IMPACT OF SUPPLY CHAIN MANAGEMENT ON THE PERFORMANCE OF PHARMACEUTICAL INDUSTRY IN NIGERIA

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BEING A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, NASARAWA STATE UNIVERSITY, KEFFI IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DOCTOR OF PHILOSOPHY (PhD) DEGREE IN BUSINESS ADMINISTRATION

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DECLARATION

I declare that this Thesis has been written by me and it is a report of my research work. It has not been presented in any previous application for state diploma or degree. All quotations are indicated and sources of information specifically acknowledged by means of references.

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CERTIFICATION

The Thesis titled: "Impact of Supply Chain Management (SCM) on the Performance of Pharmaceutical Industry in Nigeria" meets the regulations governing the award of Doctor of Philosophy (Ph.D) in Business Administration Degree, of the School of Postgraduate Studies, Nasarawa State University, Keffi and is approved for its contribution to knowledge and literally presentation.

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DEDICATION

This Thesis is dedicated to God Almighty, who stood by me throughout the duration of this study and without whose support I would not have attained this glorious end. I also dedicate it to the Memory of my Late Elder Brother, (Aren Tsakpa Eggon), Chief Ezekiel Zee Adagadzu who painfully passed on during the course of this my journey.

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ABSTRACT

The pharmaceutical industry in Nigeria is a critical and strategic stakeholder in the industrial sector and has huge potentials to contribute immensely to the socio economic growth of the country. Unfortunately, the industry has been unable to achieve more than 30 per cent of the drug needs of the country with over 60 per cent of idle installed capacity. Industry stakeholders attribute this low level of achievement or performance to the many challenges facing the industry and also the stiff competition from imports which accounts for about 70 percent of the drugs in circulation in the country. Added to these challenges are the influence of globalization and inadequate access to modern technology. In order to survive and achieve higher level of performance the industry needs to adopt and efficiently implement supply chain management (SCM) as a strategy that has been found in many studies worldwide to impact positively on the performance of organisations with its attendant benefits such as cost reduction, cycle time reduction, increased market share, increased sales and customer satisfaction. This study therefore examined the impact or effect of SCM practices on the performance of the pharmaceutical industry in Nigeria. Out of the 120 registered pharmaceutical companies in Nigeria which formed the population for this study, the majority of which had alluded to have adopted SCM as a strategy from a pre-test interview conducted, a sample size of 36 companies was determined and selected using the simple random sampling technique. Data were collected using the questionnaire and interview approach and analyzed using SPSS Version 20. Descriptive and causal research designs were used and the findings showed that four of the five supply chain management practices used in the study namely: strategic supplier partnership, customer relationship, level of information sharing and quality of information sharing exerted significant positive impact or effect on the performance of pharmaceutical industry in Nigeria while the fifth namely: postponement exerted significant negative effect. This study therefore recommends that the pharmaceutical industry in Nigeria should significantly increase the uptake and efficiently implement on a sustainable basis all the underlying concepts of the four supply chain management practices that have been found to exert significant positive impact or effect on its performance in terms of capacity utilization, output, market share, sales and customer satisfaction while avoiding the implementation of the supply chain management practice that was found to exert negative effect on its achievement of higher performance.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

All over the globe, many organizations are adopting supply chain management (SCM) strategy in the course of their unending quest to improve their performance, drive success and remain competitive in the market arena (Harland, 2011). The SCM concept as a strategy has been evolving in the past 3 decades and growing in popularity. A typical supply chain comprises essentially of suppliers, manufacturers, wholesalers and consumers while supply chain management typifies the efficient and seamless relationship among supply chain partners through cooperation, collaboration, integration and communication with a view to ensuring that the partnership leads to the provision of services and products that satisfy the expectations of the final consumer. SCM therefore involves the streamlining of the supply-side activities of a company in order to increase customer value and gain advantage over other businesses and competitors in the market place. The activities involved in supply chain management include production, product development, and the information systems required to accomplish these activities. The entire processes and activities of supply chain management focus on the need for the precise product to get to the eventual consumer at the required time (Harland, 2011).

Supply chain management (SCM) exists in different forms and practices with no single definition of the concept. Many scholars and researchers have described and conceptualized SCM using various constructs. For instance: Li; Ragu-Nathan; Ragu Nathan and Rao (2006) in their well cited study described SCM practices as “a five dimensional construct of strategic supplier partnership, customer relationship, level of information sharing, quality of information

sharing, and postponement". These five dimensions were used by the group in their study to examine the impact of SCM practices on the performance and competitiveness of organisations. Their findings showed that all the five constructs except postponement impacted significantly on the performance of organisations (Li et al, 2006). Another group of researchers namely; Lawrence Alvarado and Kosi Kotzab from Oxford University described the newest evolution of SCM practices to consist of: "supplier partnerships, core competencies, use of inter-governmental systems, outsourcing, cycle time compression, continuous process flow and information technology sharing" (Alvarado & Kotzab, 2014). Other researchers have used various other constructs such as Just in Time (JIT), geographical proximity, and others, to explain SCM practices. As SCM practices undergo series of constructions and explanations, organisations also chose and adopt them randomly with a view to enhance their performance and remain competitive.

The literature is awash with reports of countless studies that have been conducted in different parts of the globe to assess how supply chain management impacts on the performance of organisations and the findings provide evidence that the adoption of SCM practices by organisations can lead to the achievement of significant benefits and enhanced performance and competitiveness (Li et al, 2006, Toyin, 2012, Alvarado & Kotzab, 2014). SCM practices other than maximizing customer value and gaining competitive advantage also control the processes of production, shipment and distribution of products centrally. By dynamically handling the supply chain, businesses are able to achieve the benefits of cutting excess fat and providing goods, services, materials and information as quickly as possible. This can be achieved by ensuring stringent control of internal inventories, production, distribution, sales including inventories of the buyers of the business' products (Harland, 2011).

The measurement of performance by organisation takes different forms from the old fashioned traditional approach which focused mainly on financial elements of profitability, liquidity, earnings per share of an organization, etc. to other more recent metrics such as the Balanced Score Card introduced by Kaplan and Norton (1992) whose focus extends beyond the traditional financial perspective to include 3 other perspectives namely: customer, internal business and innovation or learning perspectives. It should be noted that the instruments of performance measurement are imbedded in the process of assessing the investment performance of the company (Platts, 2011; Henri, 2007). The truth is that organisations are more committed these days on achieving results that are not just counted in terms of profits but those that could promote sales and capture reasonable share of the market towards future growth and survival.

The pharmaceutical industry in Nigeria is very strategic and critical in the industrial sector of the Nigerian economy and contributes immensely to the economic and social well-being of the Nigerian people and many others within the West African Region through job creation and the provision of good quality drugs used in the prevention and treatment of the huge disease burden of the country and the region. Unfortunately, it is widely recognized that the industry is struggling mainly as a result of challenges due to infrastructural deficits, poor access to funds, unstable policy domain, multiple taxations, poor government patronage and support, influx of fake and counterfeit drugs and many more (Soludo, 2011). In addition, the industry also depends almost entirely on imported raw materials for its production of drugs. Local production has remained low and accounts for only about 30 per cent of the drug needs of the country with the balance of nearly 70 per cent coming from imports from diverse external sources but mainly from India, China and other Western Countries. Imported drugs come at cheaper prices than locally produced drugs (PMG-MAN, 2009; UNIDO, 2011). Fuelled by the volatile, dynamic and

highly competitive global economy, the pharmaceutical industry in Nigeria faces intense competition.

In a recent review of the global industry, structural shifts and market trends, it was observed that "Nigeria has neither a comparative nor a competitive advantage in drug or pharmaceuticals production" as the industry is seen as one that cannot compete on cost considerations, and as one that has a comparatively very low risk-adjusted rate of return on investment (Soludo, 2011). This scenario paints a gloomy picture of the state of the pharmaceutical industry in Nigeria. This study recognizes this fact but is convinced that the challenges of the pharmaceutical industry in Nigeria are surmountable. It has also been suggested that the industry can perform well and be competitive provided it adopts the right strategies in its stride in line with global best practices (Salako, 1991; UNIDO, 2011).

As at 2016, the pharmaceutical industry in Nigeria had 120 registered manufacturers responsible for about 60 per cent of the manufacturing capacity for drugs in the West African region. The industry therefore has access to the huge market in Nigeria as well as the entire West African region with a projected population of over 300 million people (PMG-MAN, 2009; PCN, 2017). The success of the industry can lead to positive contributions to the socio-economic development of Nigeria. Since the adoption of SCM strategy is associated with success, it stands to reason that the pharmaceutical industry in Nigeria should similarly be realising many of the benefits arising from its use. Concerns over the persistent poor performance and the well-being of the pharmaceutical industry in Nigeria for the past 2 to 3 decades provided the impetus for this study because the industry has all the potentials and market to make it prosper and impact positively on the people and economy of the country.

This study examined the effect of SCM on the performance of the pharmaceutical industry in Nigeria by adopting the five SCM dimensions or practices in a similar manner as the study by Li and his group in 2006, namely: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing and postponement. The performance indicators employed in this study were also adopted from the Li et al (2006) study with modifications to include: capacity utilisation, output, market share, sales and customer satisfaction in response to the poor capacity utilisation and achievement of the pharmaceutical industry in Nigeria.

Expectedly, the findings in this study were consistent with those of other similar studies which showed that SCM as a strategy has significant and positive effect on performance of the pharmaceutical industry in Nigeria.

1.2 Statement of the Problem

The problem of the pharmaceutical industry in Nigeria has to do with its inability to achieve more than 30% of the drug needs of the country in spite of its incredible potentials and expansive market in the country and within the West African Region. The fact that this situation has persisted over several decades is a cause for concern. This has exposed the industry to stiff competition from the nearly 70% imported drugs. Industry stakeholders are quick to point out that the numerous challenges facing the industry including the influence of globalization and inadequate access to modern technology are largely responsible for its observed poor performance. However, it is widely recognized that many organisations all over the world have adopted SCM strategy to improve their performance. Its adoption as a tool by global organisations has led to significant reductions in transaction costs, efficient use of resources and processes and improved performance making it a useful strategy. It was therefore imperative to

examine the impact of the implementation of SCM practices on the performance of the pharmaceutical industry in Nigeria.

There are many well documented studies conducted in different parts of the globe which examined the impact of SCM on performance of organisations (Li, Ragu-Nathan, Ragu Nathan and Rao, 2006; Toyin, 2012; Alvarado & Kotzab, 2014). However, no such study was fully dedicated to examining the impact or effect of SCM on the pharmaceutical industry in Nigeria. This study was therefore conceived to fill an important research gap by focusing only on the pharmaceutical industry in Nigeria. Furthermore, in the study by Li et al (2006) after which this study was fashioned, only single respondents were used in the different industries covered in their study with heightened possibility of respondent bias. Li et al (2006) also used structural equation modeling as the statistical tool for data analysis using LISTREL to examine the relationship between the various variables. Unlike the study by Li et al (2006), this study used multiple respondents drawn from each of the sampled companies and the data obtained were subjected to statistical analyses with regression method used as a statistical tool using SPSS Version 20 to evaluate the causal relationship between SCM practices and performance of the pharmaceutical industry in Nigeria.

1.3 Research Questions

In this study which focused on five dimensions or practices of SCM, an attempt was made to seek answers to the following questions:

1. What impact does strategic supplier relationship have on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria?

2. What impact does customer relationship have on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria?
3. What impact does level of information sharing have on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria?
4. What impact does quality of information sharing have on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria?
5. What impact does postponement have on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria?

1.4 Objectives of the Study

The main objective of this study was to examine the impact of SCM on the performance of pharmaceutical industry in Nigeria. Other specific objectives include: -

1. To determine the effect of strategic supplier partnership on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria.
2. To evaluate the effect of customer relationship on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria
3. To examine the effect of level of information sharing on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria

4. To evaluate the effect of quality of information sharing on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria

5. To determine the effect of postponement on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of the pharmaceutical industry in Nigeria

1.5 Statement of Hypotheses

The following hypotheses can be formulated from the objectives of the research:

$H_{o1:}$ Strategic supplier relationship has no significant effect on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of pharmaceutical industry in Nigeria

H_{o2}: Customer relationship has no significant effect on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of pharmaceutical industry in Nigeria

$Ho_{3:}$ The level of information sharing does not have any significant effect on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of pharmaceutical industry in Nigeria

$Ho_{4:}$ The quality of information sharing has no significant effect on performance (capacity utilisation, output, market share, sales and customer satisfaction) of pharmaceutical industry in Nigeria

$Ho_{5:}$ Postponement does not have any significant effect on the performance (capacity utilisation, output, market share, sales and customer satisfaction) of pharmaceutical industry in Nigeria

1.6 Significance of the Study

This study is important in many ways. Firstly, it will help to fill the gap created by the absence of any study that examines the effect of SCM practices on the performance of the pharmaceutical

industry in Nigeria. Secondly, it will establish if SCM has any impact or effect on the performance of the pharmaceutical industry in Nigeria. Thirdly, the findings and recommendations of this study will assist supply chain managers in the pharmaceutical industry in Nigeria and elsewhere in their choice of appropriate supply chain management practices capable of having significant positive impact or effect on the performance of their organisations. Lastly, this study will provide a basis for further research work.

1.7 Scope of the Study

The five SCM practices or dimensions chosen for the purpose of this study, namely: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement are not the only ones. There are many others, such as: Just in Time (JIT) or Lean capability, geographical proximity, logistics integration, cross-functional coordination and many more, which were not used thereby limiting the scope of this study.

Furthermore, multiple respondents for this study were drawn only from the sampled pharmaceutical manufacturing companies with other supply chain partners not covered. It is virtually impossible for the views of respondents from one tier of supply chain partners to hold across the entire chain.

Finally, the outcomes of this study were based only on research materials from the literature reviewed which are related to SCM practices and organizational performance and also the findings from the questionnaire and face to face interview responses.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Framework

Supply chain management (SCM) is an evolving field which is attracting a lot of interest in both the industry and academia. So many researchers have attempted to explore the rather complex nature of this emerging concept because of its observed potentials as a strategy for improving organizational performance and competitiveness in a global market place that is becoming overcrowded with players.

2.1.1 Concept of Supply Chain Management (SCM)

The concept of SCM and its practices draws heavily from different fields of discipline such as operations management, logistics management, systems engineering, industrial engineering, procurement, and information technology. The term "supply chain management" was first used publicly by Keith Oliver a Consultant at Booz Allen Hamilton, during an interview for the Financial Times in 1982. Though the term was slow to take hold, it however gained popularity in the mid-1990s as demonstrated by the large amount of articles and books that were published on the subject. By the late 1990s the concept became prominent as a management buzzword as operations managers used it in their titles with increasing regularity (Blanchard, 2011; Scott, 2011).

Researchers have observed six major periods or movements that are inherent in the evolution of studies on supply chain management and these include: the creation period, the integration period, the globalization period, the specialization phase 1 period, the specialization phase 2

period and SCM 2.0 period. Under the creation period, the supply chain concept was of great importance in management long before the early 20th century, especially with the creation of the assembly line. The supply chain management in this period was characterised by the need for large-scale changes, re-engineering, downsizing driven by cost reduction programs, and widespread attention to Japanese management practices. The term became more widely adopted following the publication of over 25,000 copies of the seminal book "Introduction to Supply Chain Management" in 1999 by Handfield and Nichols, which was translated into Japanese, Korean, Chinese, and Russian (Blanchard, 2010; Robinson, 2013).

According to Monden and Wormack (2012), the integration era of supply chain management featured the development of electronic data interchange (EDI) systems in the 1960s, and the introduction of enterprise resource planning (ERP) systems in the 1990s. The development of this era continued into the 21st century with the expansion of Internet-based collaborative systems. The era of supply chain evolution was characterized by both increasing value added and cost reductions through integration. According to Robinson (2013) and Scott (2011), the third important development or movement of supply chain management development process was the emergence of globalization which is the process by which the world has become increasingly interconnected due to massively increased trade and cultural exchange. The globalisation situation led businesses or organizations to develop international influence or start operating on an international scale thereby regarded as the biggest companies that are no longer national firms but multinational corporations with subsidiaries in many countries (Scott, 2011; Smith & Ptak, 2011).

Globalization promotes interaction and integration among the people, companies, and governments of different nations, hence, the need for attention to be paid to the management of

supply chains. The globalization era in the development of SCM is characterised by the attention given to global systems of supplier relationships and the expansion of supply chains beyond national boundaries and into other continents. Although global sources in organisations' supply chains can be traced back several decades (e.g., in the oil industry), it was not until the late 1980s that a considerable number of organizations started to integrate global sources into their core business leading to globalization of supply chain management in organizations with the goal of increasing competitive advantage, adding value, and reducing costs through global sourcing (Scott, 2011; Robinson, 2013).

Further, the phase one of the specialization period in the development of SCM was characterised by the outsourcing of manufacturing and distribution processes. In the 1990s, companies began to focus on "core competencies" and specialization. In the process, they abandoned vertical integration, sold off non-core operations, and outsourced those functions to other companies. This new approach altered management requirements, with supply chain extended beyond the company walls and across specialized supply chain partnerships. In addition, the phase two of the specialization period considered SCM to be more as a service. During this era, which spanned the 1980s, specialization within the supply chain was initiated with the coming on stream of transportation brokerages, warehouse management (storage and inventory), and non-asset-based carriers, which matured beyond transportation and logistics into aspects of supply planning, collaboration, execution, and performance management (Blanchard, 2010; Smith & Ptak, 2012; Robinson, 2013).

The last period in the process of supply chain management evolution is the SCM 2.0 period. The term "SCM 2.0" was coined to describe both changes within supply chains themselves as well as the evolution of processes, methods, and tools to manage them in this new "era" which is an

extension of globalization and specialization. This era witnessed the rising popularity of collaborative platforms as highlighted by increased Trade Card's supply chain collaboration platform, which connects multiple buyers and suppliers with financial institutions, enabling them to conduct automated supply-chain finance transactions. SCM 2.0 is considered as a replication of the notion of Web 2.0 (a trend in the use of World Wide Web that is meant to increase creativity, information sharing, and collaboration among users) in supply chain operations. It is the pathway to SCM results, being a combination of processes, methodologies, tools, and delivery options intended to guide companies to achieve their results quickly in view of the increasing complexity and speed of the supply chain due to global competition; rapid price fluctuations; changing oil prices; short product life cycles; expanded specialization; near-, far-, and off-shoring; and talent scarcity (Handfield & Nichols, 1999; Blanchard, 2010; Robinson, 2013).

Studies have shown that there is a lack of one commonly accepted definition or perspective of supply chain management concept. This is in spite of the fact that supply chain management is not a new concept. It has evolved over the past nearly three decades as a strategy of choice employed by many organizations to critically streamline their operations with a view to identifying and eliminating wastes along their supply chains thus improving their incomes and consequently their profitability and competitiveness (Wallenburg et al, 2013).

Also, the past few years have witnessed confusion and disagreement among general business practitioners and operations professionals concerning the terms "supply chain management" and "logistics management" with several definitions officially offered for both terms. Although many people use the two terms interchangeably, in the real sense, there exist differences. "Logistics refers to the activities within a single organization and supply chains refer to networks of

companies that work together. Also, logistics focuses on activities such as procurement, distribution and inventory management. Supply chain management also includes marketing, new product development, finance, and customer service". The structure and composition of logistics tasks in management or logistics department of an organization comprise of: customer service, purchasing, production planning and warehouse; while the structure and composition of a supply chain network comprise of: supplier, manufacturer, wholesaler, and consumer (Christopher, 2001; Hugos, 2012).

Other than logistics, another term that is close to SCM is “procurement”. Procurement is defined as “the process of getting the goods and services required by a company to fulfil its business model”. It is a multi-task process some of which include: developing standards of quality, financing purchases, negotiating price, buying goods, inventory control, and disposal of waste products like the packaging. In the overall supply chain process, procurement stops once the company has taken possession of the goods. To make a profit, the cost of procuring the goods must be less than the amounts that the goods can be sold for, minus whatever costs are associated with processing and selling them.” Procurement is a major component of the Logistics Cycle. It is not only demanding but also time consuming. The success of a procurement exercise has a significantly positive effect on the overall success of a Logistics Cycle. A supply chain on the other hand “consists of everybody involved in getting a business’ product in the hands of a customer. It includes raw material gatherers, manufacturers, transportation companies, wholesale warehouses, in-house staff, stock rooms and the teenager at the register. It also includes the tasks and functions that contribute to moving that product, such as quality control, marketing, procurement, and sourcing”. Procurement is the process of getting the goods needed, while

supply chain is the infrastructure needed to get those goods (Christopher, 1998; Abdallah et al, 2014).

The Council of Supply Chain Management Professionals (CSCMP) (2014), defined concept of supply chain management as "the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management. It also includes coordination and collaboration with channel partners, which may be suppliers, intermediaries, third-party service providers or customers". This definition depicts the place of logistics in supply chain management. Therefore attempts to equate SCM with logistics can only lead to a gross dilution of the extended and more complex role of SCM. A global perspective defined supply chain management in terms of "the design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and measuring performance globally" (Mentzer, 2001). This definition underscores the importance of SCM as adding value to the organisation. It also explains why some Chief Executives of organisations gleefully view SCM in the lens of value addition.

A typical perspective by Coase (1997) described supply chain management as "the management of the flow of goods and services, materials and finances, as well as the movement and storage of raw materials, work in process inventory, and finished goods from the point of origin to the point of consumption". This definition by Coase portrays SCM as a stream of interconnected and interrelated networks and channels as well as active businesses involved in the delivery of needed products and services to the consumers. Thus consumers constitute the beneficiaries of the effort of the other supply chain partners, namely: suppliers, manufacturers, distributors and wholesalers/retailers.

A more customer-focused perspective was provided by Hines (2004), who noted that "supply chain require a total systems view of the links in the chain that work together efficiently to create customer satisfaction at the end point of delivery to the consumer. As a consequence, costs must be lowered throughout the chain by driving out unnecessary expenses, movements, and handling. The main focus is turned to efficiency and added value, or the end-user's perception of value. Efficiency must be increased and bottlenecks must be removed. The supply chain system must be responsive to customer requirements". Hines' perception is supported by Schroeder (2007) who defined supply chain management as "the planning, design, control, and supervision of the flow of information and materials along the supply chain in order to meet customer requirements in an efficient manner now and in the future". Lambert et al (1998) also added to the customer-focused definition and viewed supply chain management to be "the integration of key business processes across the supply chain for the purpose of creating value for customers and stakeholders".

In the view of Handfield (2011), supply chain management (SCM) concept is premised on two main ideas: firstly, "that practically every product that reaches an end user represents the cumulative effort of multiple organizations which are collectively referred to as the Supply Chain. Secondly, that while supply chains have existed for a long time, most organizations have only paid attention to what was happening within their "four walls"; few businesses understood the entire chain of activities that ultimately delivered products to the final customer. The outcome was incoherent and often inefficient chains of supply".

Handfield therefore defined SCM as "the active management of supply chain activities to maximize customer value and achieve a sustainable competitive advantage". SCM symbolizes a committed effort by organizations to create and operate supply chains in the most effective and

efficient ways possible. The organizations that make up the supply chain are connected together through physical and information flows. The physical flows are the most visible aspects of the supply chain and include the transformation, movement, and storage of goods and materials, while the information flows makes it possible for the different supply chain collaborators to coordinate their long term plans and to control the daily flow of goods and material up and down the supply chain (Handfield, 2011). Rouse (2011) added a third perspective called the "financial flows" which covers credit terms, payment schedules, consignment and title ownership arrangements and their movement across the various supply chains. These various flows according to the System Theory (ST) work interrelated through processes and practices that are inherent in the organization (Charlton & Andras, 2013).

According to Li et al (2006) supply chain management practices are "a set of activities undertaken in an organization to promote effective management of its supply chain". Studies have shown that there are no definite ways of describing SCM practices owing to the fact that the concept is still evolving, nonetheless, researchers and scholars alike have developed various conceptualizations and constructs to describe them. Li et al (2006) described the practices using five different concepts which they called "the five dimensional constructs" which include: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement. Apart from Li et al. (2006) various other scholars have used different (but similar) constructs and concepts to describe SCM practices:

For instance: Donlon (2011) defined the most recent evolution of SCM practices to include: "supplier partnership, outsourcing, cycle time compression, continuous process flow, and information technology sharing". Tan, Brite and Etan (2009) used "purchasing, quality, and customer relations as dimensions of SCM practices in their empirical study. Alvarado and

Kotzab (2010) described SCM practices using the following constructs: “concentration on core competencies, use of inter-governmental systems such as Electronic Data Interchange (EDI), and elimination of excess inventory levels by postponing customization toward the end of the supply chain”. Additionally, Jacoby, Lawrence and Bein (2014) used six constructs based on the concept of factor analysis to explain SCM practices as follows: supply chain integration, supply chain characteristics, customer service management, information sharing, geographical proximity and Just in Time (JIT) capability.

Furthermore, Chen and Paulrag (2007) described SCM practices in terms of supplier base reduction, long-term relationship, communication, cross-functional teams and supplier involvement to measure buyer-supplier relationships. As for Min and Mentzer (2004) SCM practices include: agreed vision and goal, information sharing, risk and award sharing, cooperation, process integration, long-term relationship and agreed supply chain leadership.

It can clearly be seen from literature that SCM practices have been portrayed in a variety of distinct perspectives with the primary goal of ultimately improving performance of organizations. This study adopted the five dimensional constructs proposed and used by Li et al (2006) in their study, namely: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing and postponement. These five SCM dimensions or practices cover upstream (strategic supplier partnership) and downstream (customer relationship) sides of a supply chain, information flow across a supply chain (level and quality of information sharing), and internal supply chain process (postponement) (Li et al, 2006). The five constructs were chosen for measuring SCM practices in this study because they very much represent the main aspects of SCM practices. This is without prejudice to all the other constructs researchers have used to study the impact of SCM practices on the performance of

organisations whose exclusion is primarily for the sake of achieving parsimony regarding the length, scope and limitation of this research. The five selected constructs which form the independent variable for the study are explained in greater details below. The proxies that were used as performance indicators have also been explained in brief. Finally some of the benefits arising from the implementation of the supply chain management strategy have been mentioned.

2.1.1.1 Concept of Strategic Supplier Partnership – Strategic supplier partnership is one of the supply chain management concepts which is defined as the long term relationship between an organization and its suppliers. It is designed to leverage the strategic and operational capabilities of individual participating organizations to help them achieve significant on-going benefits (Li et al, 2004). Strategic partnership also referred to as buyer supplier relationship, places emphasis on direct, long-term relationship which supports mutual planning and problem solving efforts (Hsiao, Purchase & Rahman, 2014; Keith, Vitasek & Manrodt, 2016). According to Monczka, Trent and Handfield (1988) strategic supplier partnership is a long-term relationship between a buyer and a supplier characterized by teamwork and mutual confidence. These are possible only when there is trust nourished by exchange of critical and proprietary information that is accurate, timely, adequate and credible.

Such strategic partnerships result in shared benefits among the parties and participation in one or more strategic areas such as technology, products, and markets. According to Kim (2007) strategic supplier partnership as a concept encourages organizations to work more effectively with a few important suppliers with whom they are willing to share responsibility for the success of the products of their joint efforts.

Buyers and suppliers, who partner at the initial stage of the product design process can offer more cost-effective design choices, help in design assessment and in the selection of the best components and

technologies that will lead to the delivery of appropriate product. Organizations that operate strategically and work closely together can eliminate wasteful time and effort. When buyer supplier partnership is effective, it can be a critical component of a leading edge supply chain (Li et al, 2006; Donlon, 2011; Jacoby et al, 2012).

2.1.1.2 Concept of Customer Relationship – As a concept of SCM, customer relationship evolved and has been employed by organisations in order to manage customer complaints, build long-term relationships with customers, and improve customer satisfaction (Li et al, 2004). Customer relationship or customer relationship management is a crucial component of SCM. It is a concept that has been in existence for a very long time. However, as a result of the increasing importance of mass customization and personalized service, relationship management with customers is becoming vital for corporate survival. In the view of Tan, Brite and Etan (2009) committed customer relationships create sustainable advantage which serve as inherent barriers to competition.

Customer Relationship Management (CRM) has its evolutionary roots in the progression of relationship marketing and the great amount of attention given to improving customer retention through the effective management of customer relationships (Winer, 2001). The Commitment-Trust Theory of Relationship Marketing states that for a relationship to be successful in a business, two fundamental factors must exist: "Trust and Commitment" (Mack, 2013). Relationship Marketing involves forming bonds with customers by meeting their needs and honoring commitments. Across the globe, customer relationship management (CRM) has been one emerging and recognized strategy that many business organizations adopt in order to drive success and achieve competitive advantage (Walden, 2013). According to Boateng (2014), CRM is generally adopted "to enable organizations to better serve their customers through the

introduction of reliable processes and procedures for interacting with those customers". This paints the picture that the customer is a key consideration in every business arrangement and should be taken very seriously and managed effectively (Rosenbrook, 2015). It is recognized across board that the customer is "King" and according to Kjerulf, (2014) "the customer is always right"

The successful implementation of SCM programs is predicated on the extent to which good relationships exist among supply chain members, including customers. When there is close customer relationship, an organization is able to differentiate its product from competitors. It is also able to sustain customer loyalty and drastically extend the value it provides its customers.

2.1.1.3 Concept of Level of Information Sharing – This defines the extent to which critical and proprietary information is shared or exchanged with supply chain partners (Li et al, 2004). Information sharing is usually described in terms of: quantity and quality. These are important dimensions of SCM and explain why they are often considered as independent constructs in studies conducted on SCM. Information sharing can vary from being strategic to tactical in nature and from information about logistics activities to general market and customer information. It has been suggested by many researchers that the key to seamless supply chain is the provision of undistorted and up-to-date marketing data at every node within the supply chain. By sharing available data with other members of the supply chain, such information can be used to the advantage of the company as against other competitors (Mentzer et al, 2004; Donlon, 2011; Jacoby et al, 2014).

When vital information is shared in advance it helps the partners to effectively plan their activities in a manner that will be mutually beneficial. Such vital information usually is about

events and changes as well as about core business processes all of which foster the relationship among supply chain partners. Level of information sharing is achieved on account of Trust and Commitment that evolves over a long period of relationship among supply chain partners.

2.1.1.4 Concept of Quality of Information Sharing – As a concept, quality of information sharing focuses on accuracy, timeliness, adequacy and credibility of information exchanged (Li et al, 2004). The importance of information sharing and the significance of its impact on SCM depend on what information is shared, when and how it is shared, and with whom. Studies have shown that accurate information embodies great advantages for an organization. However, studies also revealed that as information is transmitted along the supply chain, its quality is affected by the dysfunctional effects of inaccurate and delayed information as well as the divergent interests and opportunistic behaviour of supply chain partners. Informational asymmetries across supply chains affect the quality of information shared. Ordinarily, organizations will deliberately distort information that can potentially reach not only their competitors, but also their own suppliers and customers. Within most organizations, there appears to be a built-in reluctance to give away too much information because information disclosure or sharing will make them lose grip of power. In spite of these predispositions, it must be emphasised that guaranteeing the quality of the information shared is very critical for the success or effectiveness of SCM. While organizations need to view their information as a strategic asset they must at the same time make sure that it flows with minimum delay and distortion (Mentzer et al, 2004; Li et al, 2006; Donlon, 2011; Jacoby et al, 2014).

2.1.1.5 Concept of Postponement – This is the practice that involves the moving forward of one or more operations or activities (making, sourcing and delivery) to a much later point in the supply chain (Li et al, 2004). In developing a postponement strategy, it is important to consider

how many steps to postpone, and which steps to postpone. Postponement as a process confers flexibility which allows an organization to be able to develop different versions of the product in order to meet the ever changing needs of customers. It also makes it possible to distinguish a product or to modify a demand function. Postponement increases an organization's flexibility in responding to changes in customer demand by simply keeping materials undifferentiated for as long as possible. In addition, organizations are able to reduce supply chain cost by keeping undifferentiated inventories. It is needful for organisations which adopt postponement to match the type of products and market demands of a company with the structure or constraints within the manufacturing and logistics system. Generally, the postponement strategy may be suitable in the following conditions: innovative products; high monetary density products; high specialization products; wide range products; markets characterized by long delivery time; manufacturing logistics systems with small economies of scales; low delivery frequency; and high demand uncertainty (Li et al, 2006; Alvarado et al, 2010).

2.1.1.6 Benefits of Supply Chain Management - The above definitions and conceptualizations of SCM practices, clearly show that the main objective or goal of supply chain management is to provide products or services of acceptable quality and standards through the collaborative activities of supply chain partners (from suppliers through manufacturing and distribution to the final consumer). There are so many benefits arising from SCM practices by organizations. Supply chains therefore represent the growing interrelationships among stakeholders in the supply of products and services designed to improve efficiency, reliability and consumer satisfaction. SCM provides companies with opportunities to reduce their cycle time leading to a corresponding reduction in their inventory, lower costs, increase their flexibility and improve deliveries of products and services. SCM also promotes collaboration and cooperation across

internal departments of an organization and among the other stakeholders in the chain for greater improvements and efficiencies in line with the concept of Systems Thinking and Approach (Christopher, 1998).

Singh (1985) also subscribes to the benefits of effective supply chain management and lists some of them to include: “enhancing customer service, expanding sales revenue, reducing inventory cost, improving on-time delivery, reducing order to delivery cycle time, reducing lead time, reducing transportation cost, reducing warehouse cost, reducing and rationalizing supplier base, expanding width and depth of distribution”. The achievement of these benefits typically and significantly reduces costs of transactions of an organization, improves its financial well-being and ultimately its competitiveness. The emerging new world order created by globalization has led to the opening of markets and equally increased pressures on companies and organizations to work much harder and purposefully in order to remain competitive if they are to survive and this explains why SCM has become increasingly important (Christopher, 1998).

2.1.2 Concept of Organizational Performance

In Management, the concept of performance is defined in two main perspectives or ways. Firstly, performance is “the action or process of executing or carrying out the tasks or functions, “Task-Oriented” Perspective, of an organization for the purpose of achieving certain objectives” (Henri, 2007). This means that the duty manager or line manager plans and allocates duties or tasks to workers to carry out, and by the end of discharging the tasks, a measurement is carried out to determine the level of performance or how well the tasks were performed or discharged against certain parameters like speed, completeness, accuracy, etc. (Fowler, 2012). Secondly, it is described as “the result of the activities of an organization or investment, “Finance-Oriented”

perspective, over a given period of time". This perspective defines performance from the financial aspect of a company based on the returns produced by an organization's investment project over a period of time, usually one year (Groppelli & Ehsan, 2000). The parameters used in measuring performance based on this perspective are profitability, liquidity, earnings per share of an organization.

The concept of performance is important in management because it provides the framework for the measurement of the extent and level to which organizational objectives have been achieved or met thereby enabling appropriate actions to be taken to address observed lapses or gaps for further improvements. Also, performance by whatsoever measures provides the basis for comparisons within and between organizations (Groppelli & Ehsan, 2000). The basis for comparison are rooted in the conceptualization of performance by the Business Dictionary (2012) which defined performance as "the accomplishment of a given task measured against preset known standards of accuracy, completeness, costs, and speed".

This definition leads to the identification of key performance indicators (KPI's) which are deployed to monitor activities and plans in order to determine progress or lack of it, towards achieving the objectives or goals of an organization. Performance is therefore action directed at achieving some key objectives (Fowler, 2012). Essentially, Key Performance Indicators are measurable values which organizations adopt to demonstrate how effectively they are actualizing key objectives; additionally, organizations adopt the KPIs to evaluate their success at reaching targets (Taylor & Gibbon, 1990).

KPIs are of different types: sales indicator, insurance indicator, supply chain indicator, retail indicator, finance indicator, marketing indicator, social media indicator, call center indicator, and

help desk indicator. Choosing the right KPIs depends on some factors such as: specific goals or targets, the industry, the organization, the level of performance, the part of the business that needs tracking, economic growth rate, and so on. Usually, different departments in the organization adopt different types to measure success based on specific business goals and targets (Taylor & Gibbon, 1990).

The definitions of organizational performance given by scholars are diverse and take many forms depending on whom or what the measurement is meant for and are evaluated as a result or outcome phenomenon for specific actions or activities. Upadhaya, Munir and Blount, (2014) defined organizational performance as "the actual output or results of an organization as measured against its intended outputs or goals and objectives". What this implies is that organizations set certain targets to be achieved after carrying out business operations over a period of time (Kamau, 2011). The definition of organizational performance by Mahapatro (2009) is "the ability of an organization to fulfill its mission through sound management, strong governance and a persistent rededication to achieving results".

Organizational performance is said to consist of three specific areas of the outcomes of a firm which include: financial performance (profits, return on assets, return on investment, etc.); product market performance (sales, market share, etc.); and shareholder return (total shareholder return, economic value added, etc.) (Richard, Devinney, Yip & Johnson, 2009). In supporting this view Thompson et al (2007) noted that using financial measures alone tends to overlook the fact that for a company to achieve or deliver better financial results from its operations it must first achieve strategic objectives that improve its market capability or competitiveness. In other words, non-financial measures are also relevant and include innovativeness and market standing. Performance is thus measured by both financial and non-financial measures (Manyuru, 2015).

Traditionally, organisations focused more attention on financial metrics as measure for organizational performance. However, in the early 90's Robert Kaplan and his partner David Norton came up with the Balanced Score Card (BSC) model which proposed the use of a set of measures that assisted top managers to take a quick but comprehensive view of the business from four important perspectives. These include: Financial or accounting metrics such as profitability, growth, leverage, liquidity and cash flow measures; operational measures such as market share, changes in intangible assets (patents or human resources), customer satisfaction and stakeholder performance; market based measures such as return on shareholders assets, market value added, and holding period returns; and economic value measures (residual income, economics value added, and cash flow return on investment (Kaplan & Norton, 1992).

The use of the four perspectives as proposed by the BSC has been linked with the reduction in information overload because it is able to limit the number of measures used. As observed by Kurien and Qureshi (2011) it also compels managers to focus on the few measures that are most essential. Likewise, the use of several perspectives also guards against sub-optimization by compelling senior managers to consider all measures and determine whether observed improvement in one area could have been achieved at the expense of another.

It addition to the argument that the BSC is a valuable framework suggesting important areas in which performance measures might be useful and that it is designed more as a monitoring and controlling tool rather than an improvement tool. Neely et al. (2000) posited that it provides little guidance on how the appropriate measures can be identified, introduced and ultimately used to manage business. Based on these views, Neely et al. (2000) concluded that the BSC does not in any way take into account the perspective of the competitor. It also does not specify any mathematical logical relationships among the individual's scorecard criteria thus making it

difficult to make comparisons within and across firms using BSC (Soni et al., 2010 as cited by Kurien & Qureshi, 2011). Gomes et al.2004 (as cited by Kurien and Qureshi, 2011) in his argument believed that BSC is more useful as a strategic management tool, rather than a real and complete performance measurement system (PMS).

There have been attempts in recent years by many organizations to assess performance of organizations using multiple measures such as: financial performance (e.g. shareholder return), customer service, social responsibility (e.g. corporate citizenship, community outreach), employee stewardship, organizational performance, performance measurement systems, performance improvement, and organizational engineering (Kamau, 2011; Kaplan & Norton, 2012). Lee and Bose (2012) similarly proposed numerous performance measures which include; sales, profit, productivity, revenue, dividends, growth, stock price, capital, cash flow, return on assets, return on capital, return on equity, return on investment, earnings per share as well as other financial ratios. Other models of performance measures exist and come with their conception of how organizational performance can be measured but overall the choice and use of any measure must remain the exclusive preserve of the individual organisation. Overall, performance measurement should place emphasis on total system efficiency and the equitable distribution of monetary reward to supply chain partners.

In their publication, Kurien and Qureshi (2011) also described several other performance metrics which are similar in approach to the Balanced Scorecard. Some of these include, Performance Prism Model, Performance Pyramid Model and the Performance Model developed by the Supply Chain Council, known as the Supply Chain Operations Reference (SCOR). These various models present organisations with choices in deciding which model to use in evaluating the performance of their organizations based on their organizational objectives.

The key performance indicators (KPIs) or metrics used in this study include: capacity utilization, output, market share, sales and customer satisfaction. These were based on the outcome of the comments made by key stakeholders in the pharmaceutical industry in Nigeria during the interviews conducted and as adopted from several similar studies in literature that utilized some of these metrics such as Li et al., (2006), Toyin, (2012). These performance proxies are further explained herewith in brief.

2.1.2.1Capacity Utilization

Capacity utilization is an important indicator or concept in business especially for manufacturing firms because it is often used as a measure of productive efficiency. Average production costs tend to fall as output rises – so higher utilization can reduce unit costs, making a business more competitive. For this reason, firms usually aim to produce as close to full capacity (100% utilization) as possible. It is however not certain which level of capacity utilization can be referred to as ideal (Jackson, 2017; Riley, 2017).

Capacity utilization is closely related to output. Capacity utilization is seen as "a measure of the extent or level to which the productive capacity of a firm or country is being used in generation of goods and services" On the other hand, output is the total quantity of goods or services produced, (Business Dictionary, 2016); It can also be defined as the percentage of total capacity that is actually being achieved in a given period. It is the relationship between output that is produced with the installed equipment, and the potential output which could be produced with it, if capacity was fully used (Jackson, 2017)

2.1.2.2 Output of Productivity

In the field of business, output means the "total quantity of goods or services produced in a given time period, by a firm or industry", whether consumed or used for further production (Tim, 2016).

Output of productivity is an important indicator used in business to measure productivity level especially for manufacturing firms because it is often used as a measure of productive efficiency and performance. Also, average production costs tend to fall as output rises – so higher output can reduce unit costs, making a business more competitive (Jackson, 2017).

It must be understood that the term “output” has different definitions across different fields of study (Magid, 2014; Alan et al, 2015).

2.1.2.3 Market Shares

According to Reibstein et al (2016), a company's market share is its portion of total sales in relation to the market or industry that it operates within. A company that has a 25% share of the market for a particular product simply means out of a total of a hundred products sold in the market in a particular location, the company accounts for 25 of those items sold.

In the view of Greene & Armstrong (2017), investors and analysts monitor increases and decreases in market share carefully, because this can be a sign of the relative competitiveness of the company's products or services. As the total market for a product or service grows, a company that is maintaining its market share is growing revenue at the same rate as the total market.

Market share increases can allow a company to achieve greater scale with its operations and improve profitability. A company can try to expand its share of the market, either by lowering prices, using advertising or introducing new or different products. In addition, it can also grow the size of its market size by appealing to other audiences or demographics (Greene & Armstrong, 2017).

The main advantage of using market share as a measure of business performance is that it is less dependent upon macro environmental variables such as the state of the economy or changes in tax policy. Market share is said to be a key indicator of market competitiveness—that is, how well a firm is doing against its competitors.

The Financial Times (2017) describes market share as the percentage of an industry, or market's total sales that is earned by a particular company over a specified time period. It is calculated by taking the company's sales over the period and dividing it by the total sales of the industry over the same period. This metric is used to give a general idea of the size of a company in relation to its market and its competitors.

2.1.2.4 Sales

The term “sales” consist of interpersonal interaction (or the one-on-one meetings, telephone calls and networking) that a business or sales representative of a business engage in with prospects and customers in order to exchange goods or services for money (Gordon, 2017). Spacey (2017), sees sales volume as a sales metric that counts or measures the products or services sold in a period. According to Codjia (2018), “sales volume” is the quantity or number of goods sold or services provided in the normal operations of a company in a specified period. The difference is

that, sales is the activity related to selling, while sales volume is the amount of goods or services sold in a given time period. This figure is usually monitored by investors to see if a business is expanding or contracting (Management Study Guide, 2018).

Within the pharmaceutical industry, sales volume may be monitored at the level of the product, product line, customer, subsidiary, or sales region. This information may be used to alter the investments targeted at any of these areas (PMG-MAN, 2017). A business may also monitor its break even sales volume, which is the number of units it must sell in order to earn a profit of zero. The concept is useful when sales are contracting, so that management can determine when it should implement cost reductions. This can be a difficult concept to employ when there are many different products, and especially when each product has a different contribution margin (Codjia, 2018).

2.1.2.5 Customer Satisfaction

The term ‘customer satisfaction’ is important because “it provides a leading indicator of consumer purchase intentions and loyalty” (Westbrook & Oliver, 2016). Customer satisfaction data are among the most frequently collected indicators of market perceptions which usually inform ratings. In business management generally, the term “Customer Satisfaction” is frequently associated and used in marketing to describe “a measure of how products and services supplied by a company meet or surpass customer expectation” (Gittman et al, 2015).

Customer satisfaction is seen as a key performance indicator within business and is often part of a Balanced Scorecard made popular by Kaplan and Norton in 1992. In a competitive marketplace where businesses compete for customers, customer satisfaction is seen as a key differentiator and

increasingly has become a key element of business strategy. This accounts for why businesses of nowadays are relentlessly and continually seeking for feedback from customers so as to improve their satisfaction (Farris et al., 2015; Gittman et al, 2015).

Organizations have been advised never to ignore the importance of customer satisfaction (Kierczak, 2017). This is because customer satisfaction is one of dozens of factors contributing to the success (or failure) of a business. Therefore, it is important to track this factor and work on improving it in order to make customers more loyal and eventually turn them into brand ambassadors. Customer satisfaction is thus important because a loyal customer is a treasure a business should keep and hide from the world (Gittman et al, 2015).

Customer satisfaction is well achieved when organisations pursue aggressive customer relationship. According to Owney (2013), the benefits of building or sustaining relationships with customers abound and cannot be over emphasized Hoyer (2016) observed that the ongoing relationship or connection between a company and its customers involves marketing communications, sales support, technical assistance and customer service. The relationship is measured by the degree of customer satisfaction through the buying cycle and following receipt of goods or services.

2.2 Empirical Review

2.2.1 Supply Chain Management and Organizational Performance

Several studies have been conducted globally to examine the impact of SCM on organizational performance. The outcomes of these studies have revealed that the impact of supply chain management on performance of organisations could be either positive or negative. On the

positive side, one study that has been most cited regarding the impact of SCM on organizational performance was conducted by Li et al (2006). These researchers observed that an effective supply chain management (SCM) has the potential of improving organizational performance and is a valuable tool for securing competitive advantage. To facilitate their study, Li et al, (2006) conceptualized and utilized five dimensions of SCM practices, namely: strategic supplier partnership (SSP), customer relationship (CR), level of information sharing (LIS), quality of information sharing (QIS), and postponement (POST). They tested the relationships between these five SCM dimensions and organizational performance as well as competitive advantage. The primary data for their research were collected using questionnaires administered to 196 organizations within the city of Smithfield and Toledo in USA and the relationships proposed in their framework were verified using structural equation modeling. The results of the analysis showed that "higher levels of SCM practice can lead to enhanced competitive advantage and improved organizational performance". Furthermore, "competitive advantage can have a direct, positive impact on organizational performance" (Li et al, 2006). On their own, the researchers acknowledged the shortcoming of their study in terms of the use of single respondents which had the potential for respondents' bias. Besides, their study did not cover all the supply chain partners thereby creating a gap.

A similar study was conducted by Koh, Demirbag, Bayraktar, Tatoglu & Zaim in 2007. These researchers examined the impact of SCM practices on Small/Medium Sized Enterprises (SMEs) in Turkey. The purpose of their research was to review the underlying dimensions of SCM practices and to empirically test a framework for identifying the relationships among SCM practices, operational performance and SCM-related organizational performance. The primary data of their research were obtained from a sample size of 203 SMEs which were operating as

manufacturers of fabricated metal products and general purpose machinery in Istanbul, Turkey (Koh et al, 2007).

The Partial Least Squares Statistical Method, which is a Variance-Based Structural Equation Modelling approach based on Exploratory Factor Analysis (EFA) was used by the researchers to test their framework. SCM practices were grouped in two factors: outsourcing and multi-suppliers (OMS), and strategic collaboration and lean practices (SCLP). The result of the analysis indicated that both SCLP and OMS factors have direct positive and significant impact on operational performance. In contrast, both factors were found not to have a significant and direct impact on SCM-related organizational performance. However, since the direct relationship between the two performance-constructs was found significant, both factors of SCM practices have an indirect and significant positive effect on organization through operations (Koh et al, 2007).

Another study was conducted in Japan by Hines & Jue in 2004. The study was conducted to test the impact of supply chain management on organizational performance. Hines and Jue noted that "supply chain require a total systems view of the links in the chain that work together efficiently to create customer satisfaction at the end point of delivery to the consumer". The focus of their study was on how to use supply chains effectively to meet the demands and needs of customers.

The researchers believed that every element on the supply chain is a customer, and it is important to meet the need of these customers in order to increase performance. They believed that when the needs of customers are met and customers get satisfied, then performance could be considered as high. The study by Hines and Jue was conducted among 20 textile industries in

Japan with the aim of determining the impact of supply chain management on the power of organizations to meet or satisfy customer needs (Hines & Jue, 2004).

Hines and Jue (2004) considered the impact of three dimensions of supply chain management, namely: supplier integration, information sharing and postponement on customer satisfaction and organizational performance. Their primary data obtained with the use of questionnaires and interview methods from the 20 textile companies in Japan were analysed using regression method. The findings showed that supplier integration and information sharing had direct positive impact on customer satisfaction, while supplier integration, information sharing and postponement had positive impact on organizational performance (Hines & Jue, 2004).

In Pakistan, a similar study was conducted in 2007 by Chen and Paulrag who described SCM practices in terms of: reduction of supplier base, long-term relationship, communication, cross-functional teams and supplier involvement to measure buyer-supplier relationships. These researchers believed that performance can improve depending on how the organization is able to manage the five SCM practices in their operations and attempted to measure the relationship between SCM and organizational performance. Their study sampled 50 small sized businesses in Pakistan. Data were obtained using the questionnaire and focused group discussions especially among the businesses that were into fabric making. Primary data were presented in tables and charts and analyzed using the multivariate analytical tool (Chen & Paulrag, 2007). The findings from the study indicated that two practices of SCM namely: supplier base reduction and cross-functional teams did not impact positively on the operations of small sized businesses in Pakistan. On the other hand, long-term relationship, communication, and supplier involvement had positive impact on the performance of small businesses in Pakistan (Chen & Paulrag, 2007).

In Malaysia, Tan, Brite and Etan (2009) conducted a study in which they investigated the impact of supply chain management on the performance of businesses. These researchers used "purchasing, quality, and customer relations as dimensions of SCM practices in their empirical study. The aim of their study was to find out if the performance level of manufacturing firms in Malaysia could increase with the aid of supply chain management practices or dimensions (Tan, Brite & Etan, 2009).

The researchers sampled 76 manufacturing firms across various cities in Malaysia. The primary data for their study were collected using questionnaires and were presented and analyzed using structural equation modelling and descriptive analysis model. The findings showed that the three supply chain management practices used in the study had significant and positive impact on supply chain performance (Tan, Brite & Etan, 2009).

A more recent study was conducted in Jordan in 2014 by Abdallah, Obeidat and Aqqad for the purpose of examining the impact SCM practices have on supply chain performance in terms of supply chain efficiency and supply chain effectiveness. In addition, the researchers also investigated how competitive intensity moderates the effect of the relationship between supply chain management practices and supply chain performance. The primary data for their study were obtained from a sample of 104 manufacturing firms in Jordan and hierarchical regressions were used to test the hypothesized relationships (Abdallah et al, 2014). The findings indicated that three of the supply chain management practices used in the study, namely: internal integration, information sharing, and postponement, had significant and positive effect on supply chain efficiency and performance while the remaining two of the supply chain management practices, namely: supplier integration and customer integration, did not. The results of their study also showed that competitive intensity moderated the relationship between both customer

integration and information sharing and supply chain effectiveness performance (Abdallah et al, 2014).

It is interesting that customer integration did not have positive effect on supply chain efficiency and performance. According to the belief by Hines and Hue (2004) every element on the supply chain is a customer, and it is important to meet the need of these customers in order to increase performance. Since customer integration is expected to increase customer satisfaction and by implication increase performance, the outcome of the study by Abdallah et al (2004) is an interesting departure from the expected.

In the same year, Jacoby, Lawrence and Bein (2014) conducted their study among large scale construction firms in England using six constructs based on the concept of factor analysis to explain SCM practices, namely: supply chain integration, supply chain characteristics, customer service management, information sharing, geographical proximity and Just in Time (JIT) capability to investigate the degree of impact these six constructs had on the performance of construction firms. Data for the study were obtained from 10 top construction firms in England using questionnaires and structured interview method. The data collected were presented in bivariate statistical tables and analysis was conducted using the linear regression analytical tool (Jacoby, Lawrence & Bein, 2014).

The findings from the study indicated that some of the SCM constructs namely: supply chain integration, customer service management and information sharing had positive impact on performance of the 10 construction companies sampled. Conversely, the other three constructs namely: Just in Time (JIT) capability, supply chain characteristics and geographic proximity did not impact positively on the performance of the 10 construction companies (Jacoby, Lawrence & Bein, 2014).

In 2010, a group of researchers namely Muhammad Shakeel Sadiq Jajja, Shaukat Ali Brah, and Yed Zahoor Hassan conducted a study in the USA in which they examined the Impact of Strategic Supply Chain Management on Organizational Performance. The researchers were motivated by the discovery that supply chain management is gaining strategic importance for business organizations across the world ostensibly from the increased coverage of strategic supply chain issues in the management research (Jajja et al, 2011).

The interest in the strategic issues stems from the organizational needs to look at the bigger picture as local optimum is no longer sufficient for an organization. Their study set out to develop a comprehensive research model to investigate supply chain management as a dimension of business strategy. They focused on highlighting the role of supply chain management in business strategy and investigated how the adoption of supply chain management as a business strategy led to positive outcomes (Jajja et al, 2011).

Furthermore, the study sought to explore if enhanced internal operations and supplier functioning could lead to improved organizational performance using both management and suppliers constructs for SCM while using operations management literature on performance, including the SCOR model, for developing comprehensive measure of organizational performance (Jajja et al, 2011).

The use of questionnaire and interviews with the top decision makers in supply chain management provided the basis for testing of the research framework. Finally, the study used SPSS and structural equation modeling technique using AMOS to analyse the data that were obtained. The findings from the study showed that SCM impacts positively on performance of organizations (Jajja et al, 2011).

The use of only two constructs, namely: management and suppliers in this study out of the many supply chain practices makes the study unique. It is the only study out of the very many similar studies in literature to use these practices to examine the relationship between SCM and organizational performance. The researchers failed to clearly explain the rationale behind their use of these two practices and it is not clear under what contexts the two were used.

Similarly, in India, some other researchers namely: Ganesh Kumar and Nambirajan Tsever conducted a study in 2012 in which they examined the impact of supply chain management components on supply chain performance and organizational performance. The purpose of their study was to investigate how supply chain management components and supply chain performance affect organizational performance by measuring moderating effects of supply chain practices in clusters of manufacturing firms (Kumar & Nambirajan, 2013).

The study was conducted in the Union Territory of Puducherry, India and the researchers sourced their primary data through the use of questionnaire administered to recognized organizations in the sampled Territory. A three-phase statistical analysis which comprised phase one (supply chain practices clustering), phase two (convergent validity, reliability, and discriminant validity), and phase three (path analysis) was used to analyze the data (Kumar & Nambirajan, 2013).

The findings from this study showed that critical SCM components will interact with supply chain performance to influence organizational performance. These findings provide important insights for managers to understand the disposition of the firm to better leverage critical supply chain by exploiting relationships with performance metrics. The research was among the first

empirical works that specifically investigated the relationships between SCM and Performance thereby filling an important gap in the supply chain literature (Kumar & Nambirajan, 2013).

Once again, the researchers in this study did not provide sufficient information on the specific SCM practices or components used to examine the relationships between SCM and performance.

Another group of researchers in 2013 namely: Meisam Karami, Maryam Joharishirazi, Saif-Ur Rehman Khan and Muhammad Saddique conducted a study in Malaysia to investigate the impact of SCM on organizational performance. The objective of their study was to create a conceptual framework to investigate the link between SCM practices and healthcare organizational performance that showed the mediating impact of alliance integrated network in Malaysia (Karami et al, 2014).

The researchers adopted five dimensions of SCM practices namely: demand management (DM), information and technology management capacity (ITMC), resource management (RM), customer relationship management (CRM), supplier relationship management (SRM), and the performance indicators adapted in this study include: higher sales, higher accuracy in costing, improved coordination between departments, improved coordination with suppliers, and improved coordination with customers (Karami et al, 2014). A total of 103 healthcare organizations in Malaysia were sampled and data from the respondents were collected using the questionnaire. Data collected were presented and analyzed using probability matrix and descriptive statistics. The findings showed that the five dimensions of SCM practices used in the study had positive and significant relationship with organizational performance (Karami et al, 2014).

In 2013 in Jordan, a researcher named Ahmad Nasser Abuzaid conducted a study with the objective of investigating the effect of SCM practices on performance of 47 Jordanian manufacturing firms mentioned in Amman Stock Exchange and with influence in international markets. The respondents in the study composed of 93 managers working in the target companies (Abuzaid, 2014). The questionnaire was used to collect data and multiple regression analysis was used to test the hypotheses. Empirical results found that supply chain management practices had a positive impact on performance and the highest impact was for the relationship with customers, while the lowest impact was for the quality of information sharing. In addition, level of information sharing had the highest impact on market shares, and the strategic partnership with supplier has the highest impact on production and capacity utilization, while the relationship with customers has the highest impact on sales (Abuzaid, 2014).

Some researchers, namely: Jiangtao Hong, Yibin Zhang & Mingxia Shi conducted a study in China in 2016 in which they examined the impact of supply chain quality management practices (SCQMP) and knowledge transfer (KT) on organizational performance. The researchers had observed that extensive studies had been conducted in recent years on both quality management practices (QMP) and knowledge transfer (KT) from inter-organizational and intra-organizational perspectives. However, to the best of their knowledge, the interaction between QMP and KT in a supply chain and their joint effects on organizational performance had not been fully addressed (Hong et al, 2017).

Therefore, the purpose of their study was to provide perceptions for improving organizational performance by mapping the relationship between supply chain quality management practices (SCQMP) and knowledge Transfer. Their survey which covered 157 Chinese manufacturing firms was used to test a conceptual model that proposes relationship among SCQMP, Knowledge

Transfer and Organisational Performance (OP) (including operational performance and innovation performance). Structural equation modeling revealed that internal QMP had significant positive effect on internal KT, while QMP at supply chain level had significant positive effect on cross-organizational KT (Hong et al, 2017).

These findings showed that both internal and cross-organizational Knowledge Transfer (KT) can promote operational and innovation performance in organizations, although the influence from internal KT was much more significant than cross-organizational KT for Chinese firms. The findings contribute to theory as well as practice by increasing understanding of how to improve the operational and innovation performance through enhancing supply chain quality management practices (SCQMP) and Knowlwdge Transfer (KT) (Hong et al, 2017).

In Jordan, Ahmad Adnan Al-Tit conducted a study in Jordan in 2016 that examined the effect of organizational culture (OC) and supply chain management (SCM) on organizational performance (OP). The sample of the study consisted of 93 manufacturing firms in Jordan. Data were collected from employees and managers from different divisions using a reliable and valid measurement instrument (Al-Tit, 2017).

The findings confirmed that both OC and SCM practices significantly predict organizational performance (OP). The study was significant in reliably testing the relationship between SCM practices and OP. However, because the impact of organizational culture was found to be greater than the impact of SCM practices on organizational performance it was recommended that future studies should consider the moderating and mediating role of OC on the relationship between SCM practices and OP (Al-Tit, 2017).

Some researchers namely Selim Zaim; Ekrem Tatoglu; Erkan Bayraktar; Mehmet Demirbag & Lenny Kosch conducted a study in Turkey in 2016 regarding the impact of supply chain management practices on performance of Organizations. The purpose of this study is to determine the underlying dimensions of supply chain management (SCM) practices and to empirically test a framework identifying the relationships among SCM practices, operational performance and SCM-related organizational performance with special emphasis on small and medium size enterprises (SMEs) in Turkey (Zaim et al, 2017).

Data for the study were collected from a sample of 203 manufacturing SMEs operating in the manufacture of fabricated metal products and general purpose machinery within the city of Istanbul in Turkey. The research framework was tested using partial least squares method, which is a variance-based structural equation modelling approach. Based on exploratory factor analysis (EFA), SCM practices were grouped in two factors: outsourcing and multi-suppliers (OMS), and strategic collaboration and lean practices (SCLP) (Zaim et al, 2017).

The results indicate that both factors of SCLP and OMS have direct positive and significant impact on operational performance. In contrast, both SCLP and OMS do not have a significant and direct impact on SCM-related organizational performance. Perhaps, the most serious limitation of this study was its narrow focus on Turkish manufacturing SMEs, thus precluding the generalization of findings to other emerging countries as well as other sectors such as service and government sectors that may benefits from a sound SCM strategy (Zaim et al, 2017).

By developing and validating a multi-dimensional construct of SCM practices and by exhibiting its value in improving operational performance of SMEs, it provides SCM managers with useful tool for evaluating the efficiency of their current SCM practices. Second, the analysis of the relationship between SCM practices and operational performance indicates that SCM practices

might directly influence operational performance of SMEs. This research adds to the body of knowledge by providing new data and empirical insights into the relationship between SCM practices and performance of SMEs operating in Turkey (Zaim et al, 2017).

Another set of researchers in Turkey also conducted a study in 2015 regarding the relationship between SCM and organizational performance. The main aim of their study was to examine the effect of Green Supply Chain Management Practices' on the performance of Turkish Business Firms with a view to providing a first-hand understanding about the procedures taken by Turkish business firms and their logistics providers and supply chain business (Hossein et al, 2016).

To find the right answers, comprehensive questionnaire forms were designed by the researchers for data collection. A total of 180 Turkish companies participated in the study and data collected were analyzed by statistical methods. The findings showed that SCM practices have positive effect on performance of firms (Hossein et al, 2016).

In the study conducted by Mzoughi Nabil; Bahri Nedra & Ghachem Mohamed between 2012 and 2013 in Tunisia, the researchers investigated SCM and Enterprise Resources Planning (ERP) systems dimensions and tested their relationships with competitive advantage and organizational performance. The researchers believed that Supply Chain Management (SCM) and Enterprise Resource Planning (ERP) systems are effective ways to achieve competitive advantage and improve organizational performance (Mzoughi et al, 2014).

The study covered 216 Tunisian managers. Data were collected using the questionnaire research technique and analyzed using principal components analysis, and relationships were tested using

linear regression. The findings showed that SCM and ERP systems have positive impact on organizational performance and competitive advantage (Mzoughi et al, 2014).

The study by Mzoughi et al, (2014) is quite interesting because of their use of Enterprise Resource Planning Systems, an information technology platform, as a SCM practice. It would have been interesting to know what their thoughts were on the use of other similar platforms which have also emerged and are being used as SCM practices to improve performance. The increasing uptake of technology by organisations to improve their performance is a clear commitments by organisations to improve their performance and remain competitive.

A group of researchers namely: Hashem Salarzadeh Jenatabadi, Hui Huang, Noor Azina Ismail, Nurulhuda Binti, Mohd Satar, Che Wan, Jasimah Wan, and Mohamed Radzi also conducted a study in Malaysia regarding the impact of SCM and ERP on organizational performance. Supply chain management (SCM) and enterprise resource planning (ERP) are known in the relevant literature as factors contributing to the improvement, advancement and enhancement of organizational performance (Janatabadi et al, 2013).

The objective of their study was to investigate the ERP adoption and its influence on organizational performance through supply chain management (SCM). Like every other empirical research, this study proposed a new model which applied enterprise resource planning with supply chain management to achieve optimal organizational performance. Structural equation modeling was used to test the model fitting level and the four proposed hypotheses (Janatabadi et al, 2013).

Data for this research were collected from 174 companies in Malaysia through qualitative research design and survey methods. The findings provided evidences for the existence that SCM and enterprise resource planning exert positive effects on overall performance of organisations studied (Janatabadi et al, 2014).

A researcher named Don Hee Lee in Nebraska United States conducted a study in 2010 to investigate the effect of SCM on the performance of healthcare organizations. Lee noted that supply chain management (SCM) has attracted significant attention in the health care industry in recent years because of its significant impact on hospital performance and quality of care. Since SCM is a complex system that interfaces with many different dimensions within a hospital and with suppliers, organizations need to first innovate their business processes while also considering their suppliers' processes to accomplish effective SCM (Lee, 2011).

Supply chain (SC) innovation helps organizations achieve efficiency and quality management practices for new customer value creation, which is expected to result in improved organizational performance. Lee's study examined the effects of SCM practices and supply chain innovation on organizational performance in the health care organization. More specifically, the study explored relationships among several factors that may influence organizational performance (Lee, 2011).

The structural equation modeling (SEM) technique with AMOS 17.0 was used to test hypotheses in the study model. The findings showed a positive relationship between SCM practices and performance of healthcare organizations. The findings also showed that SC innovation leveraging on SC efficiency and QM practices had positive effect on organizational performance (Lee, 2011).

Another researcher named Tom Solakivi conducted a study in Finland with the aim of determining the relationship between supply chain practices and firm performance (Solakivi, 2014). Based on extant literature, the supply chain management practices analyzed included: logistics, outsourcing, supply chain collaboration, and information systems support while firm performance comprised of financial performance of the firm, and intra-firm supply chain performance, which was further divided into cost performance in the form of logistics costs, service performance and asset utilization, as suggested by the research literature (Solakivi, 2014).

The research questions were addressed by analyzing firm-level empirical data from manufacturing firms operating in Finland. Data gathered from trading firms operating in Finland were used as a reference in this study. The empirical material was derived from two sources: survey-based self-reported data from three national levels Finland State of Logistics surveys from 2006, 2009 and 2010, and financial reporting data from responding firms for the corresponding years retrieved from official sources (Solakivi, 2014).

The data were analyzed using basic descriptive statistics, regression analysis, structured equations modelling, t-tests and analysis of variance and more advanced methods such as generalized linear models and generalized linear mixed models. The findings from the analysis showed a positive relationship between Supply Chain Management practices and firm performance (Solakivi, 2014).

A group of researchers namely Ahmad Jafarnejad Chaghooshi, Taher Roshandel Arbatani, Babak Samadi conducted a study in 2014 on the effect of SCM on organizational performance. They believed that SCM can be a factor for managers to enhance the position of their firms.

Their study examined the effects of supply chain management processes as a competitive advantage and organizational performance of companies operating in the food industry in Western Azerbaijan province (Chaghooshi et al, 2015).

Data collection was performed using the questionnaire. The population studied consisted of senior managers in the food industry in West Azerbaijan Province, which were 150 and 108 in accordance with the standard sample selected. To analyze and evaluate the normality of the data, one-dimensional Kolmogorov-Smirnov test was used to test the hypothesis using structural equation modeling. The findings showed that there was a significant positive relationship between supply chain management processes and organizational performance and competitive advantage (Chaghooshi et al, 2015).

It is not clear which SCM processes or practices were examined in this study. The identification of the processes is important because extant literature shows that not all SCM practices or processes impact positively on the performance of organisations.

In 2015, a researcher based in the Middle East named Prasad Bolineni conducted a study in the Indian Pharmaceutical Industry having observed that Indian pharmaceutical firms spend one-third of their revenue on SCM activities due to inherently poor transportation infrastructure. SCM is a vital strategy for many firms, as it is usually adopted to cut down expenditures and increase sales for the firm. However, in India, SCM costs are higher than they are in other areas of the world, accounting for about 13% of Indian's GDP (Bolineni, 2016).

The aim of Bolineni's research was to explore the SCM strategies which Indian business leaders in the pharmaceutical industry have used to reduce the high costs associated with practicing SCM. This study adopted a single case study research design and semi-structured interviews to

collect data from 3 SCM leaders working in Indian pharmaceutical firms and possessing successful experience in adopting SCM strategies to lessen high costs (Bolineni, 2016).

The Goldratt's (1990) theory of constraints was adopted as the conceptual framework for this study to identify challenges associated with SCM strategies. Data from semi-structured interviews, observations, and company documents were processed and analyzed using data source triangulation, grouping the raw data into key themes. The following three themes emerged: distribution and logistics challenges, impact of SCM processes, and best practices and solutions. It was concluded that the implications for positive social change include the potential to reduce supply chain risk, which could lead to lower product prices for consumers, increased stakeholder satisfaction, and a higher standard of living (Bolineni, 2016).

In the African Continent, some studies have similarly been conducted to examine the relationship between supply chain management practices and organizational performance. One of these studies was conducted in Kenya by Mutuerandu and Iravo in a company called Haco Industries Limited having observed that SCM is a very important tool that has been used by firms around the globe in order to improve their performances. The study objective was to examine the level of implementation of SCM practices by Haco Industries Ltd and the impact it had on the performance the industry (Mutuerandu & Iravo, 2014).

The Kenyan researchers adopted four dimensions of SCM practices, namely: strategic supplier partnership, information sharing, training practices and customer relationship which served as independent variables. To measure the organizational performance, the researchers used market/business operational performance variables as dependent variables. Their sample size consisted of 40 workers and data were collected using a questionnaire. The data collected were

analysed using SPSS XVIII to obtain frequencies including the mean score. Their findings showed a high level of practical implementation of SCM practices in Haco Industries Ltd Kenya, with a positive impact on the performance of the industry through a lowering of operational costs, reduction of lead time, increase in customer relationship services, good product quality, increase market share and volume of sales, and capacity for fast response to changes in the market (Mutuerandu & Iravo, 2014).

In South Africa, Alvarado and Kotzab (2010) performed similar to the Kenyan study. They sought to investigate the impact of SCM practices on organizational performance and effectiveness. The researchers described SCM practices using the following constructs: concentration on core competencies, use of inter-governmental systems such as Electronic Data Interchange (EDI) and elimination of excess inventory levels by postponing customization toward the end of the supply chain. The objective of their study was to examine the impact of these constructs on the effectiveness of manufacturing companies in terms of high performance output (Alvarado & Kotzab, 2010).

A total of 36 manufacturing companies were sampled across different cities in South Africa especially in Cape Town and Johannesburg where majority of the manufacturing firms are situated. The questionnaire and structured interviews were used to obtain primary data from correspondents in these manufacturing firms. The primary data were presented in tables and charts while the analysis was conducted using descriptive and inferential statistical methods (Alvarado & Kotzab, 2010). The findings from the study showed that SCM practices had positive impact on organizational performance. It was established from the primary data analysis that the use of core competencies, communication system and elimination of excess inventory

levels by postponing customization toward the end of the supply chain could increase organizational effectiveness. Electronic data interchange could facilitate and sustain communication and relationships with customers leading to improved performance (Alvarado & Kotzab, 2010).

In Nigeria, Adebayo Toyin (2012) conducted a study on supply chain management practices. His study attempted to examine the extent to which manufacturing firms in Nigeria were involved in the implementation of SCM practices and to determine how these practices impacted on SCM performance. The sample size for their study consisted of 31 manufacturing companies across the western part of Nigeria. The questionnaire was used to collect primary data which were analysed using descriptive and inferential statistical methods. The results of the analysis indicated that SCM practices impacted positively on performance of the organizations. The result also showed a positive correlation existed between SCM practices and organizational performance. It was apparent from the results that as the level of implementation of SCM practices increased so also the direct impact on organisational performance increased (Toyin, 2012).

The study by Toyin covered only 31 companies due to poor responses from the companies that were contacted. Considering the large number of manufacturing firms in Nigeria including the medium and small scale manufacturers, this number appears inadequate. Besides, the literature review seemed scanty for a subject matter that is growing in popularity.

A researcher based in Northern Nigeria named Hassan Barrau Singhry conducted a research among manufacturing firms in Nigeria in 2015. The aim of the study was to examine the impact of Supply Chain Innovation on supply chain Performance of Manufacturing Companies. The researcher believed that the challenges emerging from globalization, rising cost, and the need to

be responsive to customers are confronting contemporary supply chain and a solution to fight these challenges is required (Singhry, 2015).

The study by Singhry was based on a cross-cultural survey of 286 manufacturing companies in Nigeria. Cluster and stratified random sampling techniques were adopted and self-administered questionnaires were used to collect data from the selected companies. Data collected were analyzed using Structural Equation Model (AMOS) and the findings showed that supply chain innovation has significant relationship with supply chain performance (Singhry, 2015).

From the literatures reviewed, it is clear that for any organization to compete successfully in the fierce and challenging business environment of today such an organization must have to pay special attention to supply chain management practices that exert significant positive impact on organizational performance. Further evidence was derived from many studies conducted to test the impact of the individual dimensions of SCM namely: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing and postponement and a few others on organizational performance.

The outcome of these studies aligned with the results of studies on the combined effect of the dimensions acting together as outlined below.

2.2.2. Strategic Supplier Partnership and Organizational Performance

The impact of strategic supplier partnership through its relational variables of Trust, Cooperation, Commitment, Communication and Mutual Goals on the performance of organisations was tested in studies conducted by Tan, Layman & Wisner (2009); Bankston (2013); and Azeem & Ahmed (2015). Results have not only demonstrated the power of collaborative partnerships but also showed that SSP in terms of Trust, Cooperation, Commitment and Communication have positive impact on performance of organisations while the impact of Mutual Goal was insignificant. This signifies that the establishment of

a long term strategic relationships between buyers and suppliers creates desirable and mutually beneficial outcomes and should be pursued by all companies or organisations intent on remaining profitable and competitive as long as such relationships are built on trust, cooperation, commitment and communication.

Also, in the well cited study conducted by Li, et al (2006) which examined the impact of SCM practices on organizational performance and competitive advantage, it was evident that in order to achieve and sustain competitive advantage and high performance, firms need to have strong ties with their suppliers.

In 2014, Krause, Handfield, and Tyler conducted a study in which they examined the relationship between various aspects of social capital and buyer performance in the buyer-supplier dyad by surveying buying firms within the United States. The study was conducted in the automotive and electronic industries in the United States in 2010 and was replicated and conducted in both manufacturing and service industries in the United States as well as in China in 2014. Analysis was conducted using a Structural Equation Model using survey data collected from the studies (Krause et al, 2014). The findings showed that a positive relationship existed between buyer – suppliers and buyer performance. The weakness in this study is the lack of clearly defined aspects of social capital and how this could impact on the automotive industry.

In a study conducted in Kenya in 2015 by Korir Loice, a PhD student at Moi University, he attempted to establish the effect of buyer-supplier relationships on organizational performance. The study was informed by social exchange theory and employed exploratory research design technique. A total of 112 Procurement and Sales Managers drawn from 34 Supermarkets located in Nairobi County formed the target population. The census technique was used and data were

collected using structured questionnaires. Descriptive statistics such as: frequency, percentage, means, and standard deviation were used to analyse the data collected. Additionally, Pearson Correlation and Multiple Regression Models were used to test linear relationship and hypothesis testing respectively (Loice, 2015).

The findings of the study showed that commitment, communication, cooperation and trust had a positive and significant effect on procurement and organizational performance. This implied that high levels of commitment, trust, communication and cooperation can enhance sustainable competitive advantage thereby improving procurement and organizational performance. The study thus recommended that there is the need for firms to have a long term partnership with the major suppliers and pay maximum attention to the relationship with suppliers so as to maintain it in order to achieve enhanced competitive advantage which will lead to improved performance (Loice, 2015).

The findings in the above studies and many others in literature attest to the fact that a significant positive relationship exist between strategic supplier partnership and organizational performance thereby confirming the importance of strategic supplier partnership as an important component of SCM. The implication of this is that as organisations pay increasing attention to their relationship with their suppliers, their performance increases.

2.2.3. Customer Relationship and Organizational Performance

Customer Relationship Management (CRM) has its evolutionary roots in the progression of relationship marketing and the great amount of attention given to improving customer retention through the effective management of customer relationships (Winer, 2001). The Commitment-Trust Theory of Relationship Marketing states that for a relationship to be successful in a business, two fundamental factors must exist: “Trust and Commitment” (Mack, 2013).

Relationship Marketing involves forming bonds with customers by meeting their needs and honoring commitments. Across the globe, customer relationship management (CRM) has been one emerging and recognized strategy that many business organizations adopt in order to drive success and achieve competitive advantage (Walden, 2013). According to Boateng (2014), CRM is generally adopted “to enable organizations to better serve their customers through the introduction of reliable processes and procedures for interacting with those customers”. This paints the picture that the customer is a key consideration in every business arrangement and should be taken very seriously and managed effectively (Rosenbrook, 2015). It is recognized across board that the customer is “King” and according to Kjerulf, (2014) "the customer is always right"

Studies have been conducted for the purpose of establishing the relationship between customer relationship management and organizational performance. In Malaysia, Mohamad, Othman, Jabar & Majid, conducted a study to explain the impact of CRM practices on organizational performance through a proposed conceptual model in Malaysian Small and Medium Enterprises (SMEs) food manufacturing industry (Mohamad, Othman, Jabar, & Majid, 2014). The findings indicated that CRM practices exert significant positive effect on organizational performance.

In Nigeria, Nwude and Uduji (2013) examined the place of CRM initiative in the pharmaceutical industry in Nigeria. They observed that CRM is an overarching business philosophy as well as a process or tool which can be used to facilitate a truly customer-driven enterprise. The results showed that elements of the CRM process are evident in the pharmaceutical industry in Nigeria, but many of the concepts underlying CRM system are not at all implemented by the pharmaceutical firms in Nigeria (Nwude & Uduji, 2013). Despite this observation, the outcome

of their study showed that overall CRM exerts a significant positive impact on performance of the pharmaceutical industry in Nigeria.

All the studies mentioned provide evidence that customer relationship management in terms of Information Technology, Customer Response, and Customer Interaction are positively related to firm performance with statistical significance. This implies that, performance of firms increases as CRM improves. Customer Relationship Management enables a firm to offer better services to customers than competitors do, leading to satisfaction which can further give way to repeated patronage that can increase sales and profits.

An organization with good profits can fight many challenges as they come. Customer Relationship Management does not only improve the service to customers, a good CRM capability will also reduce operational costs, wastage and complaints. As a supply chain management practice, CRM has been shown to exert positive impact on performance of organisations (Li et al, 2006; Toyin, 2012).

2.2.4. Level of Information Sharing and Organizational Performance

Information sharing is critical for supply chain collaboration and for this reason it is important that attention is given to it (Min, Roath, Daugherty, Genchev, Chen, Arndt & Richey, 2005). Information sharing is all about the exchange of critical and proprietary information among supply chain collaborators or partners (Li et al., 2005).

In their literature review of some studies which were conducted to test the impact of information sharing on the performance of supply chains under different circumstances and assumptions, Kumar and Pugazhendhi, (2012) found that information sharing is crucial but the impact it exerts on the performance of supply chains depend on both the level and quality of the information

shared. Therefore information sharing is viewed in terms of both: Level and Quality. These two constructs are part of the 5 SCM practices described and employed by Li et al (2006) in their study in which they investigated the impact of the 5 dimensions of SCM on the competitiveness and performance of organisations.

In their study, Zahra, Muriati, Shahnorbanun and Ali (2013) established that the level of information sharing is capable of impacting significantly on the performance of the manufacturing sector in terms of inventory reduction, cost reduction, bullwhip effect reduction or elimination, cycle time reduction and so on. The studies by Zahra et al (2013) and by Li et al (2006) are further proof that level of information sharing exerts significant impact on the performance of organisations.

The survival of modern day organisations faced with increased global competition is very much dependent on information sharing among several other factors and explains why organisations commit to developing strategies that lead to the sharing of vital information and knowledge among supply chain partners.

2.2.5. Quality of Information Sharing and Organizational Performance

The concept of quality of information sharing (QIS) is multidimensional. As has been repeatedly mentioned in this study, it is described in terms of timeliness, accuracy, completeness, adequacy and credibility, to mention a few.

Li et al (2006) used some of these dimensions in the design of their study questionnaire to collect data which they used to examine the impact exerted by supply chain management practices on the performance of organisations. The outcome of their study showed that quality of information sharing exerted significant positive impact on organizational performance.

In similar studies conducted by Zahra et al, (2013); Li et al, (2006) and Kumar, & Pugazhendhi, (2012) they concluded that supply chains that pay attention to quality of information sharing, would experience significant improvements in their performance.

Quality of information sharing is also the product of Trust and Commitment that evolves over a long period of relationship among partners.

2.2.6. Postponement and Organizational Performance

The goal of postponement which is also referred to as agile production or late customization or delayed product differentiation is to supply desirable products to customers at a relatively low cost and in a responsive way (Feitzinger & Lee, 1997).

In the study by Li et al. (2006) postponement was used as one of the 5 dimensions of SCM practices that they believed could exert significant impact on competitive advantage and organizational performance. The outcome of their study which drew data from top management staff of diverse organisations however showed that postponement did not have significant positive impact on competitive advantage and organizational performance.

In 2010, Swierczek conducted a study in which he examined supply chains in different industries such as: food and kindred products, chemicals and allied products, primary metal industry, stone, clay, glass, concrete products; found that there are different relationships between postponement strategies and manufacturing performance. Such relationships were discovered to be due to several factors such as: issues of technology, nature and complexity of manufacturing process, products types, storage conditions, consumer demand, etc. The study also revealed that the supply chains in the industries studied elicited different levels of postponement. Some levels of postponement in the industries were not in any way associated with manufacturing performance

thereby suggesting they do not contribute to efficiency of supply chains. A good example is the study conducted by Yang et al (2004) which is consistent with other studies in which postponement rather than lead to reduction in cycle time led to an increase.

Based on these studies and many others, it is safe to state that the impact of postponement may be industry or rather product specific. In other words, postponement as a SCM practice may be more useful in some industries such as the automobiles and others with a penchant for modular production and not in all industries. It would appear from the findings of Swierczek's study and several others that postponement does not often impact positively on the performance of organisations, however, more recent discussions tend to suggest that in combination with lean supply chain whose main focus is to add value for customers by identifying and eliminating waste, postponement or agile production may after all be a useful strategy for improved performance. According to Paul (2014), "In today's ever-changing, volatile and competitive global economy, it may often be in a company's best interest to operate a supply chain that is both lean and agile".

It is noteworthy that there have been significant successes reported from the adoption of SCM by organizations across board. With the growing importance of SCM concept, it is now widely recognized that organizations no longer compete against themselves but along their supply chains.

2.3 Theoretical Framework

Generally, theories are constructs or ideas aimed at explaining a specific phenomenon or variable. Researchers in management have observed that there are no grounded theories for explaining SCM, rather, theories are adopted from other fields of study such as sociology, management, engineering, accounting and applied to the context of SCM. It is worthwhile also to

note that most of the theories which are currently used in SCM literature have been in existence for a very long time, making them older than the concept of SCM (Johnson, 1964; Charlton & Andras, 2008; Mele et al, 2010).

Some of the theories adopted or applied in SCM include the following: Transaction Cost Economics Theory, Network Theory, Resource Based Theory, Systems Theory, Social Network Theory, Strategic Choice Theory, Game Theory, Principle-Agent Theory and The Commitment-Trust Theory of Relationship Marketing and others. The essences of some of these theories are described in brief below.

2.3.1 Transaction Cost Economics Theory – The argument of this theory is that different control and governance mechanisms should be employed when outsourcing is employed in order to mitigate the risk of opportunistic behaviour of supply chain firms. The question the theory attempts to answer is why firms exist? From the point of view of SCM, transaction cost economics perspective focuses on costs reduction associated with carrying out a transaction based on three attributes which influence a firm's decision to make or buy. They may include: frequency of transaction, asset specificity and degree of uncertainty associated with a transaction (Mele et al, 2010; Pala, 2013).

2.3.2 Network Theory – This theory describes the interconnectivity that exists between the various aspects (units or departments) of the organization. The theory contends that firms rely on both their relationship with direct partners or collaborators and the extended network of relationships with supply chain firms. Also, it further argues that to achieve high level of performance and competitive advantage supply chains must strive to be efficient and effective. Thus, the network theory emphasises the development of long-term, trust based relationship among supply chain firms (Moliterno, 2011; Pala, 2013).

SCM is basically a network phenomenon, consisting of crucial firms on a chain struggling to offer products and services. The complexity of SCM can be understood from the challenges that interconnectivity within a network arrangement or configuration entails, as relationships within the network transcends what obtains in a dyadic one (Pala, 2013).

2.3.3 Social Network Theory - According to Stephen Pryke (2011), the Social Network Theory views SCM from the perspective of the behavioural and social aspects of various forms of relationship that exist in businesses including business to business relationship, individual to business relationship as well as individual to individual relationships. The theory helps to examine these relationships from diverse perspectives such as technical, financial and social elements in relation to SCM practices. SCM practices are therefore looked upon as a social network comprising of various variables and elements which are present and interact for specific purposes (Pala, 2013).

2.3.4 Strategic Choice Theory – This theory addresses strategic issues and political forces related to the entire supply chains in contrast to functional approach regarding individual supply chain firms. The political forces include the intervention or interference of the government in business and the economy which in turn affect the operations and activities of the members of the supply chains. For instance: if a government places a ban on the importation of certain products or items, this may affect the access to imported raw materials. The strategic choice theory is a comparatively less utilised because of difficulty and its limits in implementation (Charlton and Andras, 2008; Pala, 2013).

2.3.5 System Theory – This perspective is one of the dominant organizational theories in management today. It describes an organization as a system that is made up of distinct parts that form a complex whole; the distinct parts are interrelated and they work interdependently for the

good of the entire entity. The theory treats an organization as either an open or closed system, the closed system is not affected by its environment, while the open system is affected by its environment (Mele et al, 2010). In the context of SCM, System Theory brings together different components of a complex supply chain, such as: human, capital, information, materials and financial resources, to form a subsystem of a larger system of supply chains or network (Moliterno, 2011; Pala, 2013).

The theory argues that for a universal perception System Theory must be employed to understand the internal and external factors that shape the performance of an organisation's supply chain (Mele et al, 2010). Ultimately, the System Theory supports the underlying concepts of integration, cooperation and synchronization within and across the supply chain. This is supported by Christopher, (1998) who argued that SCM promotes collaboration and cooperation across internal departments of an organization and among the other stakeholders in the chain for greater improvements and efficiencies in line with the concept of Systems Thinking and Approach.

2.3.6 Resource Based Theory – The theory argues that a firm's resources and capabilities are its most important assets. The major concern of this theory is how to have access to another firm's core competencies in order to gain competitive advantage. In the context of SCM and performance, high performance is linked to the variables or constructs of the practices of SCM which are the main SCM resources any organization can possess and implement effectively to increase performance and gain advantage over other competitors in the market place (Rouse, 2006; Moliterno, 2011; Pala, 2013).

2.3.7 Principle-Agent Theory – This theory focuses on governance and control mechanism structure of firms with a view to reduce the chances of opportunism, conflicting interests and

information asymmetry between the Principle (delegating authority) and the Agent. Contracts are used to serve as governance and control mechanisms whilst incentives are offered for meeting the minimum expected standards of the Principle (Pala, 2013).

2.3.8 Commitment-Trust Theory of Relationship Marketing - States that for a relationship to be successful in a business, two fundamental factors must exist: "Trust and Commitment" (Mack, 2013). Relationship Marketing involves forming bonds with customers by meeting their needs and honoring commitments.

The theories discussed above are not the only theories in SCM literature as there are more theories applied to SCM context. Due to multiplicity of theories, it is very difficult to define, implement and study SCM from a single point of view. However, each of the above theories has a specific purpose in the management and structure of supply chains with each providing a unique perspective of what SCM portends. SCM is the evolving concept which brings together companies or organizations and promotes the process of their integration and collaboration. By working together, supply chain partners have as their goal reduction or cutting down of their individual risks while increasing their mutual benefits or rewards.

As clearly demonstrated in many studies to investigate the impact of SCM on organizational performance, the main purpose of supply chain management is to lower risks and increase benefits through improved performance. This is achieved on the platform of trust, effective communication or information sharing. Of all the theories adopted by researchers to explain supply chain management, none seem to reflect on the unique balancing act between risks reduction and increase benefits or rewards which are the goal of an efficiently run supply chain management. This study therefore proposes: The Risk – Benefit Theory to explain the supply chain management concept. The proposed theory fits well with the goal of SCM as organisations

are increasingly adopting the concept to cut risks and improve their performance with its attendant mutual benefits for the all the supply chain partners. By implementing SCM practices such as: strategic supplier partnerships, customer relationship, and others, organisations are able to improve their performance while keeping down their risk level. For the avoidance of doubts, risk is unavoidable, what is required is for the supply chain to be designed in such a way as to reduce risk while maximizing the rewards or benefits.

Since there is no unified theory of SCM, this study is of the strong opinion that in addition to the proposed Risk – Benefit Theory, the Systems Theory can best explain the concept and practices of SCM for the pharmaceutical industry in Nigeria based on the perspective of the theory. In order to drive success and actualize high level of performance the organisations should not only establish strong relationship within their internal systems but should also extend such relationship among their supply chain collaborators.

Other theories that could be used to explain SCM concept along the 5 dimensions used in this study include: The Transaction Cost Economics Theory, The Commitment-Trust Theory of Relationship Marketing and Social Network Theory. As it appears, a unified theory for SCM will continue to remain elusive.

2.3.9 Summary

The literature reviewed has shown that over the past three decades since the evolution of SCM concept so many studies have been conducted in an attempt to understand the concept that has increasingly become a veritable strategy which organisations use in their drive to achieve improved performance. The concept has been described as complex and this explains why there is no single definition for it. The concept has been described using many practices with more yet to come on stream. There are also no grounded theories for explaining SCM. All the theories

used in SCM are adopted from other disciplines of study such as sociology, management, engineering, accounting and others. This study proposes a new theory for SCM based on what is considered to be the main goal of SCM: the drive for risk reduction and increase in mutual rewards which brings organisations together. The proposed Risk – Benefit Theory should fill an existing gap in the multiplicity of theories of SCM.

Most of the studies described in the literature portrayed SCM concept using confusing mix of the practices thereby creating sundry gaps. Also, several statistical methods have been used for analyzing sets of data meant to examine similar relationships in SCM studies seeking to achieve similar objectives thereby creating gaps. Most studies on supply chain management have adopted a piecemeal approach by not involving all the supply chain partners at the same time. Data collections were restricted to the focal partner, often the manufacturing firm thereby lacking in consistency and creating dissonance and gaps in their outcome. The use of single respondents from each organisation as rightly pointed out by Li et al (2006) is capable of creating respondent bias. There is also no standard performance measure for assessing organizational performance as the choice of performance metric is usually dictated primarily by the objectives of individual organisations or researcher.

The implication of all the above is that researchers can have a field day in identifying research gaps leading to an endless stream of researches that could further add to the already complex concept of SCM.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

For the purpose of this study, the qualitative research approach was employed involving descriptive, inferential and causal research design. The choice of qualitative research design was because it determines the relationship between one variable (an independent variable) and another (a dependent variable) (Robinson, 1993). In this study, an attempt was made to examine the impact of supply chain management or its practices, namely: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing and postponement; on performance of pharmaceutical industry in Nigeria. The questionnaire for data collection was an adaptation of the one used by Li et al (2006) in their study and was designed to facilitate ease of completion by respondents who hold senior positions in their companies or organisations. In this study, questions were drawn up for the five dimensions of SCM practices to serve as independent variables as well as for performance using 5 indicators (capacity utilization, output, market share, sales and customer satisfaction) to serve as dependent variable. The assessment was done using a 5- Point Likert Scale as follows: Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), Strongly Disagree (1).

3.2 Population Sample and Sampling Technique

There were 120 registered pharmaceutical manufacturing companies in Nigeria based on information retrieved from the Pharmacist's Council of Nigeria (PCN) List (2017). These companies were categorized as A, B and C. Category A comprising 48 companies manufacture three or more product lines, Category B made up of 27 companies manufacture two product lines

while Category C comprising 45 companies manufacture only one product line. For the purpose of this study all companies were treated as equal. This was for the sake of convenience but primarily due to the fact that all the three categories of companies fulfill virtually the same registration criteria. The population size for this study was therefore 120 pharmaceutical manufacturing companies.

The sample size was determined using the Taro Yamane (1967) sample size determination formula as modified by Smith (2008).

Thus: Using Smith (2008), $n = \frac{N}{3+N(e)^2}$

Where: n = sample size

N = population size

e = margin of error (5%)

Thus sample size, $n = \frac{120}{3+120(0.05)^2}$

$= \frac{120}{3+120(0.0025)}$

$= \frac{120}{3+0.3}$

$= \underline{36}$

Based on the above, the sample size for this study was made up of 36 pharmaceutical companies.

The spread of the 120 registered pharmaceutical manufacturing companies in Nigeria is shown in Figure 1. The Figure shows that only 16 out of the 36 States plus FCT have registered pharmaceutical manufacturing companies. It also shows that the States with the most number of

registered pharmaceutical manufacturing companies are located in the South West Zone of Nigeria comprising Lagos, Ogun, Oyo and Osun States. This Zone accounted for 82 of the 120 companies or 68 percent. The remaining 5 Zones of the Country accounted for the remaining 38 companies or 32 percent (see Figures 2 and 3).

Figure 1: Distribution of Registered Pharmaceutical Manufacturing Companies in Nigeria

Source: Pharmacists Council of Nigeria [2017]

Figure 2: Percentage Distribution of Pharmaceutical Manufacturing Companies in the Six Zones of Nigeria 2016

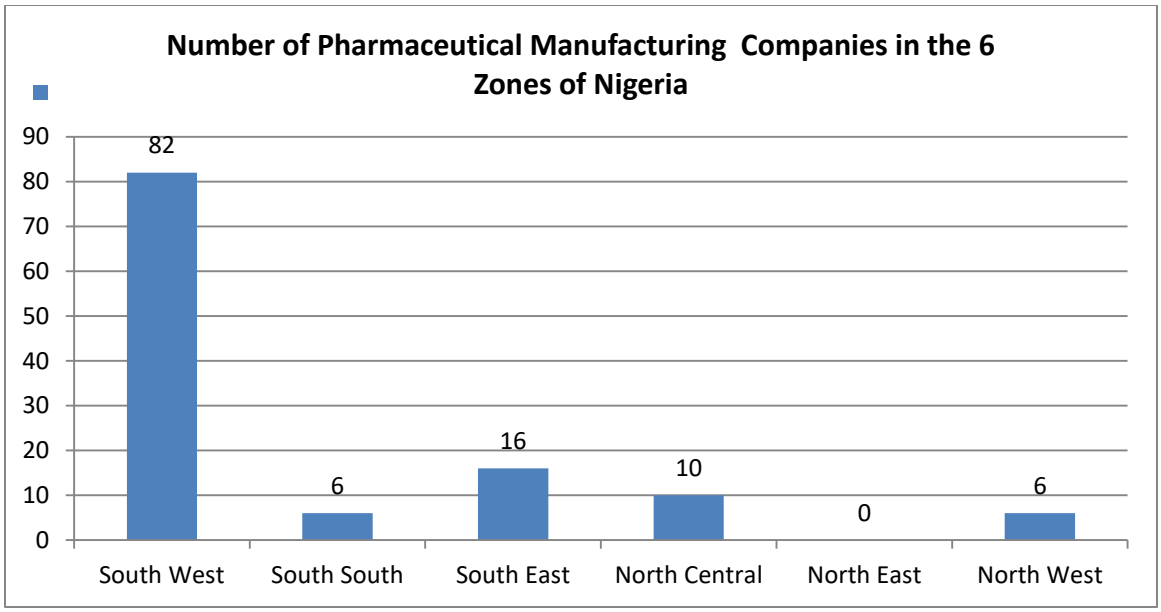

Figure 3: Number of Pharmaceutical Manufacturing Companies in Each of the Six Zones of Nigeria

In order to ensure the 36 companies selected for the study had adopted SCM as a strategy for improving their performance, only those that affirmed through responses to the questions that they were familiar with the concept and had adopted the strategy formed the sample. Additional insight was obtained from the outcome of the pre-test and the responses to the interview conducted amongst some of the registered pharmaceutical companies. Furthermore, in order to also ensure coverage of the entire country, the sample size of 36 was drawn from the six Zones according to the proportion or percentage of registered pharmaceutical manufacturing companies in each of the Zones using the simple random sampling technique. The companies in each zone were simply coded and draws were conducted to select the 36 companies that formed the sample size. Accordingly, South West Zone which accounted for 68 percent of the companies contributed 25 companies, South-South Zone which accounted for 5 percent contributed 1 company (adjusted), South East Zone with 14 percent contributed 5 companies, North Central Zone with 8 percent contributed 3 companies and North West Zone with 5 percent like South-

South contributed 2 companies (adjusted), while the North East Zone with 0 percent companies contributed none (see Table 3.2 below). Interestingly, the sampled companies consisted of all the 3 Categories A, B and C of registered pharmaceutical companies (see Table 3.3).

Table 3.2: Contributions of Zones to Sampling Frame for the Study

Zones	**Population (No. of Companies)**	**Sample (No. of Companies)**
South West Zone	82	25
South-South Zone	6	1(adjusted)
South East Zone	16	5
North Central Zone	10	3
North East Zone	0	0
North West Zone	6	2 (adjusted)
Total	**120**	**36**

Table 3.3: Number of Companies Randomly Sampled by Category

No. of Companies Sampled	**Manufacturing Categories**			**Total**
	A	**B**	**C**	
36	**12**	**10**	**14**	**36**

3.3 Methods of Data Collection

Data for this study were collected using questionnaires and face to face interviews after the request for Ethical Approval was granted by the Pharmaceutical Manufacturers Group of the Manufacturers Association of Nigeria (PMG-MAN). The telephone was employed from time to time in the situation where respondents were not easily accessible as recommended by Leedy & Ormrod (2001). Respondents to the questionnaires composed of Superintendent Pharmacists, Pharmaceutical Sales Executives, Marketing Executives and Production Executives. These levels of personnel were considered to be well qualified to effectively provide answers to the highly simplified and convenient to fill questionnaire. The goal of the data collection was to retrieve a minimum of five completed questionnaires from each of the 36 manufacturing companies sampled for the study making a total of 180.

As a prelude to the main data collection, a pre-test of the questionnaire was conducted by this researcher in Lagos using four randomly selected pharmaceutical companies drawn from the PCN (2017) List and the data subjected to reliability assessment before the final questionnaire was produced and data collection exercise conducted. The data collection process was facilitated by a support Team headed by a lecturer from the Faculty of Pharmaceutical Science, University of Lagos. Modalities for the collection of data using the questionnaire and face to face interview were well discussed and understood by the support Team before embarking on the exercise.

The goal of the data collection exercise was to ensure that at least 180 questionnaires were completed as planned for the study. This took considerable amount of time but at the end the target was met.

The data collected were analyzed using SPSS Version 20 for descriptive and inferential statistics: Analysis of Variance (ANOVA), and Regression analysis.

3.3.1 Validity and Reliability of the Instrument

The draft survey instrument for this study, the questionnaire was reviewed and vetted by the supervisors for clarity and appropriateness. This was achieved by conducting the test of validity on the data collection instruments, the questionnaire. The final instrument was approved ahead of the data collection exercise. The content validity is a measure of the degree to which the test actually measures the traits for which the instrument was designed to achieve.

The data from the pre-test were also subjected to reliability test or the Cronbach's Alpha test to determine whether the measuring instruments were consistent and reproducible. Cronbach's alpha is a reliability coefficient that indicates the extent to which all the items in a set are positively correlated to one another. Cronbach, (1946) recommended analysis for Alpha values in respect of each variable under study should be above 0.6 for the statements in the instruments to be deemed reliable (Sekeran, 2001). As can be seen from Table 3.5, all the variables had a score above 0.6. This implies that all the variables in the instrument were deemed reliable.

Table 3.5: Scale Reliability of Variables

Variables	Number of Items	Cronbach's Alpha
Strategic Supplier Partnership	5	0.87
Customer Relationship	5	0.85
Level of Information Sharing	5	0.89

Quality of Information Sharing	5	0.83
Postponement	3	0.78
Performance	5	0.86

3.4 Procedure for Data Analysis and Models Specifications

The independent variables in this study were five SCM practices, namely: strategic supplier partnership (SSP), customer relationship (CR), level of information sharing (LIS), quality of information sharing (QIS) and postponement (POST) while performance (PERF) was the dependent variable as defined by: capacity utilization, output, market share, volume of sales, and customer relationship.

Data collected using the questionnaire and face-to-face interviews were subjected to relevant statistical analysis with a view to determining the relationship between the independent variables: strategic supplier partnership (SSP), customer relationship (CR), level of information sharing (LIS), quality of information sharing (QIS) and postponement (POST) and performance (PERF) the dependent variable.

The statistical analytical techniques adopted included: descriptive statistics, inferential statistics and simple descriptive analysis method. The descriptive and inferential statistics were chosen for this research because they are proven methods that are suitable in presenting and analyzing the results of a questionnaire that contains Likert Scale responses. The simple descriptive analysis method was chosen because it is a proven method that can best be used in discussing the findings and results of the study.

Models Specifications for this study was a direct examination of the relationship between SCM as exemplified by the five defined practices and its impact on the performance of the pharmaceutical industry in Nigeria in terms of capacity utilization, output, market share, sales and customer satisfaction.

The impacts or effects of the five dimensions of SCM comprising: strategic supplier partnership (SSP), customer relationship (CR), level of information sharing (LIS), quality of information sharing (QIS) and postponement (POST) on performance (PERF) of the pharmaceutical industry in Nigeria were determined using the simple linear and multivariate equations as depicted in the models specifications as follows:

PERF ì = α + βSSR ì + ч ì...…….....i

PERF ì = α + βCR ì + ч ì …….....ii

PERF ì = α + βLIS ì + ч ì ……iii

PERF ì = α + βQIS ì + ч ì ……...iv

PERF ì = α + βPOST ì + ч ì …….....v

PERF ì = βo + βSSR ì + βCR ì + βLIS ì + βQIS ì + βPOST ì + ч ì ……...vi

Where α = constant; β = slope of the regression; ч = error term; ì = cross sectional dimension; PERF = performance; SSR = strategic supplier relationship; CR = customer relationship; LIS = level of information sharing; QIS = quality of information sharing; POST = postponement. These were the Models Specifications examined in this study.

The proxies for performance (PERF) in this study include: capacity utilization, output, market share, sales and customer satisfaction.

3.5 Justification of Methods Used

The most suitable methods of data collection in qualitative studies are the questionnaire and interview methods. The literature consulted showed that similar studies also adopted these methods with positive outcomes. The methods are straightforward, easy to apply and the data obtained from them are easily subjected to statistical analysis. The population sample was determined using a scientifically proven formula to arrive at the sample size of 36. The 36 companies for this study were chosen using the cluster sampling technique. Regression was selected as a statistical tool due to its appropriateness in the determination of cause – effect relationship between independent and dependent variables.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation

The data collected using the instrument in the survey of this study, the questionnaire, are summarized and presented in the Table 4.0.

Table 4.0 Data on Performance and SCM Dimensions/Practices

	Performance	Strategic Supplier Partnership	Customer Relationship	Level of Information Sharing	Quality of Information Sharing	Postponement
Strongly Agreed	107	109	74	89	126	9
Agreed	49	37	81	53	29	12
Undecided	13	18	16	19	13	6
Disagreed	8	14	6	14	8	64
Strongly Disagreed	3	2	3	5	4	89
Total	**180**	**180**	**180**	**180**	**180**	**180**

Source: Researcher's Computation, 2017

These data were presented in relation to Performance, the dependent variable and Strategic Supplier Partnership, Customer Relationship, Level of Information Sharing, Quality of Information Sharing, and Postponement (the 5 supply chain management practices used in this study) as independent variables. Data were collected in form of frequencies and rated in 5-point

Likert scale format. Strongly agreed was rated 5, agreed 4, undecided 3, disagreed 2, and strongly disagreed 1.

4.2 Results and Analyses

The results of the analyses were achieved using descriptive statistics such as: frequency, mean and standard deviation and also with inferential statistics such as: multiple regression and Pearson's correlation to test the hypotheses.

4.2.1 Strategic Supplier Partnership and Performance

4.2.1a Descriptive Statistics

Table 4.1 Statistics

		Performance	Strategic Supplier Partnership
N	Valid	180	180
	Missing	0	0
Mean		4.5167	4.2500
Median		5.0000	4.0000
Std. Deviation		.85532	.88359
Minimum		1.00	1.00
Maximum		5.00	5.00

Table 4.1 is a descriptive statistics in relation to performance and strategic supplier partnership. The average score is 4.51 and 4.25 for performance and strategic supplier relationship respectively. The median score for the respective variables are 5 and 4. The minimum and maximum scores are 1 and 5 respectively. These results imply that there is a strong relationship

between performance and strategic supplier partnership. In other words, the SCM practice of strategic supplier partnership has positive effect on the performance of the pharmaceutical industry in Nigeria in terms of increased capacity utilization, output, market share, sales and customer satisfaction.

4.2.1b Correlation Analysis

Table 4.2 **Correlations**

		Performance	Strategic Supplier Partnership
Performance	Pearson Correlation	1	.848**
	Sig. (2-tailed)		.000
	N	180	180
Strategic Supplier Partnership	Pearson Correlation	.848**	1
	Sig. (2-tailed)	.000	
	N	180	180

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

Table 4.2 presents the correlation matrix between performance and strategic supplier partnership. The correlation coefficient indicates a positive and significant association between the variables. This is indicated by the Pearson Correlation value of 0.848 and its corresponding p-value of 0.000.

4.2.1c Regression Analysis

Table 4.3 **Model Summary[b]**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.848[a]	.720	.718	.45424	1.682

a. Predictors: (Constant), Strategic Supplier Partnership

b. Dependent Variable: Performance

Table 4.3 is a model summary that presents the Correlation Coefficient (R), the Coefficient of Determination (R^2), and the Durbin Watson Statistics. The Correlation Coefficient (R) of 0.848 depicts that a strong positive relationship exist between performance and strategic supplier partnership. This means that performance increases as strategic supplier partnership increases. The Coefficient of Determination (R^2) of 0.720 depicts that about 72% of variation in the performance of pharmaceutical industry in Nigeria is explained by the long term relationship the companies exhibited with their suppliers (strategic supplier partnership). The Durbin Watson Statistics of 1.682 indicates absence of auto or serial correlation.

Table 4.4 **ANOVA[a]**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.222	1	94.222	456.646	.000[b]
	Residual	36.728	178	.206		
	Total	130.950	179			

a. Dependent Variable: Performance

b. Predictors: (Constant), Strategic Supplier Partnership

Table 4.4 presents the F-Statistics and its P-value. The high F-Statistics of 456.646 and its corresponding P-value of 0.000 denote that the model is fit. The df of 1 indicates the number of the explanatory variable in the model, while df of 179 depicts the total observations in the study minus the degree of freedom of 1, thus making a total of 180 observations in the study.

Table 4.5 **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.027	.167		6.158	.000		
	Strategic Supplier Partnership	.821	.038	.848	21.369	.000	1.000	1.000

a. Dependent Variable: Performance

Table 4.5 is the Coefficient table from which the regression line is drawn. Thus the regression line PERF = 1.027 + 0.821SSR indicates that the performance of pharmaceutical industry in Nigeria will improve significantly by 0.821% for every 1% increase in long term relationship between the companies and their suppliers. The constant value of 1.027 depicts that, should there be no strategic supplier partnership the performance value will only stop at 1.027. The VIF Value 1 indicates absence of Multicollinearity (i.e. Multicollinearity only exists when the VIF value is greater than 10). Of course since the explanatory variable is one, there is no way that the problem of multicollinearity will exist.

4.2.2 Customer Relationship and Performance

4.2.2a Descriptive Statistics

Table 4.6 Statistics

		Performance	Customer Relationship
N	Valid	180	180
	Missing	0	0
Mean		4.5167	4.1389
Median		5.0000	4.0000
Std. Deviation		.85532	.90784
Minimum		1.00	1.00
Maximum		5.00	5.00

Table 4.6 is a descriptive statistics in relation to performance and customer relationship. The average score is 4.51 and 4.13 for performance and customer relationship respectively. The median score for the respective variables are 5 and 4. The minimum and maximum scores are 1 and 5 respectively. These results imply that there is a strong relationship between performance and customer relationship. In other words, the SCM practice of customer relationship has positive effect on the performance of the pharmaceutical industry in Nigeria in terms of increased capacity utilization, output, market share, sales and customer satisfaction.

4.2.2b Correlation Analysis

Table 4.7 **Correlations**

		Performance	Customer Relationship
Performance	Pearson Correlation	1	.850**
	Sig. (2-tailed)		.000
	N	180	180
Customer Relationship	Pearson Correlation	.850**	1
	Sig. (2-tailed)	.000	
	N	180	180

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

Table 4.7 presents the correlation matrix between performance and customer relationship. The correlation coefficient indicates a positive and significant association between the variables. This is indicated by the Pearson Correlation value of 0.850 and its corresponding p-value of 0.000.

4.2.2c Regression Analysis

Table 4.8 **Model Summary[b]**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.850[a]	.722	.720	.45242	1.580

a. Predictors: (Constant), Customer Relationship

b. Dependent Variable: Performance

Table 4.8 is a model summary that presents the Correlation Coefficient (R), the Coefficient of Determination (R^2), and the Durbin Watson Statistics. The Correlation Coefficient (R) of 0.850 depicts that a strong positive relationship exist between performance and customer relationship. This means that performance increases as customer relationship increases. The Coefficient of Determination (R^2) of 0.722 depicts that about 72.2% of variation in the performance of pharmaceutical industry in Nigeria is explained by paying attention to customers' complaints (i.e. Customer Relationship). The Durbin Watson Statistics of 1.580 indicates absence of auto or serial correlation.

Table 4.9 **ANOVA[a]**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	94.516	1	94.516	461.755	.000[b]
	Residual	36.434	178	.205		
	Total	130.950	179			

a. Dependent Variable: Performance

b. Predictors: (Constant), Customer Relationship

Table 4.9 presents the F-Statistics and its P-value. The high F-Statistics of 461.755 and its corresponding P-value of 0.000 denote that the model is fit. The df of 1 indicates the number of the explanatory variable in the model, while df of 179 depicts the total observations in the study minus the degree of freedom of 1, thus making a total of 180 observations in the study.

Table 4.10 **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.204	.158		7.628	.000		
	Customer Relationship	.800	.037	.850	21.488	.000	1.000	1.000

a. Dependent Variable: Performance

Table 4.10 is the Coefficient table from which the regression line is drawn. Thus the regression line PERF = 1.204 + 0.800CR indicates that the performance of pharmaceutical industry in Nigeria will improve significantly by 0.800% for every 1% improvement in attending to customers' relations issues. The constant value of 1.204 depicts that, should there be no customer relationship, the performance value will only stop at 1.204. The VIF Value 1 indicates absence of Multicollinearity (i.e. Multicollinearity only exists when the VIF value is greater than 10). Understandably, since the explanatory variable is 1, there is no way the problem of multicollinearity will exist.

4.2.3 Level of Information Sharing and Performance

4.2.3a Descriptive Statistics

Table 4.11 Statistics

		Performance	Level of Information Sharing
N	Valid	180	180
	Missing	0	0
Mean		4.5167	4.2056
Median		5.0000	4.0000
Std. Deviation		.85532	.96704
Minimum		1.00	1.00
Maximum		5.00	5.00

Table 4.11 is a descriptive statistics in relation to performance and level of information sharing. The average score is 4.51 and 4.20 for performance and level of information sharing respectively. The median score for the respective variables are 5 and 4. The minimum and maximum scores are 1 and 5 respectively. These results imply that there is a strong relationship between performance and level of information sharing. In other words, the SCM practice of level of information sharing has positive effect on the performance of the pharmaceutical industry in Nigeria in terms of increased capacity utilization, output, market share, sales and customer satisfaction.

4.2.3b Correlation Analysis

Table 4.12 Correlations

		Performance	Level of Information Sharing
Performance	Pearson Correlation	1	.877**
	Sig. (2-tailed)		.000
	N	180	180
Level of Information Sharing	Pearson Correlation	.877**	1
	Sig. (2-tailed)	.000	
	N	180	180

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

Table 4.12 presents the correlation matrix between performance and level of information sharing. The correlation coefficient indicates a positive and significant association between the variables. This is indicated by the Pearson Correlation value of 0.877 and its corresponding p-value of 0.000.

4.2.3c Regression Analysis

Table 4.13 **Model Summary[b]**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.877[a]	.770	.768	.41171	1.611

a. Predictors: (Constant), Level of Information Sharing

b. Dependent Variable: Performance

Table 4.13 is a model summary that presents the Correlation Coefficient (R), the Coefficient of Determination (R^2), and the Durbin Watson Statistics. The Correlation Coefficient (R) of 0.877 depicts that a strong positive relationship exist between performance and level of information sharing. This means that performance increases as level of information sharing increases. The Coefficient of Determination (R^2) of 0.770 depicts that about 77% of variation in the performance of pharmaceutical industry in Nigeria is explained by sharing of critical and proprietary information (i.e. level of information sharing). The Durbin Watson Statistics of 1.611 indicates absence of auto or serial correlation.

Table 4.14 **ANOVA[a]**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	100.778	1	100.778	594.541	.000[b]
	Residual	30.172	178	.170		
	Total	130.950	179			

a. Dependent Variable: Performance

b. Predictors: (Constant), Level of Information Sharing

Table 4.14 presents the F-Statistics and its P-value. The high F-Statistics of 594.541 and its corresponding P-value of 0.000 denote that the model is fit. The df of 1 indicates the number of the explanatory variable in the model, while df of 179 depicts the total observations in the study minus the degree of freedom of 1, thus making a total of 180 observations in the study.

Table 4.15 **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.254	.137		9.130	.000		
	Level of Information Sharing	.776	.032	.877	24.383	.000	1.000	1.000

a. Dependent Variable: Performance

Table 4.15 is the Coefficient table from which the regression line is drawn. Thus the regression line PERF = 1.254 + 0.776LIS indicates that the performance of pharmaceutical industry in Nigeria will improve significantly by 0.776% for every 1% improvement in dissemination of critical and proprietary information between the supplier and the companies whom the supply were made to. The constant value of 1.254 depicts that, should there be no dissemination of critical and proprietary information between the parties; the performance value will only stop at 1.254. The VIF Value 1 indicates absence of Multicollinearity (i.e. Multicollinearity only exists when the VIF value is greater than 10). Of course since the explanatory variable is one, there is no way the problem of multicollinearity will exist.

4.2.4 Quality of Information Sharing and Performance

4.2.4a Descriptive Statistics

Table 4.16 Statistics

		Performance	Quality of Information Sharing
N	Valid	180	180
	Missing	0	0
Mean		4.5167	4.3833
Median		5.0000	5.0000
Std. Deviation		.85532	.95879
Minimum		1.00	1.00
Maximum		5.00	5.00

Table 4.16 is a descriptive statistics in relation to performance and quality of information sharing. The average score is 4.51 and 4.38 for performance and quality of information sharing respectively. The median score for the respective variables are 5 and 5. The minimum and maximum scores are 1 and 5 respectively. These results imply that there is a strong relationship between performance and quality of information sharing. In other words, the SCM practice of quality of information sharing has positive effect on the performance of the pharmaceutical industry in Nigeria in terms of increased capacity utilization, output, market share, sales and customer satisfaction.

4.2.4b Correlation Analysis

Table 4.17 **Correlations**

		Performance	Quality of Information Sharing
Performance	Pearson Correlation	1	.936**
	Sig. (2-tailed)		.000
	N	180	180
Quality of Information Sharing	Pearson Correlation	.936**	1
	Sig. (2-tailed)	.000	
	N	180	180

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

Table 4.17 presents the correlation matrix between performance and quality of information sharing. The correlation coefficient indicates a positive and significant association between the variables. This is indicated by the Pearson Correlation value of 0.936 and its corresponding p-value of 0.000.

4.2.4c Regression Analysis

Table 4.18 **Model Summary[b]**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.936[a]	.875	.875	.30265	1.516

a. Predictors: (Constant), Quality of Information Sharing

b. Dependent Variable: Performance

Table 4.18 is a model summary that presents the Correlation Coefficient (R), the Coefficient of Determination (R^2), and the Durbin Watson Statistics. The Correlation Coefficient (R) of 0.936 depicts that a strong positive relationship exist between performance and quality of information sharing. This means that performance increases as quality of information sharing increases. The Coefficient of Determination (R^2) of 0.875 depicts that about 88% of variation in the performance of pharmaceutical industry in Nigeria is explained by sharing of accurate, timely, adequate and credible information (i.e. quality of information sharing). The Durbin Watson Statistics of 1.516 indicates absence of auto or serial correlation.

Table 4.19 **ANOVA[a]**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	114.646	1	114.646	1251.668	.000[b]
	Residual	16.304	178	.092		
	Total	130.950	179			

a. Dependent Variable: Performance

b. Predictors: (Constant), Quality of Information Sharing

Table 4.19 presents the F-Statistics and its P-value. The high F-Statistics of 1251.668 and its corresponding P-value of 0.000 denote that the model is fit. The df of 1 indicates the number of the explanatory variable in the model, while df of 179 depicts the total observations in the study minus the degree of freedom of 1, thus making a total of 180 observations in the study.

Table 4. 20 **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.858	.106		8.105	.000		
	Quality of Information Sharing	.835	.024	.936	35.379	.000	1.000	1.000

a. Dependent Variable: Performance

Table 4.20 is the Coefficient table from which the regression line is drawn. Thus the regression line PERF = 0.858 + 0.835QIS indicates that the performance of pharmaceutical industry in Nigeria will improve significantly by 0.835% for every 1% improvement in dissemination of accurate, timely, adequate and credible information between the supplier and the buyer. The constant value of 0.858 depicts that, should there be no dissemination of accurate, timely, adequate and credible information between the parties; the performance value will only stop at 0.858. The VIF Value 1 indicates absence of Multicollinearity (i.e. Multicollinearity only exists

when the VIF value is greater than 10). Of course since the explanatory variable is one, there is no way the problem of multicollinearity will exist.

4.2.5 Postponement and Performance

4.2.5a Descriptive Statistics

Table 4.21 Statistics

		Performance	Postponement
N	Valid	180	180
	Missing	0	0
Mean		4.5167	2.4667
Median		5.0000	2.0000
Std. Deviation		.85532	1.44315
Minimum		1.00	1.00
Maximum		5.00	5.00

Table 4.21 is a descriptive statistics in relation to performance and postponement. The average score is 4.51 and 2.46 for performance and postponement respectively. The median score for the respective variables are 5 and 2. The minimum and maximum scores are 1 and 5 respectively. These results imply that there is a relationship between performance and postponement. However, the low median score of 2 for postponement shows that the SCM practice of postponement does not have a strong positive effect on the performance of the pharmaceutical industry in Nigeria.

4.2.5b Correlation Analysis

Table 4.22 **Correlations**

		Performance	Postponement
Performance	Pearson Correlation	1	-.821**
	Sig. (2-tailed)		.000
	N	180	180
Postponement	Pearson Correlation	-.821**	1
	Sig. (2-tailed)	.000	
	N	180	180

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

Table 4.22 presents the correlation matrix between performance and postponement. The correlation coefficient indicates a negative and significant association between the variables. This is indicated by the Pearson Correlation value of -0.821 and its corresponding p-value of 0.000.

4.2.5c Regression Analysis

Table 4.23 **Model Summary[b]**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.821[a]	.674	.672	.48969	1.531

a. Predictors: (Constant), Postponement

b. Dependent Variable: Performance

Table 4.23 is a model summary that presents the Correlation Coefficient (R), the Coefficient of Determination (R^2), and the Durbin Watson Statistics. The Correlation Coefficient (R) of 0.821 depicts that a strong relationship exist between performance and postponement. This means that performance decreases with increases in moving forward operations or processes to a much later date (postponement). The Coefficient of Determination (R^2) of 0.674 depicts that about 67.4% of variation in the performance of pharmaceutical industry in Nigeria is explained by postponement (i.e. moving forward operations or processes to a much later date). The Durbin Watson Statistics of 1.531 indicates absence of auto or serial correlation.

Table 4.24 **ANOVA[a]**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	88.267	1	88.267	368.099	.000[b]
	Residual	42.683	178	.240		
	Total	130.950	179			

a. Dependent Variable: Performance

b. Predictors: (Constant), Postponement

Table 4.24 presents the F-Statistics and its P-value. The high F-Statistics of 368.099 and its corresponding P-value of 0.000 denote that the model is fit. The df of 1 indicates the number of the explanatory variable in the model, while df of 179 depicts the total observations in the study minus the degree of freedom of 1, thus making a total of 180 observations in the study.

Table 4.25 **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5.717	.072		78.933	.000		
	Postponement	-.487	.025	-.821	-19.186	.000	1.000	1.000

a. Dependent Variable: Performance

Table 4.25 is the Coefficient table from which the regression line is drawn. Thus the regression line PERF = 5.717 - 0.487POST indicates that the performance of pharmaceutical industry in Nigeria will decrease significantly by 0.487% for every 1% increase in moving forward operations or processes to a much later date (postponement). The constant value of 5.717 depicts that, should there be no postponement; the performance value will only stop at 5.717. The VIF Value 1 indicates absence of Multicollinearity (i.e. Multicollinearity only exists when the VIF value is greater than 10). Of course since the explanatory variable is one, there is no way the problem of multicollinearity will exist.

4.2.6 Combined Effect of Supply Chain Management and Performance

4.2.6a Descriptive Statistics

Table 4.26 **Statistics**

	Performance	Strategic Supplier Partnership	Customer Relationship	Level of Information Sharing	Quality of Information Sharing	Postponement
N Valid	180	180	180	180	180	180
Missing	0	0	0	0	0	0
Mean	4.5167	4.2500	4.1389	4.2056	4.3833	2.4667
Median	5.0000	4.0000	4.0000	4.0000	5.0000	2.0000
Std. Deviation	.85532	.88359	.90784	.96704	.95879	1.44315
Minimum	1.00	1.00	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00	5.00	5.00

Table 4.26 is a descriptive statistics in relation to performance, strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement. The average respective scores are 4.51, 4.25, 4.13, 4.20, 4.38 and 2.46. The median respective scores are 5, 4, 4, 4, 5, and 2. The minimum and maximum scores are 1 and 5 respectively. These results imply that the combined effects of strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing and postponement affect performance of the pharmaceutical industry in Nigeria positively.

4.2.6b Correlation Analysis

Table 4.27 **Correlations**

		Performance	Strategic Supplier Partnership	Customer Relationship	Level of Information Sharing	Quality of Information Sharing	Postponement
Performance	Pearson Correlation	1	.848**	.850**	.877**	.936**	-.821**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	180	180	180	180	180	180
Strategic Supplier Partnership	Pearson Correlation	.848**	1	.925**	.959**	.882**	-.881**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	180	180	180	180	180	180
Customer Relationship	Pearson Correlation	.850**	.925**	1	.903**	.882**	-.877**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	180	180	180	180	180	180
Level of Information Sharing	Pearson Correlation	.877**	.959**	.903**	1	.897**	-.894**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	180	180	180	180	180	180
Quality of Information Sharing	Pearson Correlation	.936**	.882**	.882**	.897**	1	-.857**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	180	180	180	180	180	180
Postponement	Pearson Correlation	-.821**	-.881**	-.877**	-.894**	-.857**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	180	180	180	180	180	180

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

Table 4.27 presents the correlation matrix between performance, strategic supplier relationship, customer relationship, level of information sharing, quality of information sharing and postponement. The correlation coefficient indicates positive and significant association between the variables except in the case of postponement that showed a negative relationship. This is indicated by the Pearson Correlation values of 0.848, 0.850, 0.877, 0.936 & -0.821 and there corresponding p-values of 0.000.

4.2.6c Regression Analysis

Table 4.28 **Model Summary[b]**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.941[a]	.885	.882	.29408	1.784

a. Predictors: (Constant), Postponement, Quality of Information Sharing, Customer Relationship, Level of Information Sharing, Strategic Supplier Partnership

b. Dependent Variable: Performance

Table 4.28 is a model summary that presents the Correlation Coefficient (R), the Coefficient of Determination (R^2), and the Durbin Watson Statistics. The Correlation Coefficient (R) of 0.941 depicts that a strong relationship exist between performance and supplier chain management in terms of strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement. This means that performance is influenced by these variables. The Coefficient of Determination (R^2) of 0.885 depicts that about 89% of variation in the performance of pharmaceutical industry in Nigeria is explained by supply chain

management (i.e. strategic supplier relationship, customer relationship, level of information sharing, quality of information sharing, and postponement). The Durbin Watson Statistics of 1.784 indicates absence of auto or serial correlation.

Table 4.29 **ANOVA[a]**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	115.902	5	23.180	268.043	.000[b]
	Residual	15.048	174	.086		
	Total	130.950	179			

a. Dependent Variable: Performance

b. Predictors: (Constant), Postponement, Quality of Information Sharing, Customer Relationship, Level of Information Sharing, Strategic Supplier Partnership

Table 4.29 presents the F-Statistics and its P-value. The high F-Statistics of 268.043 and its corresponding P-value of 0.000 denote that the model is fit. The df of 1 indicates the number of the explanatory variable in the model, while df of 179 depicts the total observations in the study minus the degree of freedom of 1, thus making a total of 180 observations in the study.

Table 4.30 **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.707	.335		2.110	.036		
	Strategic Supplier Partnership	.170	.072	.175	2.361	.024	.161	6.399
	Customer Relationship	.077	.071	.082	1.093	.276	.117	8.539
	Level of Information Sharing	.284	.091	.321	3.132	.002	.173	5.796
	Quality of Information Sharing	.677	.057	.759	11.930	.000	.163	6.132
	Postponement	-.020	.037	-.034	-.541	.589	.170	5.884

a. Dependent Variable: Performance

Table 4.30 is the Coefficient table from which the regression line was drawn. Thus the regression line PERF = 0.707 + 0.170SSR + 0.077CR + 0.284LIS + 0.677QIS - 0.020POST indicates that the performance of pharmaceutical industry in Nigeria in terms of capacity utilization, output, market share, sales and customer satisfaction, will increase by 0.170% for every 1% increase in Strategic Supplier Relationship, increase by 0.170% for every 1% increase in Strategic Supplier Partnership , increase by 0.077% for every 1% increase in Customer Relationship , increase by 0.284% for every 1% increase in Level of Information Sharing, increase by 0.677% for every 1% increase in Quality of Information Sharing, but decrease by 0.020% for every 1% increase in

Postponement. The constant value of 0.707 depicts that, should there be no supply chain management practices, the performance value will only stand at 0.707. The VIF Value 6.399, 8.539, 5.796, 6.132, & 5.884 for strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement respectively indicate absence of Multicollinearity (i.e. Multicollinearity only exists when the VIF value is greater than 10).

4.3 Discussion of Findings

It is evident from the above results and analyses that, strategic supplier partnership (SSP) or buyer supplier relationship is positively related to the performance of pharmaceutical industry in Nigeria with statistical significance. Thus it can be inferred that, the performance of pharmaceutical industry in Nigeria improves significantly as long term relationship is established between the pharmaceutical companies and their suppliers. This implies that SSP has significant positive impact on the performance of pharmaceutical industry in Nigeria. This finding aligns with the findings in previous studies such as those by Li et al (2006), Tan et al. (2009), Bankston (2013) and more recently Azeem & Ahmed (2015). The study aligns with the Commitment-Trust Relationship Marketing Theory, Systems Theory and Transactional Cost Economics Theory.

Similarly, a significant positive impact of customers' relationship on the performance of pharmaceutical industry in Nigeria was found. This implies that, attending to customers' relationship management significantly enhance the performance of pharmaceutical industry in Nigeria. The finding aligns with the findings in previous studies such as those by Li et al (2006), Nwude & Uduji, (2013) and more recently Boateng (2014). The study aligns with the Systems Theory and Commitment-Trust Relationship Marketing Theory.

Furthermore, level of information sharing and performance of pharmaceutical industry in Nigeria were found to be significantly related. This means that, performance of pharmaceutical industry in Nigeria improves when there is critical and proprietary information dissemination between the companies and their suppliers. This finding aligns with the findings in the previous works conducted by Swierczek (2010), Zahra et al (2013) and Li et al (2006) and is supported by Systems Theory and Commitment-Trust Relationship Marketing Theory.

A significant positive impact was also found in the case of quality of information sharing and performance of pharmaceutical industry in Nigeria. This implies that the performance of pharmaceutical industry in Nigeria is enhanced when information shared is accurate, timely, adequate, and credible. This aligns with findings in previous works such as Swierczek (2010), Zahra et al (2013) and Li et al (2006) and is supported by Systems Theory and Commitment-Trust Relationship Marketing Theory

Conversely, a significant negative effect of postponement on performance of pharmaceutical industry in Nigeria was found. This implies that, performance of pharmaceutical industry in Nigeria falls with delay in the operation and activities of the business. This is sufficed to say that, performance of pharmaceutical industry in Nigeria decreases when the companies keep moving forward the operations and activities of the business to a much later date. In other words, modular production does not impact significantly on the performance of the industry in Nigeria. This finding is in tandem with the findings in the previous works of Feitzinger et al. (1997), Li et al (2006) & Yang et al (2004) and is supported by Transaction Cost Economics Theory.

Research Questions: The results of the analysis have effectively answered the research questions in this study about the impact of strategic supplier partnership, customer relationship,

level of information sharing, quality of information sharing and postponement on performance of pharmaceutical industry in Nigeria. The five SCM practices all had an impact on the performance of the pharmaceutical industry in Nigeria. While strategic supplier partnerships, customer relationship, level of information sharing and quality of information sharing all had significant positive impact on performance, postponement had a significant negative impact.

Research Hypotheses: With the exception of postponement, which had a significant negative impact, all the other four supply chain management practices employed in this study impacted positively on the performance of the industry. Consequently, hypotheses:

H_{o1} – was rejected because strategic supplier partnership had significant positive impact on performance of the pharmaceutical industry in Nigeria

$H_{o2,}$ - was rejected because customer relationship had significant positive impact on performance of the pharmaceutical industry in Nigeria

$H_{o3,}$ - was rejected because level of information sharing had significant positive impact on performance of the pharmaceutical industry in Nigeria.

H_{o4} - was rejected because quality of information sharing had significant positive impact on performance of the pharmaceutical industry in Nigeria.

H_{o5} - was however accepted because the independent variable, postponement, had no significant positive impact on the performance of pharmaceutical industry in Nigeria.

Research Objectives: Based on the findings of this study, both the main objective and the specific objectives have been achieved because the impacts of SCM practices which were the

independent variables all had some impact on the performance of the pharmaceutical industry in Nigeria. The supply chain management dimension of strategic supplier partnership had a significant positive impact on the performance of the pharmaceutical industry in Nigeria. Similarly, customer relationship had a significant positive impact on the performance of the pharmaceutical industry in Nigeria. Both level of information sharing and quality of information sharing had significant positive effects on performance of pharmaceutical industry in Nigeria. However, postponement had a significant negative impact on the performance of pharmaceutical industry in Nigeria. The combined effects of all the independent variables had a positive significant impact on performance of pharmaceutical industry in Nigeria.

The findings of this study complement and align with those of similar studies, namely: Li et al, 2006; Toyin, 2012 and many others on impact of supply chain management on the performance of organisations. It also fills the gap created by the absence of such a study on the pharmaceutical industry in Nigeria. Similarly, the positive impacts of the individual supply chain management practices point to the fact that the pharmaceutical industry in Nigeria implements SCM practices at some significant levels.

Performance of the Pharmaceutical Industry in Nigeria: The motivation for this study was informed by the frequently cited poor performance of the pharmaceutical industry in Nigeria. It has often been cited that the industry is only able to achieve about 30 per cent of the drug needs of the country. The reference to this poor performance has been a persistent pronouncement by industry stakeholders for the past 3 or more decades without concrete evidence to support the pronouncement.

In recognition of the global trend which has witnessed the widespread adoption of SCM by organisations as a strategy for improving their performance and having observed from literature that no study had been dedicated to the pharmaceutical industry in Nigeria to examine the impact of SCM on the performance of the industry, this study was conducted to fill the gap and add to the body of knowledge regarding the impact of SCM on the performance of the pharmaceutical industry in Nigeria. The findings in this study clearly show that that the pharmaceutical industry in Nigeria has adopted the SCM as a strategy to achieve significant positive impact on its performance in terms of increased capacity utilization, output, market share, sales and customer satisfaction. Based on these positive findings, it is important to seek answers to why the industry is still unable to achieve more than 30 per cent of the country's drug needs on a persistent basis.

A closer look at the industry will reveal that it depends almost entirely on external sources for its raw materials. In addition, and based the interviews conducted with a number of industry key stakeholders, the practice of outsourcing of some production processes is on the increase. What these means is that the relationship of the industry with its suppliers will be stressed by geographical distance which can also affect the level and quality of information sharing. There is however no empirical evidence to support this view. What is however clear is that the inability of the government to fast forward its long term plan of establishing the petrochemical industry to promote local sourcing of pharmaceutical raw materials no doubt impacts negatively on the performance of the pharmaceutical industry in Nigeria with grave implications for the country in terms of drug security.

The study by Nwude and Uduji (2013) which examined the impact of customer relationship on the performance of the pharmaceutical industry in Nigeria offers some clue regarding the uptake

of many of the concepts underlying the customer relationship management (CRM) system by the industry. Their findings showed that while elements of the CRM process are evident in the pharmaceutical industry in Nigeria, many of the concepts underlying CRM system are not implemented at all by the pharmaceutical firms or industry in Nigeria. Despite this observation, their study showed that overall CRM exerts a significant positive impact on performance of the pharmaceutical industry in Nigeria. The implication of this for this study is that the observed positive significant impact of SCM practices on the performance of the pharmaceutical industry in Nigeria may not necessarily mean that many of the concepts underlying the supply chain management practices are being efficiently implemented by the industry. Hence, the findings may not translate to significant gains in terms of increased capacity utilization and output, market share, sales and customer satisfaction which are the proxies for performance in this study.

There is also the possibility of respondents' bias in filling the questionnaires because from the interviews held with some industry stakeholders in the process of this study it was evident that these stakeholders did not fully understand the concept of SCM and viewed the concept more as value addition which is not the case. While the results from the primary research showed that supply chain management had significant positive relationship with performance of the pharmaceutical industry in Nigeria, the uptake and consistent efficient implementation of the practices remains the basis for the sustenance of such relationship with performance. SCM strategy requires a lot of attention with intensified implementation efforts over time for the results to be obvious. In this study, we have no evidence of when the industry adopted SCM or for how long the industry has been implementing the SCM practices. Besides, the study did not find evidence of the presence of Supply Chain Management Specialists operating in the industry as none of the respondents bore such a tag. It can therefore be inferred that though the results of

this study showed positive trend in terms of the impact of SCM practices on the performance of the industry, the absence of SCM Specialists in the industry may lead to less efficient uptake of all concepts underlying SCM practices thereby resulting in the persistent 30 per cent level of achievement of the country's drug supply needs by the industry.

Apart from the five supply chain management practices covered in this study there are many other supply chain management practices as described in this study such as internal integration, cross functional teams, outsourcing, Just in Time, Geographical proximity and several others. This study made no attempt to find out if the industry has adopted any other SCM practices outside of the five used and which like postponement may have negative impact on the industry and effectively neutralise those practices that have positive impact on performance. Future research should seek to examine the various SCM practices employed by the industry and their impact on the performance of the industry.

Also in this study, it was observed that government has been playing some roles in support of the industry but somehow such roles have not had the desired positive impact on the performance of the pharmaceutical industry in Nigeria as reported by PMG-MAN (2009) and UNIDO (2011). This is because government has been unable to provide the needed infrastructure and favourable environment for the pharmaceutical industry to operate efficiently and to achieve higher results. Thus, infrastructural deficits, poor access to funds and many other challenges have had negative impacts on the performance of the industry particularly in terms of low capacity utilisation and output (PMG-MAN, 2009; and UNIDO, 2011). Besides, the regulatory activities of the various government regulatory bodies such as the National Agency for Food and Drug Administration and Control (NAFDAC) and the heightened pre-qualification requirements by the World Health Organisation (WHO) take up a considerable amount of resources from the industry without

commensurate returns on investments (ROI) thereby affecting the performance of the industry. In addition and as observed by PMG-MAN (2009) and UNIDO (2011) in their reports, the inconsistency and frequent changes of government policies including the recently introduced Common External Tariff (CEF) have not been industry friendly. The Common External Tariff for example encourages importation of finished drugs as against local production of such drugs by charging high duties on pharmaceutical raw materials and zero duties on finished imported drug products with negative impact on the performance of the industry. Meanwhile, the industry is poorly patronised by both government and International Aid Organisations contrary to government's often publicly declared intentions. All these may provide some clues as to the observed persistent poor performance of the industry despite its adoption of SCM practices to improve performance and remain competitive.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

In this study, the impact of supply chain management on performance of the pharmaceutical industry in Nigeria using 5 supply chain management practices or dimensions as independent variables and performance as dependent variable was examined. The pharmaceutical industry in Nigeria is critical and strategic because of its expansive market and its potentials to contribute positively to the socio economic well-being of the country. It is an industry that is capable of creating considerable job opportunities for both skilled and unskilled people. The products of the industry are also crucial for the prevention, control and management of the huge burden of diseases not only in Nigeria both in the entire West African Region and beyond. Unfortunately, the industry has been unable to take advantage of all its potentials because of its inability to achieve more than 30 per cent of the drug needs of the country due primarily to low capacity utilisation and output.

It has been observed from literature that many organisations across the globe have been adopting supply chain management as a strategy in order to improve their performance. It was believed that the adoption of SCM strategy could also lead to improved performance indices of the pharmaceutical industry in Nigeria. The ability of the industry to perform well will lead to many benefits for both the industry and the socio- economic growth of Nigeria. The absence of any study on the impact of SCM on the performance of the pharmaceutical industry in Nigeria was seen as a research gap which provided the motivation for this study which was industry specific.

This study came up with some research questions and hypotheses in consonance with its main and specific objectives. An extensive literature search was conducted to review the impact of supply chain management and five of its dimensions or practices on the performance of organisations. The review also covered concept of SCM, concept of the individual five dimensions used in this study, concept of performance and organizational performance and a brief on the benefits of SCM. The empirical review of the literature focused on studies which explored the impact of supply chain management and the five SCM practices used in this study on organizational performance. The review covered several documented studies conducted in different parts of the world including Nigeria.

The methodology employed for this study was designed to answer the research questions, test the hypotheses and address the main and specific objectives of this study. This involved the use of descriptive and inferential statistics employing regression analysis to examine the causal relationship between the five supply chain management practices and performance of the pharmaceutical industry in Nigeria. The five supply chain management practices, namely: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing and postponement served as independent variables while performance served as the dependent variable. The effect of all the five SCM practices on the performance of pharmaceutical industry in Nigeria in terms of increased capacity utilisation, output, market share, sales and customer satisfaction, was examined.

Being a qualitative study, data were obtained mainly by the use of the Likert Scale questionnaire and subjected to statistical evaluation using the SPSS Package Version 20. The outcomes of the evaluations showed that overall the five supply chain management practices had significant

positive impact on the performance of the pharmaceutical industry in Nigeria. This is without prejudice to the fact that postponement, one of the practices, had a significant negative impact on performance of the industry. The remaining 4 variables or supply chain management practices, namely: strategic supplier partnership, customer relationship, level of information sharing and quality of information sharing all had significant positive impact on performance of the pharmaceutical industry in Nigeria based on the positive outcomes of the statistical, correlation and regression analyses. The results also confirmed the fitness of the models and the absence of multicollinearity.

1. Conclusions

The conclusions from the findings in this study all have important implications for the pharmaceutical industry in Nigeria. The findings align with most previous studies on the impact or effect of SCM practices on the performance of organisations.

The results indicate that Strategic Supplier Partnership (SSP) has significant positive impact on the performance of the pharmaceutical industry in Nigeria. It can therefore be concluded that that for the pharmaceutical industry in Nigeria to achieve higher performance in terms of increased capacity utilisation, output, market shares, sales and customer satisfaction, it is imperative for it to diligently implement strategic supplier partnership as one of its SCM practices. The same conclusion goes for Customer Relationship (CR), Level of Information Sharing (LIS) and Quality of Information Sharing (QIS) which have been found to significantly impact on performance of the pharmaceutical industry in Nigeria. Their increased uptake and efficient implementation by the industry could lead to the achievements of many benefits and higher

levels of performance in terms of capacity utilization, output, market shares, sales and customer satisfaction.

However, the findings relating to Postponement (POST) was found to have a negative relationship with performance of the pharmaceutical industry in Nigeria. The conclusion from this is that the industry should avoid the practice of delaying some production processes because it can affect the level of performance in a negative way.

Overall, the findings from this study showed that the 5 SCM practices had significant positive impact on the performance of the pharmaceutical industry in Nigeria. But based on the outcomes from many empirical studies in literature, for such positive impacts to translate into significant achievements, the level of uptake and the efficient implementation of the SCM practices should be consistent and sustained overtime. This may in part explain why despite the outcomes of this study, the capacity utilization of the pharmaceutical industry has been seen to consistently hover at a low level of just about 30 per cent.

1. Recommendations

The study therefore makes the following recommendations:

1. The pharmaceutical industry in Nigeria should ensure that it pays greater attention than hitherto to strategic supplier partnerships as an important SCM practice through the development and maintenance of strategic relationship based on trust, commitment, collaboration and efficient communication with all its suppliers in order to achieve more significant positive impact on its performance. The nearly 100 per cent reliance on external sources for raw materials justifies the need for the industry to implement all the

concepts underlying strategic supplier partnerships in terms of choice of suppliers and collaborative and integrated relationship to achieve greater reliability and higher level of performance.

2. The pharmaceutical industry in Nigeria should pay greater attention to its customer relationship practices in view of the significant positive impact such a relationship could exert on the performance of the industry. This is important because a recent study conducted on the impact of customer relationship on the performance of the pharmaceutical industry in Nigeria found that the industry did not implement all the concepts underlying customer relationship management. It is therefore imperative for the industry to implement all the concepts underlying customer relationship management because doing so will greatly improve customer satisfaction and retention, increase sales volume and market share, leading to higher level of performance beyond the current 30 per cent level.

3. The pharmaceutical industry in Nigeria should ensure that it increases the level at which it shares critical and proprietary information with its supply chain partners leveraging on trust and commitment in order to achieve significant positive impact on its performance. This is more so because of the far flung geographical location of its raw materials suppliers which could hamper the achievement of higher levels of such information sharing thereby impinging on the performance of the industry beyond its current level. Studies have shown that there is the reluctance by organisations to share critical and proprietary information among supply chain partners.

4. The pharmaceutical industry in Nigeria should increase the quality of information it shares with its partners in terms of being more accurate, timely and reliable among others and by building trust in order to achieve a higher level of performance beyond the present 30 per cent level. Many empirical studies in literature emphasise the importance of quality of information sharing as a critical factor for supply chain integration and collaboration because it is the pathway to enhance trust and commitment among supply chain partners which leads to improved performance.

5. The pharmaceutical industry in Nigeria should avoid the practice of postponing or delaying some of its manufacturing processes till a future date with the hope of achieving agility because this could be counterproductive for the industry and could further affect the performance level of the industry as has been shown in many similar studies. This is supported by many empirical studies in literature which have found that postponement as a practice is industry specific and should therefore not be applied across all industries.

1. Limitations of the Study

Most of the sampled companies for this study were located in the South West Zone of Nigeria which accounted for 68 percent of all the pharmaceutical industry in Nigeria. As a result of the highly cosmopolitan and congested nature of the Zone mobility was very stressful and time consuming most especially where repeated visits to some companies had to be undertaken as was the case in this study. The cost of the data collection process was substantially high. The experience is better imagined but in the end it was quite rewarding.

5.5 Suggestions for Further Study

The data for this study was obtained from respondents drawn from the pharmaceutical manufacturing companies only. It is proposed that future studies should attempt to obtain data on SCM practices from the entire supply chain partners comprising: suppliers, manufacturers, distributors and consumers. Future studies should also examine if the pharmaceutical industry in Nigeria has adopted other SCM practices beyond the five covered in this study in order to establish which of them could be beneficial in terms of having significant positive impact on performance of organisations.

Other studies could address topics such as: The impact of government and international policies on the performance of the pharmaceutical industry in Nigeria; Outsourcing practices and the performance of the pharmaceutical industry in Nigeria; Impact of over reliance on external sources of pharmaceutical raw materials on the performance of the pharmaceutical industry in Nigeria; and the comparison of the impacts of SCM practices of the three categories of pharmaceutical manufacturers on the performance of the industry in Nigeria .

Finally, and in view of the increasing use of information systems/technologies to improve the manufacturing processes, knowledge and information sharing, data storage and retrievals by supply chains, it is proposed that future studies should also focus or attempt to examine the impact of such information systems on the performance of supply chains and organisations.

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Appendices

Appendix 1

RESEARCH QUESTIONNAIRE

Dear Sir/Madam,

APPEAL FOR SUPPORT IN FILLING MY RESEARCH QUESTIONNARE

My name is Pharm. Joel E.B Adagadzu. I am currently pursuing a Doctorate Degree Programme in the Department of Business Administration, Faculty of Business, Nasarawa State University, Keffi. I am conducting a study on **"Impact of Supply Chain Management on the Performance of Pharmaceutical Industry in Nigeria"** in partial fulfillment for the award of the degree**.**

I am therefore seeking your support to carefully and truthfully answer the questions in the attached questionnaire. Your responses will be useful in meeting the objectives of this study. Kindly be assured that any information supplied in this questionnaire will be handled with upmost confidentiality.

Thank you for your anticipated understanding and support.

Yours sincerely,

Joel E.B. Adagadzu, FPSN, FPCPharm

Appendix 2

RESEARCH QUESTIONNAIRE

A. Statements on Supply Chain Management (SCM) Practices

A1: Strategic Supplier Partnership (SSP)

(Please tick the box that best describes your agreement or disagreement with the statements in the questionnaire).

S/No	Question	Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)
1.	Your key suppliers are involved in the planning & goal setting activities of your	☐	☐	☐	☐	☐

company

2. Your company involves your key suppliers in new product development

3 Your suppliers are included in the continuous improvement programme of your company

4. Problems solving is jointly executed with your suppliers

5. Your company offers help to your suppliers to improve their product quality

A2: Customer Relationship (CR)

(Please tick the box that best describes your agreement or disagreement with the statements in the questionnaire).

S/No	Question	Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)
1.	Your company interacts with your customers on a regular basis					
2.	Your company seeks ways of					

	meeting your customers' needs on a constant basis					
3.	Your company frequently measures and evaluates your customers satisfaction	☐	☐	☐	☐	☐
4.	Your customers face no challenges in seeking help and clarifications from your company	☐	☐	☐	☐	☐
5.	There is a frequent evaluation of the importance of your company's relationship with your customers	☐	☐	☐	☐	☐

A3: Level of Information Sharing (LIS)

(Please tick the box that best describes your agreement or disagreement with the statements in the questionnaire).

S/No	Question	Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)
1.	Your company and your supply chain	☐	☐	☐	☐	

	partners share business knowledge of your core business processes.				
2.	Your company shares vital information with your supply chain partners about the events and changes that may affect your business				
3.	In the course of your planning processes your company and your supply chain partners share vital information				
4.	Your supply chain partners receive advance information of your company's needs				
5.	Your company and your supply chain partners share business knowledge of your core business processes.				

A4: Quality of Information Sharing (QIS)

(Please tick the box that best describes your agreement or disagreement with the statements in the questionnaire).

S/No	Question	Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)
1.	The exchange of information between your company and your supply chain partners is done in a timely manner	☐	☐	☐	☐	☐
2.	The exchange of information is accurate	☐	☐	☐	☐	☐
3.	Information exchange is complete	☐	☐	☐	☐	☐
4.	Information exchange is adequate.	☐	☐	☐	☐	☐
5.	Information exchange is credible	☐	☐	☐	☐	☐

A5: Postponement (Post)

(Please tick the box that best describes your agreement or disagreement with the statements in the questionnaire).

S/No	Question	Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)
1.	Production is delayed by your company until orders from your customers are received	☐	☐	☐	☐	☐
2.	Your products are made in batches as orders are received	☐	☐	☐	☐	☐
3.	Your company delays final production of your products until the very last moment	☐	☐	☐	☐	☐

1. Statements on Performance (Level of Achievement of Key Performance Indicators

(Please tick the box that best describes your agreement or disagreement with the statements in the questionnaire).

S/No	Question	Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)
1.	Your company experiences increase in capacity utilization	☐	☐	☐	☐	☐
2.	There is an increase in the output of your company	☐	☐	☐	☐	☐
3.	There is an increase in market shares	☐	☐	☐	☐	☐
4.	Your company experiences an increase in sales	☐	☐	☐	☐	☐
5.	There is an increase in level of customer relationship	☐	☐	☐	☐	☐

Appendix 4

LIST OF REGISTERED PHARMACEUTICAL MANUFACTURING COMPANIES IN NIGERIA [2017]

S/No	Name	Address	State	Category
1	A & J PHARMACEUTICAL INDUSTRIES LTD.	KM 3, URATTA RING RD., OWERRI	Imo	Cat B
2	A.C. DRUGS LTD.	4, ALOR RD., EDWARD NNAJI LAYOUT	Enugu	Cat A
3	ABUMEC PHARM. LTD.	NO 7, LIGARI ROAD SABON TASHA, KADUNA	Kaduna	Cat C
4	AFRAB CHEM. LTD.	22, ABIMBOLA STR., ISOLO IND., ESTATE	Lagos	Cat C
5	AG INDUSTRIES LTD.	PL.3, AG INDS.CLOSE, ODO-ONA, ELEWE, IBADAN	Oyo	Cat C
6	AGARY PHARM. LTD.	PLOT C39A, AMUWO ODOFIN COMM.SCHEME	Lagos	Cat C
7	ALMADINA PHARMACY	2 NASSARAWA HOSPITAL RD	Kano	Cat C
8	APACCO PHARM. NIG. LTD.	15, OYEKANMI STREET, OFF OLORI ROAD, AKUTE	Ogun	Cat C
9	ARCHY PHARMA. NIG. LTD.	30, WINFUNKE STR., LAGOS-ABEOKUTA EXP. WAY, IJAYE-OJOKORO.	Lagos	Cat A
10	BENNIE INDUSTRIES LTD	PLOT 2, TSAMIYA BABBA VILLAGE, GEZAWA	Kano	Cat B
11	BENTOS PHARM. PRODUCTS LTD.	KM.8, OLD LAGOS RD., IBADAN	Oyo	Cat A
12	BIOMEDICAL SERVICES CO. LTD.	1, OHIMEGE RD., IND. EST., ILORIN	Kwara	Cat C
13	BIO-ORGANICS NUTRIENT SYST.LTD.	26 LAGOS - IBADAN EXPRESS WAY	Lagos	Cat C
14	BIOPHARMA NIG. LTD.	10, ODOGUNYAN PALACE RD., ODOGUNYAN, IKORODU	Lagos	Cat B
15	BIORAJ PHARMACEUTICALS NIG. LTD.	405, KAIMA ROAD, ILORIN	Kwara	Cat A

16	BOND CHEMICAL IND. LTD.	ADESHAKIN LAYOUT, AWE	Oyo	Cat B
17	BRIAN MUNRO LTD.	25, IZE IYAMU ST., OFF BILLINGS WAY, OREGUN.	Lagos	Cat C
18	CARDINAL DRUGS LIMITED	14, AJOKE OSHO ST., OWOYEMI EST., OKO OBA, AGEGE.	Lagos	Cat A
19	CEENEK PHARM. PRODUCTS LTD.	PLOT 219, IBEAGWA AKA UNITY STREET, NIKE COMM. LAYOUT EXT. PHASE II	Enugu	Cat B
20	CHAZMAX PHARM. IND. LTD.	KM.2, NKPOR OBOSI RD., ODUME L/OUT, OBOSI	Anambra	Cat A
21	CHEMO-PHARMA LABORATORIES LTD.	13, OLANREWAJU STR., OREGUN, IKEJA.	Lagos	Cat A
22	CHI PHARM. LTD.	PLOT 14, CHIVITA AVENUE, AJAO ESTATE.	Lagos	Cat B
23	CHRIS-EJIK PHARM.&H/CARE PRODS. LTD.	3, OJE-IMIANVAN STR., OREGUN, IKEJA	Lagos	Cat A
24	COMPUPHARM LTD.	20, ADEMOLA-EBITI ST., UNITY EST., IKORODU.	Lagos	Cat C
25	COPAC NIG. LTD.	PLOT K6, OSHODI APAPA EXP. RD., ISOLO IND. EST., MUSHIN.	Lagos	Cat C
26	DAILY NEED INDUSTRIES LTD.	PLOTS 9 & 10, UNITY CLOSE, OFF LADIPO STR., MATORI, MUSHIN	Lagos	Cat A
27	CARDINAL DRUGS LIMITED	14, AJOKE OSHO ST., OWOYEMI EST., OKO OBA, AGEGE.	Lagos	Cat A
28	DANA PHARMACEUTICALS LTD	8A OLUBADAN INDUSTRIAL ESTATE, NEW IFE ROAD,IBADAN	Oyo	Cat C
29	DE-SHALOM PHARM. LAB. (NIG) LTD.	KM4, KOKO-IJESA ROAD, ILESA	Osun	Cat A
30	DIVINE AGVET LTD.	6, IBADAN ROAD IKOYI-ILE, OSUN	Osun	Cat A
31	DRUGFIELD PHARM. LTD.	LYNSON CHEM. AVE., KM. 38, LAG/ABK. EXP. WAY, SANGO-OTTA	Ogun	Cat A
32	ECOMED PHARMA LIMITED	PLOT 32, LYNSON CHEM. AVE., SANGO OTA	Ogun	Cat A
33	ECWA CENTRAL PHARM.	NO 1, NOAD AVENUE, JOS	Plateau	Cat A

	LTD.			
34	EMZOR PHARMACEUTICAL INDUSTRIES	PLOT 3C, BLOCK A, ASWANI MKT.RD. ISOLO.	Lagos	Cat B
35	ESEHI PHARM. IND.	4B, 2ND ISIUWA LANE, OFF M.M. WAY, BENIN CITY	Edo	Cat B
36	ESOMA PHARMACY LTD.	PLOT 54, C/ZONE 07-05, L/OUT, KUBWA	FCT	Cat C
37	EVANS MEDICAL PLC	KM.32, LAGOS/BADAGRY EXP.WAY, AGBARA INDS. EST., AGBARA.	Ogun	Cat A
38	EV-LIFETIME PHARMA.	2, DIFFRI ROAD, NIBO, AWKA	Anambra	Cat C
39	EXUS PHARMS. NIG. LTD.	OPP. GEN. HOSPITAL, KETU-EJINRIN ROAD, EPE	Lagos	Cat C
40	FARMEX LTD.	KM. 38, LAGOS - ABEOKUTA ROAD, SANGO OTA	Ogun	Cat B
41	FATINA PHARMACY LTD.	PLOT 3, EGBELU OWO ROAD, OSISI OMA, ABA	Abia	Cat C
42	FIDSON HEALTHCARE LTD.	KM 38, LAGOS-ABEOKUTA EXPRESSWAY, SANGO-OTA	Ogun	Cat A
43	GAUZE PHARMACEUTICAL LAB. LTD.	ENU-IFITE VILL., AWKA	Anambra	Cat A
44	GEMINI PHARM. NIG. LTD.	PLOT 13, BLOCK A, IND. ESTATE, AMUWO ODOFIN.	Lagos	Cat A
45	GEM-STERLING PHARMA LTD.	KM.1, OFF IGOSUN RD, ADJACENT.ADESOYE COLLEGE, OFFA	Kwara	Cat C
46	GLAXOSMITHKLINE CONSUMER NIG. PLC.	KM 32, IGBESA RD., AGBARA INDUSTRIAL EST., AGBARA	Ogun	Cat A
47	GONGONI COMPANY LTD.	89A, PHASE3 SHARADA INDUSTRIAL ESTATE, KANO	Kano	Cat C
48	GRANDEX PHARM. CO. LTD.	41, ONITANA STREET, SURULERE.	Lagos	Cat C
49	GREENLIFE BLISS HEALTHCARE LTD	3, NEROS PHARMA AVE., OFF SINGER B/S, SANGO	Ogun	Cat A
50	HELLO PRODUCTS LTD.	JAGAL HSE., JAGAL RD., OFF IKOSI RD., OREGUN	Lagos	Cat C

51	JAWA INTERNATIONAL LTD.	PLOT 6/7, ABIMBOLA ST., IND.EST. ISOLO.	Lagos	Cat A
52	JAYKAY PHARMACY LTD.	KM. 9 IDIROKO ROAD, SANGO OTA.	Ogun	Cat C
53	J.C. UDEOZOR GLOBAL LTD.	10-12 IZU OSAYOGIE ROAD,IGUOSA	Edo	Cat A
54	JODEPH PHARMACY NIG. LTD.	1, FALEYE STREET, AKUTE.	Ogun	Cat A
55	JOHNSON WAX NIG LTD.	13/14, ABIMBOLA ST., ISOLO INDS.AREA, ISOLO.	Lagos	Cat B
56	JOPAN PHARMACEUTICALS LTD	13, CHINEDU OKAFOR STR., AJAO ESTATE	Lagos	Cat C
57	JAGAL PHARMA LTD.	JAGAL HOUSE, JAGAL ROAD, OREGUN, IKEJA.	Lagos	Cat C
58	JOVEL NIG. LTD.	11B, IBRAHIM ONASHOKUN STR., IFAKO, GBAGADA	Lagos	Cat C
59	JUHEL NIG. LTD.	PLOT PD/5, EXEC.COMM. L/O, AWKA.	Anambra	Cat C
60	KE-MON PRODUCTION	PLOT 4, IKOT OMIN LAYOUT, OFF 8MILES, CALABAR	Cross River	Cat C
61	KRISHAT PHARMA INDUSTRIES LTD.	KM.9, OLD LAGOS RD., PODO, IBADAN	Oyo	Cat C
62	KUNIMED PHARMACHEM. LTD.	1, ADELANWA ST., VALLEY EST., DOPEMU	Lagos	Cat C
63	MAY & BAKER NIG. LTD.	MAY & BAKER AVENUE, OPP. COVENANT UNIVERSITY, OFF IDIROKO RD., OTA	Ogun	Cat A
64	MECURE INDUSTRIAL LTD.	PL.6, BLK.H, OSHODI	Lagos	Cat A
65	MEDRUGS LIMITED	10, LAWAL STREET, IJAIYE, ALAGBADO.	Lagos	Cat B
66	MENTU NIG.LTD.	UMUDIKE UMUOWA, ORLU	Imo	Cat C
67	MIM INTERNATIONAL LTD.	KM 13/21, OWODE-IDIOKO RD., AJIBAWO.	Ogun	Cat C
68	MIRAFLASH NIG. LTD.	2-8, SUCCESS EST., OFF BRENTFIELD AVENUE, OKE AFA	Ogun	Cat B
69	MOPSON PHARM.LTD.	47, OSOLO WAY, AJAO EST., ISOLO	Lagos	Cat B

70	MORISON INDUSTRIES PLC.	28/30, MORISON CRESC., OREGUN IND. ESTATE, IKEJA	Lagos	Cat A
71	NATURE & NURTURE IND. LTD.	5, OFOMATA LANE, IYIOWA, ODEKPE-OGBARU, L.G.A	Anambra	Cat B
72	NEIMETH INT'L PHARM. PLC.	PL.16, AKANNI DOHERTY L/O, OREGUN, IKEJA	Lagos	Cat A
73	NEMEL PHARMACEUTICAL INDS. LTD.	4A&4B, MEDICAL RD., PHASE 6, T/EKULU, ENUGU	Enugu	Cat A
74	NEROS PHARM. LTD.	PLOT 3, NEROS PHARMA AVE, KM. 38, LAGOS ABEOKUTA EXP. WAY, SANGO OTA	Ogun	Cat A
75	NEW AGE PHARMACEUTICAL IND. LTD.	PLOT 231/234, PHASE II EXTANSION KUJE ROAD GWAGWALADA	FCT	Cat C
76	NEW HEALTH-WAY CO. LTD.	KM 22, BADAGRY E/WAY, AJANGBADI VILL., OJO L.G.A.	Lagos	Cat B
77	NIG. ARMY SMALL SCALE DRUG MAN. UNIT.	BONNY CAMP, VICTORIA ISLAND	Lagos	Cat A
78	NIGERIAN GERMAN CHEMICAL PLC.	KM 38, ABEOKUTA EXPRESSWAY, OTA	Ogun	Cat B
79	NINO PHARM.&CHEMICALS LTD.	1, NINO CRESC. ERA VILLAGE, OJO L.G.A.	Lagos	Cat C
80	NIPRIPHARM LAB. LTD.	ADJACENT KUJE PRISON, KUJE	FCT	Cat C
81	NOMAGBON PHARMACY	43, OYEMWEN STREET, BENIN-CITY	Edo	Cat A
82	OAK-FAITH PHARMA RESOURCES LTD.	OFF KM.22, LAG-IBAD E-WAY, MOWE	Ogun	Cat B
83	ODESCO PHARM IND. LTD.	88, SCHOOL ROAD, IYIOWA LAYOUT, OGBARU	Anambra	Cat A
84	ORANGE KALBE LTD.	66/68, T/PLANNING WAY, ILUPEJU.	Lagos	Cat B
85	OZAH CHEMICALS & PHARMACEUTICALS NIG.LTD	10/12, BAYO OYEGBEMI STREET BAMMEKE, EGBEDE	Lagos	Cat B
86	PAL PHARM. INDUSTRIES LTD.	PLOT 102, MAGANDA ROAD, BOMPAI INDUSTRIAL AREA	Kano	Cat A

87	PANPEK PHARM INDS. LTD.	PLOT ECU BLOCK 12, 3, EDENTA, IND. ESTATE, AWO IDIMILI	Imo	Cat A
88	PAUCO PHARM. IND. LTD.	43-47, ABAKALIKI STR., IYIAGU, AWKA	Anambra	Cat C
89	PHAMATEX IND. NIG. LTD.	1, CRYSTAL GLASS CLOSE, BHD. ABC TRANSPORT, AMUWO ODOFIN.	Lagos	Cat A
90	PHARMA-DEKO PLC.	PLOT C15/3, AGBARA ESTATE, AGBARA.	Ogun	Cat A
91	PZ CUSSONS NIG.PLC	487, SHAG-IKRD RD., OPP.ARMY BARRS., ODOGUNYAN, IKRD.	Lagos	Cat B
92	RAJRAB LTD.	PLOT 72/80, COCA COLA ROAD, ILORIN.	Kwara State	Cat B
93	RANBAXY NIG. LTD.	KM.30, LAG.-IB.E/WAY, MAGBORO	Ogun	Cat A
94	REAGAN REMEDIES LTD.	24, UMARU MUSA YAR'ADUWA DRIVE, PUBLIC BUILDING LAYOUT, OWERRI	Imo	Cat A
95	RICHYGOLD INTERNATIONAL LTD.	PLOT 103C, AMUWO-OPOFIN IND. SCH., OSHODI-APAPA EXP. WAY	Lagos	Cat A
96	ROSSVI INDS.NIG.LTD	ROSSVI ST., OFF IGBANKO RD., IMEKE, BADAGRY	Lagos	Cat C
97	ROYAL PRIESTHOOD LAB. LTD.	3, ERULE OLABO STR., ODONLA, ODONGUNYAN, IKORODU	Lagos	Cat C
98	SAMSTELLA IND. NIG. LTD.	KM. 4, MAGBORO ABEOKUTA RD., ABULE OBA.	Ogun	Cat C
99	SC JOHNSON&SON NIG.LTD.	13/14, ABIMBOLA ST., ISOLO	Lagos	Cat B
100	SERVICE PHARM. CO. LTD.	21, EWERE STREET, BENIN CITY	Edo	Cat C
101	SEWELL PHARMACEUTICAL LTD.	BLK. 4, O.S.H.C. & I.E., OTA	Ogun	Cat C
102	SIDOM PHARMACY IND. LTD.	PLOT 107, LAKE VIEW EST., NIKE ENUGU	Enugu	Cat C
103	SHINE-FORT PHARM.LTD.	6, ALHAJI SANNI STR., JIBOWU, SANGO.	Ogun	Cat A
104	SKG-PHARMA LTD.	7/9 SAPARA STREET, IKEJA.	Lagos	Cat A

105	SOFAK PHARMACEUTICAL IND. LTD.	KM 6, ILORIN RD., OGBOMOSHO	Oyo	Cat B
106	SOLFAM PHARM. LTD.	PLOT 6, OLODO KUMAPAYI, OFF IWO-IBADAN EXP., IBADAN.	OYO	Cat B
107	SURELIFE PHARM. IND. LTD.	1, S.I. ONYIA CLOSE BY FACTORY RD., OKWE, ASABA	Delta	Cat B
108	SWISS PHARMA NIG. LTD.	5, DOPEMU ROAD AGEGE, LAGOS	Lagos	Cat A
109	TAIKEMI PHARMACY LTD.	TAIKEM PHARMACY LTD. OPPOSITE MILLAN GUEST INN, SAUDA, ABUJA	FCT	Cat C
110	THERAPEUTIC LAB. NIG. LTD.	372, IKORODU ROAD, MARYLAND	Lagos	Cat B
111	THREE POINTS INDS. LTD.	L.S.S.S. IND. EST., F/ATERE WAY, MATORI, MUSHIN.	Lagos	Cat C
112	TURNER WRIGHT LTD.	15, ADENEKAN SALAKO CLOSE, OGBA.	Lagos	Cat A
113	TUYIL PHARM. IND. NIG. LTD.	22, NEW YIDI ROAD, ILORIN	Kwara	Cat A
114	UGOLAB PRODUCTIONS LTD.	157/159, CLUB ROAD BOMPAI, KANO	Kano	Cat C
115	UNICURE PHARM. LTD.	IKOFA VILL., LAG-BEN E-WAY, IJEBU ODE	Ogun	Cat A
116	UNIQUE PHARMS.LTD.	VEEPEE IND. AVENUE, KM 38, ABEOKUTA RD., SANGO-OTA	Ogun	Cat A
117	VINCO PHARM. NIG. LTD.	4B, DUPE OTEGBOLA STR., OPP. NAVY BARRACKS, SATELLITE TOWN	Lagos	Cat C
118	VITAPHOS LAB (NIG.) LTD.	3, ADEDOTUN STREET, IKORODU ROAD, MARY LAND.	Lagos	Cat C
119	VITABIOTICS NIG. LTD.	35, MOBOLAJI JOHNSON AVE., OREGUN, IKEJA	Lagos	Cat B
120	WATSON GLOBAL PHARM.INDS.LTD.	PL.3-8, H.I.E., IKANGBA, IJEBU-ODE.	Ogun	Cat A

[Source: Pharmacists Council of Nigeria (PCN) 2017]

LIST OF REGISTERED PHARMACEUTICAL MANUFACTURING COMPANIES IN SOUTH WEST ZONE OF NIGERIA [2017]

S/No	Name	Address	State	Category
1	AFRAB CHEM. LTD.	22, ABIMBOLA STR., ISOLO IND., ESTATE	Lagos	Cat C
2	AG INDUSTRIES LTD.	PL.3, AG INDS.CLOSE, ODO-ONA, ELEWE, IBADAN	Oyo	Cat C
3	AGARY PHARM. LTD.	PLOT C39A, AMUWO ODOFIN COMM.SCHEME	Lagos	Cat C
4	APACCO PHARM. NIG. LTD.	15, OYEKANMI STREET, OFF OLORI ROAD, AKUTE	Ogun	Cat C
5	ARCHY PHARMA. NIG. LTD.	30, WINFUNKE STR., LAGOS-ABEOKUTA EXP. WAY, IJAYE-OJOKORO.	Lagos	Cat A
6	BENTOS PHARM. PRODUCTS LTD.	KM.8, OLD LAGOS RD., IBADAN	Oyo	Cat A
7	BIO-ORGANICS NUTRIENT SYST.LTD.	26 LAGOS - IBADAN EXPRESS WAY	Lagos	Cat C
8	BIOPHARMA NIG. LTD.	10, ODOGUNYAN PALACE RD., ODOGUNYAN, IKORODU	Lagos	Cat B
9	BOND CHEMICAL IND. LTD.	ADESHAKIN LAYOUT, AWE	Oyo	Cat B
10	BRIAN MUNRO LTD.	25, IZE IYAMU ST., OFF BILLINGS WAY, OREGUN.	Lagos	Cat C
11	CARDINAL DRUGS LIMITED	14, AJOKE OSHO ST., OWOYEMI EST., OKO OBA, AGEGE.	Lagos	Cat A
12	CHEMO-PHARMA LABORATORIES LTD.	13, OLANREWAJU STR., OREGUN, IKEJA.	Lagos	Cat A

13	CHI PHARM. LTD.	PLOT 14, CHIVITA AVENUE, AJAO ESTATE.	Lagos	Cat B
14	CHRIS-EJIK PHARM.&H/CARE PRODS. LTD.	3, OJE-IMIANVAN STR., OREGUN, IKEJA	Lagos	Cat A
15	COMPUPHARM LTD.	20, ADEMOLA-EBITI ST., UNITY EST., IKORODU.	Lagos	Cat C
16	COPAC NIG. LTD.	PLOT K6, OSHODI APAPA EXP. RD., ISOLO IND. EST., MUSHIN.	Lagos	Cat C
17	DAILY NEED INDUSTRIES LTD.	PLOTS 9 & 10, UNITY CLOSE, OFF LADIPO STR., MATORI, MUSHIN	Lagos	Cat A
18	CARDINAL DRUGS LIMITED	14, AJOKE OSHO ST., OWOYEMI EST., OKO OBA, AGEGE.	Lagos	Cat A
19	DANA PHARMACEUTICALS LTD	8A OLUBADAN INDUSTRIAL ESTATE, NEW IFE ROAD,IBADAN	Oyo	Cat C
20	DE-SHALOM PHARM. LAB. (NIG) LTD.	KM4, KOKO-IJESA ROAD, ILESA	Osun	Cat A
21	DIVINE AGVET LTD.	6, IBADAN ROAD IKOYI-ILE, OSUN	Osun	Cat A
22	DRUGFIELD PHARM. LTD.	LYNSON CHEM. AVE., KM. 38, LAG/ABK. EXP. WAY, SANGO-OTTA	Ogun	Cat A
23	ECOMED PHARMA LIMITED	PLOT 32, LYNSON CHEM. AVE., SANGO OTA	Ogun	Cat A
24	EMZOR PHARMACEUTICAL INDUSTRIES	PLOT 3C, BLOCK A, ASWANI MKT.RD. ISOLO.	Lagos	Cat B
25	EVANS MEDICAL PLC	KM.32, LAGOS/BADAGRY EXP.WAY, AGBARA INDS. EST., AGBARA.	Ogun	Cat A
26	EXUS PHARMS. NIG. LTD.	OPP. GEN. HOSPITAL, KETU-EJINRIN ROAD, EPE	Lagos	Cat C
27	FARMEX LTD.	KM. 38, LAGOS - ABEOKUTA ROAD, SANGO OTA	Ogun	Cat B
28	FIDSON HEALTHCARE LTD.	KM 38, LAGOS-ABEOKUTA EXPRESSWAY, SANGO-OTA	Ogun	Cat A
29	GEMINI PHARM. NIG. LTD.	PLOT 13, BLOCK A, IND. ESTATE, AMUWO ODOFIN.	Lagos	Cat A

30	GLAXOSMITHKLINE CONSUMER NIG. PLC.	KM 32, IGBESA RD., AGBARA INDUSTRIAL EST., AGBARA	Ogun	Cat A
31	GRANDEX PHARM. CO. LTD.	41, ONITANA STREET, SURULERE.	Lagos	Cat C
32	GREENLIFE BLISS HEALTHCARE LTD	3, NEROS PHARMA AVE., OFF SINGER B/S, SANGO	Ogun	Cat A
33	HELLO PRODUCTS LTD.	JAGAL HSE., JAGAL RD., OFF IKOSI RD., OREGUN	Lagos	Cat C
34	JAWA INTERNATIONAL LTD.	PLOT 6/7, ABIMBOLA ST., IND.EST. ISOLO.	Lagos	Cat A
35	JAYKAY PHARMACY LTD.	KM. 9 IDIROKO ROAD, SANGO OTA.	Ogun	Cat C
36	JODEPH PHARMACY NIG. LTD.	1, FALEYE STREET, AKUTE.	Ogun	Cat A
37	JOHNSON WAX NIG LTD.	13/14, ABIMBOLA ST., ISOLO INDS.AREA, ISOLO.	Lagos	Cat B
38	JOPAN PHARMACEUTICALS LTD	13, CHINEDU OKAFOR STR., AJAO ESTATE	Lagos	Cat C
39	JAGAL PHARMA LTD.	JAGAL HOUSE, JAGAL ROAD, OREGUN, IKEJA.	Lagos	Cat C
40	JOVEL NIG. LTD.	11B, IBRAHIM ONASHOKUN STR., IFAKO, GBAGADA	Lagos	Cat C
41	KRISHAT PHARMA INDUSTRIES LTD.	KM.9, OLD LAGOS RD., PODO, IBADAN	Oyo	Cat C
42	KUNIMED PHARMACHEM. LTD.	1, ADELANWA ST., VALLEY EST., DOPEMU	Lagos	Cat C
43	MAY & BAKER NIG. LTD.	MAY & BAKER AVENUE, OPP. COVENANT UNIVERSITY, OFF IDIROKO RD., OTA	Ogun	Cat A
44	MECURE INDUSTRIAL LTD.	PL.6, BLK.H, OSHODI	Lagos	Cat A
45	MEDRUGS LIMITED	10, LAWAL STREET, IJAIYE, ALAGBADO.	Lagos	Cat B
46	MIM INTERNATIONAL LTD.	KM 13/21, OWODE-IDIOKO RD., AJIBAWO.	Ogun	Cat C
47	MIRAFLASH NIG. LTD.	2-8, SUCCESS EST., OFF BRENTFIELD AVENUE, OKE AFA	Ogun	Cat B

48	MOPSON PHARM.LTD.	47, OSOLO WAY, AJAO EST., ISOLO	Lagos	Cat B
49	MORISON INDUSTRIES PLC.	28/30, MORISON CRESC., OREGUN IND. ESTATE, IKEJA	Lagos	Cat A
50	NEIMETH INT'L PHARM. PLC.	PL.16, AKANNI DOHERTY L/O, OREGUN, IKEJA	Lagos	Cat A
51	NEROS PHARM. LTD.	PLOT 3, NEROS PHARMA AVE, KM. 38, LAGOS ABEOKUTA EXP. WAY, SANGO OTA	Ogun	Cat A
52	NEW HEALTH-WAY CO. LTD.	KM 22, BADAGRY E/WAY, AJANGBADI VILL., OJO L.G.A.	Lagos	Cat B
53	NIG. ARMY SMALL SCALE DRUG MAN. UNIT.	BONNY CAMP, VICTORIA ISLAND	Lagos	Cat A
54	NIGERIAN GERMAN CHEMICAL PLC.	KM 38, ABEOKUTA EXPRESSWAY, OTA	Ogun	Cat B
55	NINO PHARM.&CHEMICALS LTD.	1, NINO CRESC. ERA VILLAGE, OJO L.G.A.	Lagos	Cat C
56	OAK-FAITH PHARMA RESOURCES LTD.	OFF KM.22, LAG-IBAD E-WAY, MOWE	Ogun	Cat B
57	ORANGE KALBE LTD.	66/68, T/PLANNING WAY, ILUPEJU.	Lagos	Cat B
58	OZAH CHEMICALS & PHARMACEUTICALS NIG.LTD	10/12, BAYO OYEGBEMI STREET BAMMEKE, EGBEDE	Lagos	Cat B
59	PHAMATEX IND. NIG. LTD.	1, CRYSTAL GLASS CLOSE, BHD. ABC TRANSPORT, AMUWO ODOFIN.	Lagos	Cat A
60	PHARMA-DEKO PLC.	PLOT C15/3, AGBARA ESTATE, AGBARA.	Ogun	Cat A
61	PZ CUSSONS NIG.PLC	487, SHAG-IKRD RD., OPP.ARMY BARRS., ODOGUNYAN, IKRD.	Lagos	Cat B
62	RANBAXY NIG. LTD.	KM.30, LAG.-IB.E/WAY, MAGBORO	Ogun	Cat A
63	RICHYGOLD INTERNATIONAL LTD.	PLOT 103C, AMUWO-OPOFIN IND. SCH., OSHODI-APAPA EXP. WAY	Lagos	Cat A
64	ROSSVI INDS.NIG.LTD	ROSSVI ST., OFF IGBANKO RD., IMEKE, BADAGRY	Lagos	Cat C
65	ROYAL PRIESTHOOD LAB. LTD.	3, ERULE OLABO STR., ODONLA, ODONGUNYAN, IKORODU	Lagos	Cat C

66	SAMSTELLA IND. NIG. LTD.	KM. 4, MAGBORO ABEOKUTA RD., ABULE OBA.	Ogun	Cat C
67	SC JOHNSON&SON NIG.LTD.	13/14, ABIMBOLA ST., ISOLO	Lagos	Cat B
68	SEWELL PHARMACEUTICAL LTD.	BLK. 4, O.S.H.C. & I.E., OTA	Ogun	Cat C
69	SHINE-FORT PHARM.LTD.	6, ALHAJI SANNI STR., JIBOWU, SANGO.	Ogun	Cat A
70	SKG-PHARMA LTD.	7/9 SAPARA STREET, IKEJA.	Lagos	Cat A
71	SOFAK PHARMACEUTICAL IND. LTD.	KM 6, ILORIN RD., OGBOMOSHO	Oyo	Cat B
72	SOLFAM PHARM. LTD.	PLOT 6, OLODO KUMAPAYI, OFF IWO-IBADAN EXP., IBADAN.	OYO	Cat B
73	SWISS PHARMA NIG. LTD.	5, DOPEMU ROAD AGEGE, LAGOS	Lagos	Cat A
74	THERAPEUTIC LAB. NIG. LTD.	372, IKORODU ROAD, MARYLAND	Lagos	Cat B
75	THREE POINTS INDS. LTD.	L.S.S.S. IND. EST., F/ATERE WAY, MATORI, MUSHIN.	Lagos	Cat C
76	TURNER WRIGHT LTD.	15, ADENEKAN SALAKO CLOSE, OGBA.	Lagos	Cat A
77	UNICURE PHARM. LTD.	IKOFA VILL., LAG-BEN E-WAY, IJEBU ODE	Ogun	
78	UNIQUE PHARMS.LTD.	VEEPEE IND. AVENUE, KM 38, ABEOKUTA RD., SANGO-OTA	Ogun	Cat A
79	VINCO PHARM. NIG. LTD.	4B, DUPE OTEGBOLA STR., OPP. NAVY BARRACKS, SATELLITE TOWN	Lagos	Cat C
80	VITAPHOS LAB (NIG.) LTD.	3, ADEDOTUN STREET, IKORODU ROAD, MARY LAND.	Lagos	Cat C
81	VITABIOTICS NIG. LTD.	35, MOBOLAJI JOHNSON AVE., OREGUN, IKEJA	Lagos	Cat B
82	WATSON GLOBAL PHARM.INDS.LTD.	PL.3-8, H.I.E., IKANGBA, IJEBU-ODE.	Ogun	Cat A

LIST OF REGISTERED PHARMACEUTICAL MANUFACTURING COMPANIES IN THE SOUTH EAST ZONE OF NIGERIA [2017]

S/No	Name	Address	State	Category
1	A & J PHARMACEUTICAL INDUSTRIES LTD.	KM 3, URATTA RING RD., OWERRI	Imo	Cat B
2	A.C. DRUGS LTD.	4, ALOR RD., EDWARD NNAJI LAYOUT	Enugu	Cat A
3	CEENEK PHARM. PRODUCTS LTD.	PLOT 219, IBEAGWA AKA UNITY STREET, NIKE COMM. LAYOUT EXT. PHASE II	Enugu	Cat B
4	CHAZMAX PHARM. IND. LTD.	KM.2, NKPOR OBOSI RD., ODUME L/OUT, OBOSI	Anambra	Cat A
5	EV-LIFETIME PHARMA.	2, DIFFRI ROAD, NIBO, AWKA	Anambra	Cat C
6	FATINA PHARMACY LTD.	PLOT 3, EGBELU OWO ROAD, OSISI OMA, ABA	Abia	Cat C
7	GAUZE PHARMACEUTICAL LAB. LTD.	ENU-IFITE VILL., AWKA	Anambra	Cat A
8	JUHEL NIG. LTD.	PLOT PD/5, EXEC.COMM. L/O, AWKA.	Anambra	Cat C
9	MENTU NIG.LTD.	UMUDIKE UMUOWA, ORLU	Imo	Cat C
10	NATURE & NURTURE IND. LTD.	5, OFOMATA LANE, IYIOWA, ODEKPE-OGBARU, L.G.A	Anambra	Cat B
11	NEMEL PHARMACEUTICAL INDS. LTD.	4A&4B, MEDICAL RD., PHASE 6, T/EKULU, ENUGU	Enugu	Cat A
12	ODESCO PHARM IND. LTD.	88, SCHOOL ROAD, IYIOWA LAYOUT, OGBARU	Anambra	Cat A
13	PANPEK PHARM INDS. LTD.	PLOT ECU BLOCK 12, 3, EDENTA, IND. ESTATE, AWO IDIMILI	Imo	Cat A
14	PAUCO PHARM. IND. LTD.	43-47, ABAKALIKI STR., IYIAGU, AWKA	Anambra	Cat C
15	REAGAN REMEDIES LTD.	24, UMARU MUSA YAR'ADUWA DRIVE, PUBLIC BUILDING LAYOUT, OWERRI	Imo	Cat A
16	SIDOM PHARMACY IND. LTD.	PLOT 107, LAKE VIEW EST., NIKE ENUGU	Enugu	Cat C

LIST OF REGISTERED PHARMACEUTICAL MANUFACTURING COMPANIES IN NORTH WEST ZONE OF NIGERIA [2017]

S/No	Name	Address	State	Category
1	ABUMEC PHARM. LTD.	NO 7, LIGARI ROAD SABON TASHA, KADUNA	Kaduna	Cat C
2	ALMADINA PHARMACY	2 NASSARAWA HOSPITAL RD	Kano	Cat C
3	BENNIE INDUSTRIES LTD	PLOT 2, TSAMIYA BABBA VILLAGE, GEZAWA	Kano	Cat B
4	GONGONI COMPANY LTD.	89A, PHASE3 SHARADA INDUSTRIAL ESTATE, KANO	Kano	Cat C
5	PAL PHARM. INDUSTRIES LTD.	PLOT 102, MAGANDA ROAD, BOMPAI INDUSTRIAL AREA	Kano	Cat A
6	UGOLAB PRODUCTIONS LTD.	157/159, CLUB ROAD BOMPAI, KANO	Kano	Cat C

LIST OF REGISTERED PHARMACEUTICAL MANUFACTURING COMPANIES IN THE NORTH CENTRAL ZONE OF NIGERIA [2017]

S/No	Name	Address	State	Category
1	BIOMEDICAL SERVICES CO. LTD.	1, OHIMEGE RD., IND. EST., ILORIN	Kwara	Cat C
2	BIORAJ PHARMACEUTICALS NIG. LTD.	405, KAIMA ROAD, ILORIN	Kwara	Cat A
3	ECWA CENTRAL PHARM. LTD.	NO 1, NOAD AVENUE, JOS	Plateau	Cat A
4	ESOMA PHARMACY LTD.	PLOT 54, C/ZONE 07-05, L/OUT, KUBWA	FCT	Cat C

5	GEM-STERLING PHARMA LTD.	KM.1, OFF IGOSUN RD, ADJACENT.ADESOYE COLLEGE, OFFA	Kwara	Cat C
6	NEW AGE PHARMACEUTICAL IND. LTD.	PLOT 231/234, PHASE II EXTANSION KUJE ROAD GWAGWALADA	FCT	Cat C
7	NIPRIPHARM LAB. LTD.	ADJACENT KUJE PRISON, KUJE	FCT	Cat C
8	RAJRAB LTD.	PLOT 72/80, COCA COLA ROAD, ILORIN.	Kwara State	Cat B
9	TAIKEMI PHARMACY LTD.	TAIKEM PHARMACY LTD. OPPOSITE MILLAN GUEST INN, SAUDA, ABUJA	FCT	Cat C
10	TUYIL PHARM. IND. NIG. LTD.	22, NEW YIDI ROAD, ILORIN	Kwara	Cat A

LIST OF REGISTERED PHARMACEUTICAL MANUFACTURING COMPANIES IN THE SOUTH-SOUTH ZONE OF NIGERIA [2017]

S/No	Name	Address	State	Category
1	ESEHI PHARM. IND.	4B, 2ND ISIUWA LANE, OFF M.M. WAY, BENIN CITY	Edo	Cat B
2	J.C. UDEOZOR GLOBAL LTD.	10-12 IZU OSAYOGIE ROAD,IGUOSA	Edo	Cat A
3	KE-MON PRODUCTION	PLOT 4, IKOT OMIN LAYOUT, OFF 8MILES, CALABAR	Cross River	Cat C
4	NOMAGBON PHARMACY	43, OYEMWEN STREET, BENIN-CITY	Edo	Cat A
5	SERVICE PHARM. CO. LTD.	21, EWERE STREET, BENIN CITY	Edo	Cat C
6	SURELIFE PHARM. IND. LTD.	1, S.I. ONYIA CLOSE BY FACTORY RD., OKWE, ASABA	Delta	Cat B