate customers' ability to seek assistance from us.	280	1	5	3.58	1.233
We periodically evaluate the importance of our relationship with our Customers.	280	1	5	3.49	1.339
Composite mean				3.54	

Source: Field Data, 2023

Table 4.4 illustrates that descriptive statistics on customer relationship management with a mean average of 3.54. This implies that customer relationship management is one of the key supply chain management practices used by the SMEs manufacturing subsector in the Municipality. A mean average of 3.58 of the SMEs agreed that they most often determine the expectations of their customers. As a results, the SMEs turn to produce well-tailored products that meet the needs of their customers. With an accurate forecasting attitude of SMEs, more innovating and demand driven product are manufactured for their customer's. The study' portrays that one of the key supply chain management practices under customer relationship management is that the SMEs frequently interact with their key customers and set reliable, achievable and responsive standards for each other (mean score of 3.57). From table 4.4, the results of the study are indicating that the third most frequently supply chain management practices employed by the SMEs manufacturing subsector is the frequent evaluation and full screening of the level of satisfaction of their customers (mean of 3.54).

Table 4.5: Descriptive statistics on information sharing

Statement	N	Mini	Maxi	Mean	Std. Dev
Information exchange between our trading partners and us is complete.	280	1	5	3.47	1.23
Information exchange between our trading partners and us is adequate	280	1	5	3.31	1.33

Information exchange between our trading partners and us is reliable.	280	1	5	3.46	1.32
Information exchange between our trading partners and us is timely.	280	1	5	3.43	1.31
Information exchange between our trading partners and us is accurate.	280	1	5	3.41	1.32
Composite mean				3.42	

Source: Field Data, 2023

Table 4.5 of the study is showing the descriptive statistics on the level of information sharing within and among the SMEs and its partners and other stakeholders. The overall mean value of 3.42 is indicating that information sharing among the length and breadth of the SME spectrum is effective and smooth. It also shows that the partners, stakeholders and customers can communicate with and to each other to enhance corporate image and business in general. Again, the composite mean is illustrating that the level, quantity and sufficiency of business information is mostly utilised among the SME manufacturing subsector. As per table 4.5, the SMEs in the manufacturing sector in the Akuapem Municipality have been sharing business level information with their partners, stakeholders including customers (means score of 3.47). The outcome of the study depicts that information sharing among the SMEs fraternity is reliable and trust worth. It seems every business partner can trust and use the quantity of business information available without much fear. Again, study' revealed that information sharing among the SMEs is timely and accurate. A little change of information about the market conditions is known by the SME manufacturing firms and acted upon swiftly. In the nut shell, information sharing is one of the key supply chain practices among the SME manufacturing firms in the Akuapem Municipality.

Table 4.6: Descriptive statistics on postponement

Statement	N	Mini	Maxi	Mean	Std. Dev
We delay final product assembly activities until customer orders have actually been received	280	1	5	3.30	1.27
We delay final product assembly activities until the last possible position (or nearest to customers) in the supply chain.	280	1	5	3.34	1.39
Our products are designed for modular assembly.	280	1	5	3.33	1.26
Composite mean				3.32	

Source: Field Data, 2023

Table 4.6 is showing the results of the descriptive statistics on postponement in supply chain. The composite mean of 3.32 is indicating that the SMEs in the manufacturing sector postponed the production and delivery of goods and services to their customers. It also shows the extent at which the firms produce goods or products in line with the needs and expectations of customers. The study's revealed that the SME firms in the manufacturing sector delay production or produce at the proximity to the key customers and end users (means score of 3.34). The study also showed that the SMEs intentionally delay production and supply of goods until customers' orders have been actually received (mean score of 3.30). About 3.33 mean score of the SMEs are saying that they produce goods on modular bases to meet specific needs of the consumers. In all, the study depicted that one of the key supply chain practices is supply chain postponement. This is where the producers or the suppliers intentionally delay the production or supply of a particular product due to various factors such as cost, change in demand, change in taste and preference, new product simplifications and many others.

Table 4.7: Descriptive statistics on organisational performance

Statements	N	Mini	Maxi	Mean	Std. Dev
Our organization has increased its growth in return on investment as compared to competitors.	280	1	5	3.45	1.28
Our organization has increased its profit margin on sales as compared to competitors.	280	1	5	3.37	1.29
Our organization has increased its overall competitive position in the market.	280	1	5	3.43	1.29
Our organization has increased its market share growth as compared to competitors.	280	1	5	3.41	1.33
Composite mean				2.73	

Source: Field Data, 2023

Table 4.7 presents the descriptive statistics on organisational performance. The composite mean of 2.73 is showing that return on investment, increased in profit and market share are the key indicators of SME performance. The study is expressing that competitive measures such as new product development and innovations, value addition, low cost, improvement in quality of product and low price will hedge against competition within the SMEs industry. This research work is showing that supply chain practices that enhance competitive advantage over the competitors should be pursued by the SMEs so as to out compete their main competitors. This will assist the SMEs to remain and survive in business. As per table 4.7, showed that returns on investment is one of the key indicators on SME's performance showing a mean value of 3.45 whilst improvement of profit levels of firms will enhance competitive advantage. The study showed that increased in market share is a key determinant of SME's performance over their key competitors.

4.8 Reliability and validity Test

The reliability test has been run for the study to assess the extent of consistency between and among the variables used to measure the impact of supply chain management practices on performance of SMEs in Akuapem North Municipality. The study employed a Cronbach's Alpha reliability test to run the data for internal consistencies. The Cronbach's Alpha of 0.7 or more is recommended rate for reliability test for a given study (Saunders, 2012).

Table 4.8 Reliability and validity Test

Statement	Cronbach's Alpha	Number of Items
Strategic Supplier Partnership (SSP)	0.95	6
Customer Relationship Management (CRM)	0.96	5
Level of Information (LI)	0.95	5
Supply chain postponement	0.97	3
Organisational performance	0.95	5
Overall Alpha	0.95	

Source: Field Data, 2023

Table 4.8 portrays the reliability test of the study for the main constructs using Cronbach's Alpha reliability test. The construct for the study was grouped under strategic supplier partnership, customer relationship management, level of information sharing, postponement and organisational performance. As per table 4.8, for each of the key constructs to measure supply chain management practices recorded Cronbach's Alpha that was more than the minimum threshold of 0.7. This means that there was internal consistency in the independent variables used for the study. This means that using the same

data collection instruments and procedures for the present study, the results could be repeated over various conditions and places.

Table 4.9: Multicollinearity Test for Strategic supplier partnership, customer relationship management, level of information and postponement

Variables	Tolerance	VIF
Strategic supplier partnership	0.14	4.30
Customer relationship management	0.24	4.21
Level of information	0.12	4.20
Supply chain postponement	0.32	3.12

Source: Field Data, 2023

Table 4.9 tested multicollinearity of the study. In research, multicollinearity is where one or more of the variables measuring the independent constructs are directly related to each other. It was observed by Gitau (2016) that collinearity is where some independent variables can be detected having linear relationships. The results from the multicollinearity test on the independent variables should have a maximum threshold of .5 and 5 for both the tolerance and variance inflation factor (VIF) respectively as recommended by Gareth et al. (2013). The analysis of the multicollinearity results in table 4.9 for this present study is less than the maximum threshold of .5 and 5 for tolerance and VIF respectively. These results imply that multicollinearity was not present to affect the independent variables. It also means that the independent variables for the study are not interrelated.

4.10 Model fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.940 ^a	0.883	0.882	0.37316

a. Predictors: (Constant), Postponement (PAV), Customer relationship management

(CAV), Strategic Supplier Partnership (SAV), Level of information sharing (LAV)

b. Performance

Source: Field Data, 2023

Table 4.10 present the fitness of the regression model used to evaluate the impact of supply chain management practices on the performance of SMEs. From Table 4.10, the R^2 was .883 which implies the about 88.3 percent of the differences in firm performance was responsible for the variations in the supply chain management practices adopted by the SMEs. This means that adopting sound supply chain management practices in an organization has the possibility of improving the performance of the firm in question. About 11.70 percent of the performance of the firms is not accounted for by the model but other factors might be responsible for this change in firm performance. The R representing the correlation coefficient of .940 was expressing that there is a strong positive relationship between performance of a firm and the supply chain management practices used by the SMEs. It implies that the SME firms practicing sound and achievable supply chain management practices will enhance the performance of these firms.

Table 4.11: ANOVA Analysis

Model		Sum of Df	Mean F	Sig.
		Squares	Square	
1	Regression	290.146	4	72.536
	Residual	38.294	275	.139
	Total	328.440	279	

a. Dependent variable: Performance (OPY)

b. Predictors: (Constant), PAV, CAV, SAV, LAV

Source: Field Data, 2023

Table 4.11 expressed the results of ANOVA computation that was used to test the significance of R and R^2 through the application of F-statistics (520.907). The F statistic (520.907) is significant since the $p (.000) < 0.05$. Since the F statistic is significance, the model is best in explaining the variations in the SMEs performance. Thus, sound supply management practices will lead to firm performance.

Table 4.12: Coefficients of regression model

COEFFICIENTS ^A						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.048	0.081		0.586	0.558
	SAV	0.393	0.046	0.471	8.475	0.000
	CAV	0.182	0.044	0.173	4.096	0.000
	LAV	0.276	0.057	0.285	4.857	0.000
	PAV	0.051	0.035	0.053	1.458	0.146

a. Dependent Variable: Performance

Source: Field Data, 2023

Table 4.12 presents the results of the regression model coefficients used to analysis the effect of supply chain management practices on performance of SMEs. The regression model of the study is specified as $P = \alpha_0 + \alpha_1 SAV + \alpha_2 CAV + \alpha_3 LAV + \alpha_4 PAV + e$. This

regression equation was transformed into $P = 0.048 + 0.471SAV + 0.173CAV + 0.285LAV + 0.053PAV + e$

Table 4.12 revealed is expressing the link between supply chain management practices and the performance of the SMEs in the Akuapem North Municipality. The study showed that with regards to strategic supplier partnership, there is positive relation to the operational performance of the SMEs in the study area. The study showed that if all other factors remain constant, a unit change in strategic supplier partnership will cause performance of the SMEs to increase by 0.471 units ($P=0.0000<0.05$).

The study as shown in Table 4.12 also revealed that there is a positive relationship between customer relationship management to the performance of SMEs in the manufacturing sector. Statistically, the model is also showing that a unit change in customer relationship management, will cause SMEs performance to increase by 0.173 units ($P=0.000<0.05$). Table 4.12 also showed that a unit change in the level of information sharing will increase the performance of the SMEs by 0.285 units ($P=0.000<0.05$).

From the table 4.12, it is typically showing that sound supply chain management practices will have positive effect on the performance of the SMEs. The regression model is showing that ($\alpha = 0.048$) if all factors contributing to firm's performance are held constant, the firm will improve performance by 0.048 units. As shown by Table 4.12, the most critical supply chain management practices were strategic supplier partnership which is responsible for about 47 percent to the changes in the performance of the SMEs but the least supply chain management practice observed by the study is the supply chain postponement.

Table 4.13 Correlation between supply chain management practices and firm performance

Correlations		OPY	SAV	CAV	LAV	PAV
OPY	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	280				
SAV	Pearson Correlation	.922**	1			
	Sig. (2-tailed)	0.000				
	N	280	280			
CAV	Pearson Correlation	.857**	.849**	1		
	Sig. (2-tailed)	0.000	0.000			
	N	280	280	280		
LAV	Pearson Correlation	.909**	.919**	.859**	1	
	Sig. (2-tailed)	0.000	0.000	0.000		
	N	280	280	280	280	
PAV	Pearson Correlation	.788**	.796**	.744**	.812**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	
	N	280	280	280	280	280

** . Correlation is significant at the 0.01 level (2-tailed).

Table 13, is indicating the relationship between supply chain management practices and performance of SMEs in the manufacturing subsector. The outcome of the study is showing that there is a positive significant relationship between supply chain management practices

and the performance of the SMEs. The correlation coefficient of 0.922 is expressing that a unit increase in supply chain management practices will lead to a unit increase in firm's performance. All most, invariably a unit decrease in the activities of supply chain management practices could lead to poor performance of the SME firms. From table 4.13 also, there is a positive significant relationship between and among strategic supplier partnership, customer relationship management, level of information and postponement in supply chain.

4.4 Discussions of findings

Strategic supplier partnership and performance of SMEs in the manufacturing subsector

The outcome of the study showed that strategic supplier partnership has a positive and significant relationship on performance of the SME firms. The literature emphasises that strategic supplier partnership has become a critical supply chain management practices due to supply chain complexity and customer preferences. Authors such as Agus (2015), Wafula and George (2015) asserted that supply chain management practices that make use of networking and improving effective communication with key partners and suppliers will survive more in the market than the non-collaborative firms. The findings of these authors revealed that strategic supplier collaboration had improved the delivery time of the manufacturing firms. The following authors (Fauziah et al 2019, Gharakhani et al 2012, Hussain et al 2018 and Wu et al 2004) also found out that strategic supplier partnership leads to product quality design and customisation of products.

Customer relationship management and performance of SMEs in the manufacturing subsector

The study showed that there is positive significant relationship between customer relationship management and performance of SME firms. In the literature as augured by The effect of customer relationship management systems on the performance of telecom firms was examined by Al-Weshah et al. in 2019. In this study, the four components of customer relationship management—information quality, user happiness, system quality, and system usage—were looked at. The results show that system usage, system quality, and customer relationship management do not significantly affect the performance of telecommunication organizations.

Social media may help firms create new customer engagement skills and enhance marketing strategies and organizational effectiveness, according to Wang & Kim (2017). This study examined social media usage, consumer engagement, company performance, and social customer contact skills. The results of this study show that customer relationship management positively affects customer engagement and that social customer relationship management capabilities positively affect business performance. Additionally, customer engagement has a positive effect on business performance.

Level of information and performance of SMEs in the manufacturing subsector The study concluded that sharing of business information between and among the partners, customers and stakeholders of the SMEs will improve growth of the firms. The study asserted that the quality of information which is measured by the level, adequacy and sufficiency of the information flow is important in all business dealings. This was

supported by Marinagi et al. (2015) that quality flow of information and sound supply chain management practices will improve organisational performance of the SME firms.

However, it was shown that the direct impact of information quality on information sharing is equally considerable. Information sharing was found to be highly strongly associated with improved company performance.

Rached et al. (2015) and Attia (2015) also augured that financial information sharing on each stakeholder's supply chain has positive effect on firm performance. From their study's perspective, sharing product development information with partners will considerably influence firm performance.

Supply chain postponement and organizational performance

Supply chain postponement has positive significant effect on the performance of SMEs in the manufacturing subsector as revealed by the present study. Dong et al. (2019) supported the current study with an argument that a firm employing various forms of postponement will help a firm to manage its supply chain demand risks issues and enhance performance. They also found out that firms employing quantity postponement method, increased their output by doubled. Simo et al. (2016) also supported the present study that logistical postponement strategies are strongly linked to total logistics performance and increase the time it takes to deliver the products.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section of the study is to cover the summary of key findings, conclusion, recommendations and suggestions for further studies. The findings will be focusing on the objectives and hypothesizes of the study.

5.2 Summary of findings

The study sought to evaluate three main objectives. These are:

1. To determine the types of supply chain management practices, use by the manufacturing SMEs in Akuapem North Municipal Assembly
2. To examine the effect of supply chain management practices on the performance of manufacturing SMEs in the Akuapem North Municipal Assembly
3. To assess the challenges of adopting supply chain management practices by the manufacturing SMEs in the Akuapem North Municipal Assembly

The study tested four hypotheses on supply chain management practices and SME performance. The results of the hypothesis revealed that there is a positive significant relationship between and among strategic supplier partnership, customer relationship management, information sharing, postponement in supply chain and the performance of the SMEs in the Akuapem North Municipality.

Strategic supplier partnership and SME performance

The first hypothesis of the study revealed that strategic supplier partnership has positive significant effects on the performance of SMEs in the Akuapem Municipality. This implies that resilient supply chain practices employ by the SMEs will improve performance of

their firms. In contrast, weak and disjointed supply chain management practices use by the SMEs will have disruptions in the performance of the SMEs in the manufacturing sector.

Customer relationship management and SME performance

The second hypothesis of the study also revealed that there is a positive significant relationship between customer relationship management and SMEs performance. It means that effective and efficient collaboration with key customers by the SMEs will improve the performance of their firms.

Level of information sharing and performance

The third hypothesis of the study showed that there is a positive significant relationship between information sharing and performance of the SMEs in the Akuapem Municipality. The information communication technology has direct effect on the performance of the SME firms. An efficient and effective application of information communication technology tools such as the use of mobile phones will improve efficiency of the operations of the SME firms by reducing cost and enhance profitability of the firms.

Postponement and SMEs performance

The fourth hypothesis of the study showed that there is a positive significant relationship between supply chain postponement and performance of SMEs in the Akuapem Municipality. Supply chain postponement in terms of price and product development could lead to firm performance. It means that producing at the right time, pricing and meeting the right market conditions will all go a long way of enhancing performance.

5.3 Conclusion

The study employed strategic supplier partnerships, customer relationship management, level of information sharing and supply chain postponement as the supply chain

management practices identified by the study. The concludes that strategic supplier partnership, customer relationship management, level of information sharing and supply chain postponement have significant positive effect on the performance of SMEs in the Akuapem North Municipality. It concludes that SMEs using appropriate supply chain management practices such as strategic supplier partnership, customer relationship management, level of information sharing and supply chain postponement will improve performance of SME manufacturing firms in the Akuapem Municipality in Ghana.

5.4 Recommendations

The study is recommending that:

The SMEs should adopt supply chain management practices such as strategic supplier partnership, customer relationship management, business information sharing and postponement performance of SME firms. The SMEs should develop effective supplier networking and so as to be competitive in the global business environment.

The SMEs should adopt and use effective and efficient tools of information communication technology to manage the entire supply chain to enhance service delivery and product development. The SMEs should manage the demands and preference of their customers on timely basis tor maximum impact. Pricing and market entry postponement strategies adopted by the SMEs will enhance the growth and survival of the SME firms.

5.5 Suggestions for future research

In relation to future studies, the study is recommending that mixed approach methodology to be used instead of single approach method to assess the impact of supply chain management practices and firm performance. The geographical scope of the study was

limited to Akuapem Municipality but further assessment should consider extending the area of coverage. The sample size should also be increased to including more respondents so as to make the study more representatives.

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QUESTIONNAIRE

This study is undertaken by a student pursuing MSc. in Procurement and Supply Chain Management from the Kwame Nkrumah University of Science and Technology (KNUST). The research topic is **the impact of supply chain management practices on the performance of SMEs in the manufacturing sector: A case study of Akuapem North Municipal Assembly in the Eastern Region**. This questionnaire is designed to elicit information to enable the researcher to undertake the study for academic purpose. Please

your time and energy used in responding to this questionnaire are highly appreciated. Please you are assured that any information given shall be treated with outmost confidentiality and anonymity. Kindly tick/select responses you deem appropriate and provide short and concise answers where necessary. **Thank You.**

Section A: Demographic information of the respondent

1. Please indicate your age bracket: A. 21-30 years [1] B. 31 - 40 years [2]
C. 41 – 50 years [3] D. Above 50 years [4]
2. Please indicate your gender:
A. Male [1] B. Female [2]
3. Please what is your highest educational level: A. None [1] B. JHS [2]
C. SHS/Vocational [3] D. Diploma [4] E. Bachelor's degree [5] F. Master [6]
F. Others, specify.....
4. Please what is your position?
A. Manager [1] B. Assistant Manager [2] C. Supervisor[3] D. Accountant/Accounts officer [4] E. Other, specify
5. How long have you worked with this organisation?
A. Less than 5 year [] B. 5-10 years [] C. Over 10 years []
5. Number of employees (firm size):
A. 1-5 [1] B. 6-30 [2] D. 31-100 [3] E. Above 100[4]

Section B: Supply chain management practices

With regard to SCM practice, that accurately reflects your firm's present conditions. Please circle the appropriate boxes to indicate the extent to which you agree or disagree with each statement. The item scales are five-point Likert type scales with. 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 =agree, 5 = strongly agree.

Code	Statement	1	2	3	4	5
SSP1	Strategic supplier partnership (SSP)					
SSPQ1	We consider quality as our number one criterion in selecting suppliers.					
SSPS2	We regularly solve problems jointly with our suppliers.					

SSPI3	We have helped our suppliers to improve their product quality.					
SSPC4	We have continuous improvement programs that include our key suppliers.					
SSPP5	We include our key suppliers in our planning and goalsetting activities.					
SSPN6	We actively involve our key suppliers in new product development process					

Sources: Li et al (2005), Li et al (2006), Lawer et al (2014), Ibrahim et al (2014) and Haislip (2017)

Code	Statement	1	2	3	4	5
CRM2	Customer relationship management (CRM)					
CRMF1	We frequently interact with customers to set reliability, responsiveness, and other standards for us.					
CMRS2	We frequently measure and evaluate customer satisfaction.					
CMRE3	We frequently determine future customer expectations.					
CMRA4	We facilitate customers' ability to seek assistance from us.					
CMRP5	We periodically evaluate the importance of our relationship with our Customers.					

Sources: Li et al (2005), Li et al (2006), Lawer et al (2014), Ibrahim et al (2014) and Haislip (2017)

Code	Statement	1	2	3	4	5
LIQ3	Level of information quality (IQ)					
LIQC1	Information exchange between our trading partners and us is complete.					
LIQA2	Information exchange between our trading partners and us is adequate					
LIQR3	Information exchange between our trading partners and us is reliable.					
LIQT4	Information exchange between our trading partners and us is timely.					
LIQA5	Information exchange between our trading partners and us is accurate.					

Sources: Li et al (2005), Li et al (2006), Lawer et al (2014), Ibrahim et al (2014) and Haislip (2017)

Code	Statement	1	2	3	4	5
POS4	Postponement (POS)					
POS01	We delay final product assembly activities until customer orders have actually been received					
POSP2	We delay final product assembly activities until the last possible position (or nearest to customers) in the supply chain.					
POSM3	Our products are designed for modular assembly.					

Sources: Li et al (2005), Li et al (2006), Lawer et al (2014), Ibrahim et al (2014) and Haislip (2017)

Section C: Organizational Performance

CODE	Statement	1	2	3	4	5
OP	Organizational Performance (OP)					
OPRI1	Our organization has increased its growth in return on investment as compared to competitors.					
OPPM2	Our organization has increased its profit margin on sales as compared to competitors.					
OPCP3	Our organization has increased its overall competitive position in the market.					
OPMS4	Our organization has increased its market share growth as compared to competitors.					

OPTC5	Our organisation has been timely delivery what the customers' needs					
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Sources: Li et al (2005), Li et al (2006), Lawer et al (2014), Ibrahim et al (2014) and Haislip (2017)

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