Thesis – TI 185401

INVESTIGATING THE IMPACT OF SUPPLY CHAIN MANAGEMENT ON THE PERFORMANCE OF MANUFACTURING INDUSTRIES IN SIERRA LEONE: CASE STUDY OF SIERRA LEONE BOTTLING COMPANY (SLBC)

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MASTER PROGRAM
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FACULTY OF INDUSTRIAL TECHNOLOGY AND SYSTEMS ENGINEERING
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STATEMENT OF AUTHENTICITY

I the undersigned,

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Declare that both partial and entire contents of my thesis entitled:

"INVESTIGATING THE IMPACT OF SUPPLY CHAIN MANAGEMENT ON THE PERFORMANCE OF MANUFACTURING INDUSTRIES IN SIERRA LEONE: CASE STUDY OF SIERRA LEONE BOTTLING COMPANY (SLBC)"

Is a complete independent intellectual work of mine, completed without using any illegal information, nor the work of others that I recognize as my own work.

All cited and referred references are listed in the bibliography.

If it turns out that this statement is not true, I am willing to accept the penalties as provided by law.

Surabaya, 31st January, 2020

Yours Sincerely,

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God bless us all

INVESTIGATING THE IMPACT OF SUPPLY CHAIN MANAGEMENT ON THE PERFORMANCE OF MANUFACTURING INDUSTRIES IN SIERRA LEONE: CASE STUDY OF SIERRA LEONE BOTTLING COMPANY (SLBC)

By : Alimamy Kamara

NRP : 02411850067001

Supervisor : Prof. Ir. I Nyoman Pujawan, M.Eng., PhD, CSCP

ABSTRACT

Supply Chain (SC) is a series or network of companies who work collectively to make and deliver products and services to end-users which start from upstream to downstream. SC has become an important way of gaining competitive advantage and also a way of improving companies' performance as competition is very high among companies. Investigating the impact of SCM on the performance of manufacturing industries is very vital not only for improving companies' performance but also to gain competitive advantage. This has posed a big challenge for supply chain managers. A weakness in SCM can seriously affect the production and delivery of products to customers, and the weakness has a negative impact on the profitability. This research conceptualizes and develops four main dimensions of SCM improvement: Strategy and design, enabler infrastructure, process, and performance that investigate the improvement of manufacturing industries. To investigate how the impact of SCM on the performance of SLBC is attained, this research employed descriptive data which shows different statistical procedures where test was done base on the available data through the use of software packaging for social scientists (SPSS). The results indicate that the SCM system have a very great impact on profitability and productivity. The company faced several setbacks in achieving its goals. There are different opinions about the performance of the company.

Key Words: Supply Chain Management, Warehouse Management, Performance Measurement, Sourcing, Planning, Customer Relationship Management

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ABSTRAK

Supply Chain adalah rangkaian atau jaringan perusahaan yang bekerja secara kolektif untuk membuat dan memberikan produk dan layanan kepada konsumen akhir yang mulai dari hulu hingga hilir. SC telah menjadi cara penting untuk mendapatkan keunggulan kompetitif dan juga cara untuk meningkatkan kinerja perusahaan karena persaingan sangat tinggi antar perusahaan. Investigasi dampak SCM pada kinerja industri manufaktur sangat penting tidak hanya untuk meningkatkan kinerja perusahaan tetapi juga untuk mendapatkan keunggulan kompetitif. Ini telah menimbulkan tantangan besar bagi manajer rantai pasokan. Kelemahan dalam SCM sangat mempengaruhi produksi dan pengiriman produk ke pelanggan, dan kelemahan itu berdampak negatif pada profitabilitas. Penelitian ini mengkonseptualisasikan dan mengembangkan empat dimensi utama peningkatan SCM: Strategi dan desain, infrastruktur enabler, proses, dan kinerja yang menyelidiki peningkatan industri manufaktur. Untuk menyelidiki bagaimana dampak SCM terhadap kinerja industri manufaktur tercapai, penelitian ini menggunakan data deskriptif yang menunjukkan prosedur statistik yang berbeda di mana tes dilakukan berdasarkan data yang tersedia melalui penggunaan kemasan perangkat lunak untuk ilmuwan sosial (SPSS). .Hasil menunjukkan bahwa system SCM memiliki dampak yang sangat besar pada profitabilitas dan produktivitas perusahaan menghadapi beberapa kemunduran dalam mencapai tujuannya.

Kata kunci: Manajemen rantai pasok, rantai pasok, Pengukuran kinerja, Pemasok, Perencanaan, Customer Relationship Management

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TABLE OF CONTENTS

LIST OF TABLES

This page is internationally left blank

LIST OF FIGURES

This page is internationally left blank

CHAPTER 1
INTRODUCTION

1.1 Brief Overview

Supply Chain (SC) is a series or network of companies who work collectively to make and deliver products and services to end-users. This start from the extraction of raw materials (at the upstream end) to the retailers (at the downstream end). SC has become an important way of gaining competitive advantage and also a way of improving companies' performance as competition is very high among companies. Wu (2011) assert that creating value through supply chain integration has now become a potentially valuable way of securing competitive advantage and improving organizational performance since competition is no longer between organizations, but among supply chains. This chapter gives a detailed background to the study of supply chain management and its impact on manufacturing industries in Sierra Leone, taking Sierra Leone Bottling Company (SLBC) as a case study.

The study specifically covers issues related to the Supply Chain Management (SCM) system of the Sierra Leone Bottling Company (SLBC) in relation to their level of maximizing profit and investigating the impact it has on the entire industry. This chapter also looks at other existing issues leading to the study, but more importantly, its focus on certain key objectives it may want to attain. It further justifies why the study of SCM in a manufacturing company should be undertaken. The main motive of forming a profit-oriented business is to maximize profit for their shareholders. The Manufacturers and Suppliers are different units that are financially independent to each other, but they pursue their own motive in order to maximize their returns (Wu et al., 2011). It is for this reason that organizations are trying to ensure that they increase their revenue, and at the same time, they reduce cost. Manufacturers are faced with the challenges of getting raw materials from suppliers through different channels, transforming the raw materials into finished products and ensure that they pass through different channels until it reaches the

final consumer and, in this situation, the Sierra Leone Bottling Company is not an exception.

The supply chain management system is the Centre for any organization more especially for manufacturing companies. Manufacturing companies need a proper management system. According to Crandall et al. (2010), " A holistic view of supply chain systems can provide insights on how supply chain participants operate independently and collectively towards achieving a real-time, global supply chain". In the process of trying to attain the goal of SCM system, each organization in the network has its own plan and operates independently from the others. A complete end-to-end supply chain management system has to do with the material handling and a software packages for all the parties who work together in order to create a product, fulfil orders and also to keep track of information that has to do with logistics, transportation providers, wholesalers, manufacturers, and the suppliers. This research used a Statistical Analysis SPSS in order to proffer an optimize decision variable to improve the performance of Supply Chain. These issues are important to enable us to have an insight into the rest of the chapters and the purpose of the study

1.2 Background Information

1.2.1 Supply Chain Management

This study intended to examine the impact of supply chain management on the performance of manufacturing companies in Sierra Leone by focusing on Sierra Leone Bottling Company. Supply chain management has already become a very significant concept for comprehensive analysis. It is a link that connects the different elements of a manufacturing process that start from the stage of production up to the stage of delivery and finally to the end-user. SCM focuses at the management function that purely deals with the management of goods, works and services from the original producer, through some transformation processes in a firm in order to add value to the ultimate consumer and backflow of remains and empties together with the related information (Amukanga, 2018). The objective of

SCM is to incorporate activities across and within organizations for providing customer value. As mentioned by Crandall Richard et al. (2010), " Supply Chain Management comprises the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities". It is very important to have a proper supply chain technique in any business organization. According to Queiroz et al. (2019), they explained that "Supply chain management includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers which integrates supply and demand management within and across companies". In order to ensure that there is a massive improvement in long term performance of SCM and other industries, SCM has a vital role to play within an organization. One major important role of supply chain management is that it increases competitiveness in order to satisfy customers.

In these current days, SCM has become an integral part of a business and its essential to any company's success and customer satisfaction. It is not only a process that serves to generate a cost reduction in the budget or a mission to create greater operational efficiencies within an organization. In order to have a better improvement, sometimes supply chain managers involves in going beyond the suppliers that interface with the organization. For this to be actualized, this may include removing cost and increasing quality. Only very few organizations have worked closely with their suppliers. Organizations need to be well determined in order to meet their own objectives, which should therefore lead to assessing the economic drivers in order to develop a suitable level of smoothness in respect of its supply chains. This may include choosing to bear the most risks internally. For example, companies must ensure that any good or service that they think is dangerous should have the security of supply and that they should also ensure that the aspect of supply chains are well monitor. However, this gives the understanding that the area of supply chain management does not only deal with risk sharing, it also deals with benefits sharing, which not all companies would necessarily be comfortable with. From this concept Supply Management Professionals should

appreciate that passing responsibility on to suppliers in terms of risk, or even outsourcing a service, requires more, not less, management of supply chains on the part of the buying organization. Some organizations usually make the mistake of outsourcing a requirement and believe that the supplier in question is then responsible for managing that need. It is sometimes the reverse. The purchasing and supply management professionals should involve, and where possible lead the development of supply chain management.

However, it is known that not all buyers have the necessary skills to manage even the upstream part of an organization's supply chains. Supply chain management is known to be at the fulcrum of the business as it deals with the role of the final customers' demand which passes through the organization to the suppliers. It is advice able that Supply chain management should work closely with Account Managers who are in the most suitable position to give reliable information back into the supply chain. The main skill for an effective and efficient supply chain manager is the interaction between the two parties involved. As postulated by Wu et al. (2011), manufacturers often use purchasing bulk advantages as a negotiating chip for suppliers. In this case, the supplier will not be able to attain information from the manufacturer's inventory and sales. Similarly, suppliers will not be able to open their own information to the manufacturers. The two parties make information confidential. The ability to manage a good customer relationship that is both internal and external, and the supplier relationships is both supply chain management and backward integration. Customer Relationship Management is a tool and strategy that has been used for managing customers' interaction by using technology to automate business processes. CRM consists of sales, marketing, and customer service activities (Anshari et al., 2018). The motive is to ensure that they attract new customers, nurture and retain them for future business.

Companies should now ensure that they choose whichever approaches are most appropriate for them. There are also many hard skills which are also key, notably process design (redesign), IT integration/role of e-commerce, supply chain modelling, and performance management. The skill of the purchasing professional

working in a supply chain management environment lies in getting suppliers interested in working with the buying organization i.e. so that the supplier's position and perceive the buying organization as a valuable long-term client relationship which is worth investment. A key competence is sophisticated interpersonal skills. According to Hofmann & Knébel (2016), customers are now becoming more and more sophisticated in terms of demand and they are calling for customized goods and services, and at the same time, technological progress is shortening product life cycles and globalization is severing competition in most markets. Another valuable competence is the ability to challenge existing processes, policies, procedures to encourage all purchasing and supply management professionals to continually question and challenge where it is appropriate to do so and not just within the purchasing dimension. Purchasing and supply management professionals wishing to promote and develop supply chain management must adopt all the above skills and competencies but most importantly, should be able to think in terms of the whole business. In order to achieve maximum benefit, supply chain thinking would, of course, pervade the whole of the company's corporate strategy; supply chain considerations would be an integral part like Marketing, Production or Finance. The supply chain managers have a vital role to play in the management of total cost, they are able to see and influence the whole cost base across the business. Supply chain management has the sole right to take a product to the market by making use of all the resources, internal and external, available and aligning this activity directly with the organization's strategies and objectives. Supply chain management is expanding within the business world as a larger blue-chip and global organizations are requesting this approach in order to remain competitive. The effect of this is those smaller organizations.

1.2.2 General Background of Sierra Leone Bottling Company

The Sierra Leone Bottling Company (SLBC) is the sole authorizing bottler of the Coca Cola soft drink and one of the leading beverage manufacturers in Sierra Leone is the brand manufacturers. SLBC is one of Sierra Leone largest marketers,

producers and distributors of Coca-Cola products. SLBC buys from the Coca-Cola Company and combines it with other ingredients to create some of the most popular beverages in Sierra Leone. The Coca-Cola Company has long been a worldwide business. Their first soda fountain sales to Canada and Mexico were recorded in 1897. Their first international bottler in Panama was established in 1906. They entered China in 1927 and their 100th country Sierra Leone in 1957. The Coca-Cola Company was first created in the United States. Their first bottling plant was first created in Canada, Panama, and Cuba, soon followed by many more. More than 70 percent of their income comes from outside the U.S, but the real reason they are truly a global company is that their product meets the various taste preference of consumer everywhere. The Coca-Cola Company is governing more than half the global market in carbonated soft drinks as well as a substantial chunk of the non-carbonated segment. Its leading brand is, of course, Coca-Cola itself, the single most valuable brand in the world. However, the company also sells almost 400 other beverages ranging from spin-offs such as Cherry Coke and sister brands Fanta and Sprite to a vast range of carbonated and non-carbonated juice-based drinks, bottled waters, iced teas, and coffees. The firm makes or licenses more than 3,500 drinks for sale in 200-plus countries.

In late 2010 the CCC bought out its leading bottler, Coca-Cola Enterprises (CCE), and renamed it Coca-Cola Refreshments USA. Atlanta New "Minute Maid" of the Sierra Leone Bottling Company has proudly branded the new darling of beverages in a fanfare over the weekend at the Hotel Barmoi resort, Aberdeen, Freetown. Minute Maid", the new product, is a 100% fruit juice manufactured with best Vitamin C recipes to give the right flavor of fruit drinks. This new brand of soft drink shall the best-made flavor as its qualities are exceptional. Sierra Leone Bottling Company is proud to produce another product, the "Minute Maid". In terms of socio-economy, the product is likely to create job opportunities for marketers, distributors, sales-clerk, sales agents, and brand advertisers. Over 60 years ago, the Minute Maid was first produced in the United States of America. The minute maid is one of the biggest juice brands to be

produced worldwide. The captures nature is best for all occasions and for a better and vibrant life. Its rich source of vitamins A and C complement recipes that keep life healthy. Minute Maid is manufactured with no added preservatives or artificial colorants. It has six exciting variants, which are: Orange, Pineapple, Apple, Vita-Fruits, Guava, and Mango. 'Expect many more brands from this product and others,' declared Thomas Tingan. Moreover, the six new "Minute Maid" juice variants were unveiled and officially launched by Mr. Adonis Aboud in his capacity as Vice President of the Sierra Leone Chamber of Commerce and Industry.

1.3 Problem Statement

Supply chain management has to do with the management of both upstream and downstream activities, resources, and the relationships with suppliers and customers, which motive is to deliver products or services for companies. There are many challenges faced by manufacturing companies that effectively affect the firm’s performance (Thi Duc Nguyen, 2019). The problem of Supply Chain Management within the manufacturing industry has existed for a very long time. It is very important to first understand the exact nature of the problem itself (problem statement) before a problem solving occurs. Annamalai et al. (2013) mentioned that the concept of a problem statement, a problem-solving method, and the application of the problem-solving method to a problem are given detailed formulations that are purely based on the type of the problem. Any weaknesses in the supply chain management can seriously affect the production and delivery of products to consumers. One of the major problem relating to researchers is to identify the reasons why companies tend not to implement SCM, notwithstanding its advantages and its driving forces (Rahman et at., 2013). The weaknesses in SCM may have negative impacts on the profitability of the manufacturing companies. There has always been a shortage of the company's products during festive seasons in Sierra Leone and the reason for the shortage has to do with the supply chain management system. In recent years, there is very high competition with other beverage producing companies which had prompted the Sierra Leone Bottling

Company to look at their packaging system as other beverage manufacturing companies are using plastic bottles that are disposable after use. There are also problems with led time, transportation facilities and holding of raw materials as well as finished products. In any manufacturing industry, supply chain plays a major role in the achievement of any organization and the Sierra Leone Bottling Company is no exception.

This study aim to assess whether the company is trying to solve the problem of shortage of the company's product during the festive seasons. Management of the company should ensure that they do not have shortage of products particular during the festive season, and this can be done by ensuring they follow the company supply chain procedures by having all materials needed early. Also, strict measures should be taken in order to solve the packaging problem of the company by making sure that they gain a competitive advantage over other competitors in the market and how best they will improve the supply chain management of the company. This can be solved by using plastic bottles which are disposable and not returnable. Finally, the problem of lead time, transportation facilities and the holding of raw materials can be solved through early preparation and having sufficient vehicles to transport the product. The company should ensure they have an intermediary that exists between the company and the suppliers by making sure that the company receives its supplies at the appropriate place, time and quantity. The company should also ensure whether the company delivers its products to the end-users at the right time and at the right place.

1.4 Objectives of the Study

The general objective of this study is to investigate the impact of Supply Chain Management on the performance of manufacturing industries with Sierra Leone Bottling Company (SLBC) as a case study. However, in order to ascertain its motive, key objectives had been investigated which includes:

1. To evaluate the SCM of the SLBC in order to make rapid and drastic improvement in its SC process/procedures.

2. To assess the importance of SCM on the performance of SLBC.
3. To evaluate the challenges/ problems faced by SLBC while adopting SCM.

1.5 Significance of the Study

The research of this study is on the impacts of SCM on the performance of SLBC. Supply chain is very important to the manufacturing sector. This research serves as a guideline to all stakeholders in the manufacturing industry in Sierra Leone in order to establish supply chain management practices that will be meaningful to the manufacturing industries especially SLBC. It is evident that ineffective Supply Chain Management affects organizational objectives. The reason for the study was aided by the need to generate new strategies and comprehensive tactics to be used by manufacturing industries to help them manage their Supply Chain. The research provides detail strategies that are applicable by the SLBC when restructuring their Supply Chain systems. The findings of this research would be appreciated to various sectors of people. The beverage manufacturing companies and other stakeholders (Government) in Sierra Leone would also benefit from the findings of this research as they would have a better understanding on the impact of SCM on the performance of manufacturing industries. Any successful organization should have functional procedures and it is those Procedures that propose the way things should be done. Procedures in supply chain management include monitoring transportation, the affairs of intermediaries that exist between suppliers and manufacturers, manufacturers and end-users, and the storage facilities of the intermediaries. It is useful to investigate the procedures of inventory that are used by the SLBC. This study is important in identifying significant policy cracks as a foundation for advising the policymakers, other stakeholders on appropriate SCM policy practices, procedures and interventions that need to enhance organizational performance in the manufacturing industry. The findings of the study serve as a stepping stone for future researchers on the same or similar topics by suggesting areas that need further studies to be conducted. This will no doubt enhance performance among these firms.

1.6 Limitations of the Study

This study is limited to investigate the impact of SCM on the performance of manufacturing industries in Sierra Leone, taking Sierra Leone Bottling Company as a case study. Research work is never an easy task to overcome. There are times when the researchers would come across problems, which are unavoidable. This research work is not an exception. The research does not deal with the SCM activities of all the beverage companies in Sierra Leone, it only limited to the SLBC head office in Freetown. It is also limited to these current years of the company SCM. The research is limited to a time frame and considering the distance, it is impossible to give hard copies of the questionnaire to the respondents and receive them on time. However, it was overcome by the use of the research sample through the use of an online questionnaire (google docs).

1.7 Outline of the Research

The purpose of this thesis is organized into five chapters: Chapter One deals with the introduction, background to the topic, statement of the problem, the significance of the study, objectives of the study, and limitations of the study. Chapter Two is dedicated to the relevant literature review on the topic. It looks at what other authors before now have written about specific issues related to the topic. Chapter Three deals with the method and methodology, while Chapter Four explained about the analysis of the output and discussions. Chapter Five gives a summary of findings, conclusion and recommendations as to what to do in order to improve on issues identified in previous chapters.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

Literature review helps researchers to discover what is already known about a field of study, from different means of research like published text, grey literature, and other official bodies. Because of this reason, references that are used in this review include journals and textbooks. The main motive of this study is to investigate the impact of supply chain management on the performance of manufacturing industry. The research is carried with a review of the current understanding of what supply chain management means and a review of related literature to supply chain issues. It is stated that supply Chain performance measurement is extremely important in developing a supply chain and the literature also gives a synthetic analysis about how related or unrelated materials accessed to this study. The supply chain management framework in this research gives guidelines for measuring supply chain in manufacturing industries.

2.2 Definitions and Concepts of SCM

2.2.1 Supply Chain Management

Supply Chain Management has to do with the management of money, raw material, and information within and across the supply chain in order to maximize customer satisfaction and to get an edge over other competitors. According to Kiran Bala (2014), "Supply Chain Management has been a melting pot of various aspects, with influences from logistics and transportation, operations management and materials and distribution management, marketing, as well as purchasing and information technology (IT)". Supply chain management is a set of approaches utilised to efficiently integrate suppliers, manufacturers, warehouses and stores, so that merchandise is produced and distributed at the right quantities, to the right locations and at the right time, in order to minimise costs while satisfying service level of customers (Kleverlaan, 2008).

2.2.2 Concepts of SCM

Over the past years, more emphasis has been placed on gaining competitive advantage by organizations both locally and internationally by combining supply chain management practices in their normal operations. Many organizations have realized the importance of creating an integrated relationship with their suppliers and customers. The process which is a network of organizations that are geographically dispersed across multiple sites and that work together in order to reduce costs and increase the speed of processes and activities between suppliers and customers is known as supply chain management (Lhassan & Daanoune, 2019). Supply chain also deals with all activities that have to do with converting materials through the input stage, conversion phase and outputs. The study of SCM has to do with the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. According to Sunil & Peter (2016), “supply chain management consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturer and suppliers, but also transporters, warehouses, retailers, and even customers themselves”. The basic objective of supply chain management is to "optimize performance of the chain to add as much value as possible for the least cost possible". Supply chain management (SCM) is the combination of key business processes which start from the end-users through original suppliers that provide products, services and information which increase the value to customers and other stakeholders (Desai & Rai, 2016). Supply Chain has become an important part in business nowadays. It includes the application of total system approach that leads to the managing of the whole flow of information, materials and services that start from the raw material suppliers through the production and distribution centres to the end customers.

The definitions of SCM are important in order to ensure that organizations plan and coordinate supply chain activities among their network of suppliers and customers to make sure that the product is available to fulfil demand on a timely, safe, and cost-efficient manner. When this is accomplished, the benefits of

enhanced customer satisfaction and retention will be achieved. The concepts of emphasis that before an organization tries to focus on supply chain management, its leaders must know what encompasses supply chain. It is important to articulate the overall purpose, scope, and components of a supply chain. According to Subudhi (2016) “Supply Chain Management (SCM) is an emerging and evolving area. It crystallizes those concepts of integrated business planning that have been espoused for many years by logistics expert, strategists, and operations research practitioners”. Studies has shown that supply chain is linear with organizations linked only to their immediate upstream suppliers and downstream customers which focuses on only one-way material flow, which fails to consider vital information and financial flows. The Implementation of Supply chain management practices in industries has increased gradually since the 1980s. However, the practice of Supply chains combine several areas and several actors with different interests, The main challenge is to reconcile all the expectations and provide the appropriated level of service and quality for the customer (Frederico, n.d.). A number of researchers had given their opinion about the definitions and the concept of SCM from different perspectives that provided excellent review on supply chain management literature that discuss the concept, principals, nature, and development of SCM and indicate that there is an intense research being conducted around the world. In the aspect of managing inventory in SCM, the network of organizations that are involved passes through upstream and downstream linkages, in the various stages and activities that produce value in the form of products and services delivered to the final consumer. A set of firms that pass materials forward (Singh & Verma, 2018).

A very good understanding of the SC partnership performance process is a key aspect in SCM. Mofokeng et al. (2017) discussed about the admiration of the study of supply chain partnerships for the purpose that they provide the lift for industries to improve their SC partnership. The management of SC is not only limited to the environment of the SC and the relations that occurred between the participants in the SC. Researchers proposed a set of management techniques and tools to analyze

successful SCM strategies, It is also observed that research is not only restricted to hypothesis testing and data analysis, but also advanced tools like simulation, Artificial Neural Network. Nasution et al, (2018) showed how Lean Manufacturing is a set of techniques that when put together and run well will reduce and remove waste. The reason for reducing waste is planned for all activities undertaken during the production process. The main motive of undertaken such a process is to improve competitiveness through the production process. The concepts of SC collaboration according to Mofokeng et al. (2017) referenced by Aviv (2007) indicated that number of research have recognized cost reduction, profit, forecast accuracy, and inventory control as the benefits that are derived from Supply Chain Collaborations.

2.2.3 Evolution of SCM

Evolution gives an overview that SC is new, and it has evolved for overtime. It was very difficult for supply chain to cope with the challenges existed at various times in history. A record of history of supply chains can be the major source to help understand exactly the earlier challenges. It also helps to learn new ways to resolve contemporary challenges. The earlier supply chains were known to be established at the time when humans first began trading with one another. At that time traders get goods from merchants and they later delivered the goods to the buyer. The process of locating the right suppliers to provide goods for customers was known to be a basic form of a supply chain. It was during the 1950s and 1960s, most manufacturers bring mass production in order to minimize unit production cost as the primary operations strategy, with little product or process flexibility managing corporate resources that include strategic suppliers and the function of logistics. Many retailers and manufacturers are implementing the perception of SCM to improve efficiency and effectiveness across the supply chain (Shukla et al., 2011). According to Crandall et al. (2010) Supply chains formed differently to cope with the assorted challenges that existed at different types in history. Table 2.1 gives detailed about the evolution of supply chain management.

Table 2. 1: Evolution Era of Supply Chain Management

	Era	Description
1	Creation Era	The term supply chain management was first coined by an American Industry consultant in the early 1980s. However, the concept of supply chain in management was of great importance long before in the early 20th century, especially by the creation of the assembly line.
2	Integration Era	This era of supply chain management studies was highlighted with the development of Electronic Data Interchange (EDI) systems in the 1960s and developed through the 1990s by the introduction of Enterprise Resource Planning (ERP) systems. Several authors discuss the value and the need for integration between facilities in the global supply chain.
3	Globalization Era	This era is characterized by the globalization of supply chain management in organizations with the motive of increasing competitive advantage, and reducing costs through global sourcing Manufacturers typically set up foreign factories to benefit from tariff and trade concessions, low-cost direct labour, creating more value-added, and capital subsidies.
4	Specialization Era Phase One- Outsourced Manufacturing &Distribution	In the 1990s It was during this era that industries began to focus on "core competencies" and implemented a specialization model. Companies abandoned vertical integration, disposed of non-core operations, and outsourced those functions to other companies
5	Specialization Era Phase Two Chain Supply Management as a Service	Specialization within the supply chain is known to begin in the 1980s with the commencement of transportation brokerages, warehouse management, and non-asset-based carriers and has gowned beyond transportation and logistics into aspects of supply planning, collaboration, execution and performance management.
6	Supply Chain 2.0 (SCM 2. 0)	Web 2. 0 is defined as a trend in the use of the World Wide Web that is meant to increase creativity, information sharing, and collaboration among users.

Source: Evolution eras of supply chain management(Shukla et al., 2011)

From the definitions and key ideas surrounding SCM, the lack of commonly accepted definition of supply chain management and the problems related to supply chain activities makes the understanding of supply chain management difficult.

2.2.4 Definitions and Key Ideas of SCM

Table 2.2 shows the definitions and key ideas of SCM, Supply Chain Management includes the entire value chain which starts from the Manufacturer to the Customers and even addresses materials and supply management from the extraction of raw materials to the end-users. The literature definitions above are related to the research as the different authors had also shown with the conviction that Supply Chain Management aim to look at how best organizations will link all the supply chain agents to jointly cooperate within the firm and integration process in order to deliver the most benefits to all related parties. Supply chain management sometimes involves going beyond the supplier's role which connects with the manufacturing industry to their suppliers, in order to ensure that there are great improvements. In order to achieve these, it may include removing cost, increasing quality and environmental or socially responsible inputs.

Table 2. 2: Definitions and Key Ideas of SCM

Authors	Definitions of Supply Chain Management	Key Ideas
Chopra Sunil & meindl Peter (2016)	Consists of all parties involved, directly or indirectly, in fulfilling a customer request. It includes not only the manufacturer and suppliers, but also transporters, warehouses, retailers, and even customers themselves.	It contains all the functions involved in filing a customer request
Bala Kiran (2014)	Supply Chain Management has been a melting pot of various aspects, with influences from logistics and transportation, operations management and materials and distribution management, marketing, as well as purchasing and information technology (IT)".	It is considered as the main aspect of ensuring that the procedures and principles are been followed
Crandall Richard E. et.al (2010)	SCM encompasses the planning and management of all activities in sourcing and	It is a combination of supply and demand

Authors	Definitions of Supply Chain Management	Key Ideas
	procurement, conversion, and logistics management activities	within and across companies
Joel d. wisner et.al, (2012)	firms extracting raw materials from the ground—such as iron ore, oil, wood and food items—and then selling these to raw material suppliers such as lumber companies, steel mills and raw food distributors	How manufacturing companies manage to convert materials from their row stage to the finish stage
Houlihan and Houlihan, (1999)	The integration of various functional areas within an organization to enhance the flow of goods from immediate strategic suppliers through manufacturing and distribution chain to the end-user.	Considers important integration competitive strategically suppliers and among constituent members
Tan et al.,(1998)	It is a management philosophy that extends traditional intra-enterprise activities by bringing trading partners together with the common goal of optimization and efficiency.	Focuses on how firms utilize their suppliers' processes. technology and capability to enhance advantage
Monczka and Morgan,(1997)	Integrated SCM is about going from the external customer and then managing all the processes that are needed to provide the customer with value in a horizontal way.	Highlights the necessity of flat organizational structure and customer focus.
Patricia et al (1996)	The physical network that begins with the supplier and ends with the customer.	Traces all the organizations within a supply chain including all tiers of suppliers and distributors.
Cox al.,(1995)	The functions within and outside a company that enable value chain to make and provide products to the customer.	Attempts to identify strategic partners within the supply chain
Berry et al.,(1994)	SCM aims at building trust, exchanging information on market needs, developing new products, and reducing the supplier base to the original equipment manufacturer to release management resources for developing meaningful, long term relationship.	Highlights the position of supplier relationships in achieving supply chain objectives
Ellrarn Cooper,(1993)	An integrating philosophy to manage the total flow of a distribution channel from supplier to the ultimate customer.	Identifies the importance of integration within the supply chain

Authors	Definitions of Supply Chain Management	Key Ideas
Christopher. (1992,1998)	The management of upstream and downstream relationship with suppliers and customers to deliver superior customer value at less cost to the supply chain.	Signifies the importance of the relationships, customer focus and cost reduction.
Lee and Billington, (1992)	Networks of manufacturing and distribution sites that procure raw materials, transform them into intermediate and finished products and distribute them to customers	Attempts to show 21 conventional functions of the supply chain.

Source: Shukla et al., 2011

2.2.5 The Issues and Challenges in Supply Chain Management

For organizations to be successful when implementing SCM, it must be closely dependent upon the need for breaking down barriers that are not beneficial. Supply chain management adopts a significant importance and calls for serious research attention, as organizations are struggled in finding ways to meet ever-rising customer hopes at a reasonable cost (Kiran Bala, 2014). The success of SCM is also associated with the challenging development of a new culture based which depend on empowerment on-going and shared learning and continuous improvement. Another challenge and difficult feature that SCM has claimed in the modern days is where competition is no longer between single companies. The competition is now known to be among supply chain. SCM relates to the emergence of the network organization, which can lead to a complex web of linkages to be properly coordinated and managed. The issue of firms today is not only to take up a supply SCM idea but to successfully implement the ideas. An informatics view is vital since information flow is an integral part of SCM and material flow is closely dependent on information flow (Groznika & Trkman, 2015).

2.2.6 The Need for Managing Supply Chain

It is very important to manage SC in any organization. Supply chain activity or system can be managed better or improved. The corporation of the world rely on supply chain, especially when fulfilling their business. It is obvious that SC processes affect both the speed and efficient service delivery of a company. The speed and efficiency factors do cost money, and because of these factors, it is very

important to ensure a strike balance between being highly efficient and adhering to the cost reduction strategies. Organizations are instructed to use competitive benchmarking in order to assess their performance in each category against the industry leaders, and then attempt to emulate their success. Figure 2.1 shows the need for managing supply chain.

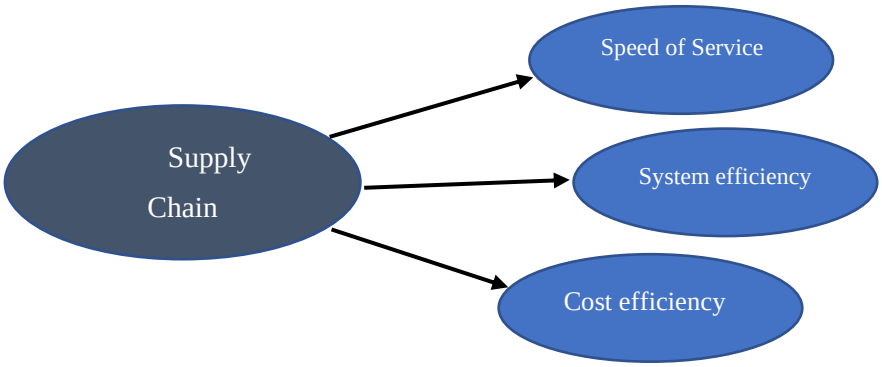

Figure 2. 1: The Need for Managing SC

The other important reason why firms need to manage supply chain is that supply chain includes the cost to take the information, produce components, and store them. An effective SCM system helps organizations to achieve the following:

- Managing contractual obligations in order to guarantee a continuous supply and avoid a service company's delivery disruptions.
- Strengthening supplier relations for systematic interaction with suppliers and other lines of business.
- Enterprise spending management to ensure that procurement occurs through the right suppliers and reduces costs.
- Managing risk and compliance in order to abide by organizations as well as industries.
- Creating a single comprehensive supplier view and deriving perceptive procurement analytics.

2.2.7 The Objectives of Supply Chain Management

SCM consists of all parties starting from the manufacturer, marketer, suppliers, transporters, up to warehouses retailers and even customers they either directly or

indirectly involved in the fulfilment of a customer. The main motive is to improve the overall performance and the customers' satisfaction. This can be done by improving the product or service delivery to customers. It is also meant to afford a strategic weapon to build up and develop a sustainable competitive advantage by cost reduction without compromising it to the satisfaction of the customer. The objective of every SC is to maximize the overall value generated. The supply chain surplus is been generate when the value of the final product is greater than the costs of the entire supply chain acquires when filling the customer request (Sunil et al., 2016). In the area of SCM in maximizing profit for organizations. The objective is to ensure value is added and cost reduction. However, SCM does help business organizations to compete in the international market.

According to Habib (2014), "The objective of SCM is to incorporate activities across and within organizations for providing the customer value". During the process of SCM, the information should flow from the Vendor to the Retailer. Proper management of the supply chain will benefit the share of each firm by increasing the capacity of the market by attracting and generating more chances for the organizations. The main motive of SCMS is to benefit the supply chain. While there are many objectives of SCM, the most salient is to improve the profitability for the firms under the intensive competition and to also ensure they create more value for the customer with the same tradeoffs (D. Liu, 2007). This means that Supply chain is more accurately viewed as a set of linked processes that take place in the extraction of materials for transformation into products or perhaps services for distribution to customers.

2.2.8 Barriers, Bridges and Benefits to Effective SCM

SCM is always difficult if there is no proper structure within an organization. One major obstacle which has a great effect on the implementation are the different management opinion for the final product within the SC. Another barrier/ factor could be the coordinator among the same team members and the distribution of information between different stakeholders. There are different other factors/

barrier that blocks the path of firms during the process of implementing an integrated Supply Chain practices and processes. According to Mofokeng et al. (2017) firms method integration with the motive of obtaining benefits such as upgraded quality, decrease in production costs, increased supply chain efficiency and strategic advantage over competitors. It is also believed that supply chain integration is crucial for achieving economic and environmental goals as conflicting to improving business practices alone (Mofokeng et al., 2017). The barriers bridges and the benefit of SCM have to do the strategic of the supply chain which is to be adopted by organizations in order to have competitive advantage over other competitors. Despite the growing interest of SCM and the benefits, barriers, and bridges toward its success, supply chain managers and management scholars need to develop solutions and strategies in order to ensure that they avoid or remedy the barriers to strategic SC success (Fawcett et al., 2008). The SCM help in reduction in the Inventory, correct information sharing and develop trust among the Supply Chain partners, with all these important benefits, organizations continue to face a barrier which hinders them from effective implementation of supply chain. These barriers are known as SCM barriers (Parmar & Shah, 2016). However, researchers argue that for strategic supply chains to be successful, managers and scholars don't only need to focus on one facilitator, but rather they need to make sure they also consider the barriers and bridges in combination (Fawcett et al., 2008). In the managerial complexity category Fawcett et al. (2008) noted the subsequent barriers in order of significance IS/IT deficiencies, organizational structure/culture, lack Supply Chain measurement and lack of alliance guidelines. These problems are both found at enterprise and SC level in which there is a need to tackle them at both sides.

According to Fawcett et al. (2008) "Once the barriers to successful SCM are identified, bridges can be designed and implemented to attain desired benefits. However, for such bridges to work, research suggests the need for management to redesign its approach to problem resolution – SC collaboration entails". Fawcett et al. (2008) reviewed important benefits of SCM planned in literature and take note

of the following in the order of their importance, increased inventory turnover, increase revenue, SCM cost reduction. product availability decreased order cycle time, responsiveness, economic value-added, capital utilization, decreased time to market and reducing logistics costs.

2.3 Performance Measurement in Supply Chain

Supply chain performance measure is an approach to judge the performance of supply chain system. The performance of a supply chain can be improvised by using a multi-dimensional strategy, which addresses how the company needs to provide services to diverse customer demands. Performance measurement is known to be a very useful strategic tool that works towards achieving the required objectives of organizations. As posited by Lhassan & Daanoune, (2019) they said supply chain performance of companies is combined in the organization and also the value of logistics activities of the supplier until the customer, thus, searching for the dependable tools that make it possible to measure the performance. The performance measurement system must be consistent with the overall strategy of the supply chain in order to have a successful SC and to also ensure there is a complete change from individual duties in managing the affairs to an integrated activity within the process of SC in any business. For the fact that there has been a rapid growth for businesses in the past years in terms of increasing their products and services to satisfy the need of their customers, with this you will agree that supply chains are very useful in terms of making values. In this case, values can only be generated unless if there is a great improvement in the performance of the supply chain (Mofokeng et al., 2017). As a result of globalization and competition organizations are now implementing innovative business practices and performance improvement initiatives. Improving manufacturing performance can lead to optimally utilizing the resources. Effective supply chain management is useful to the competitiveness of manufacturing enterprises, as it impacts directly through their ability in order to meet changing market demands on a timely and cost-effective manner (Sarode & Khodke. 2009).

2.3.1 Performance Measures Classification

According to Shukla et al. (2011) cited in De Toni and Tonchia (2001) conceptually classified the performances of the operations into two wide categories as it is shown in figure 2.2. The Cost performances and Non-Cost performances, these two categories further divided into Non-financial measures and Financial measures. The non-financial measures include measures related to time, flexibility and quality while Financial measures include productivity, cost of waste returns, cost to purchase, manufacture, distribute.

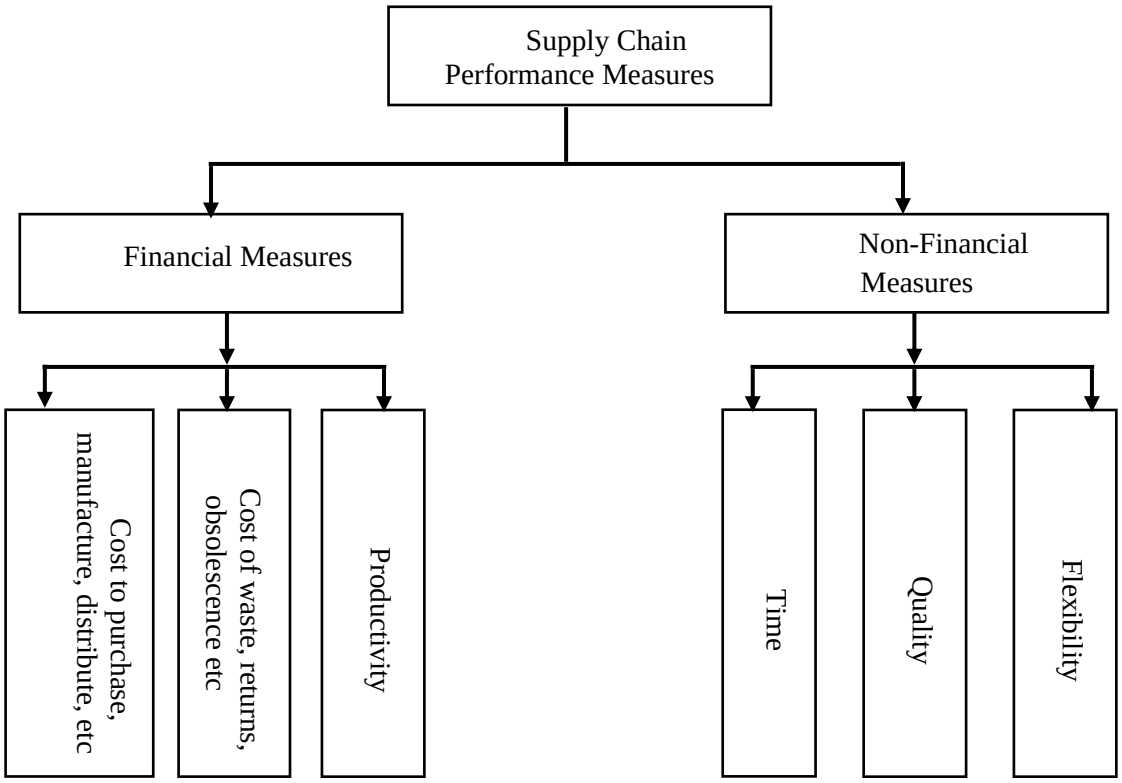

Figure 2. 2: Performance Measurement in Supply Chain

2.3.2 The Significance of Performance Evaluation

Performance has to do with the achievement of organizational objectives, irrespective of the nature and variety of these objectives. As mentioned by Lhassan & Daanoune (2019) “Companies use tools, models to measure the supply chain performance by strategic, tactical and operational indicators, and improve its performance”. Effective performance measurement helps SC participants to track

the performance of global sourcing initiatives. Many methods and techniques were suggested over the years for SCM evaluation, and the traditional methods concentrate on the return on investment (ROI), net present value (NPV), the internal rate of return (IRR), and the payback period which are the best methods appropriate to measure the value of simple SCM applications Bhagwat & Sharma (2007), Performance evaluation provides important and useful information for the assessment of employee's skill, knowledge, ability and overall job performance. It is important to all types of companies. Performance evaluation is a strategic tool that provides means to achieve the objectives required. Sarode & Khodke (2009), the literature reviewed so far highlights the attributes and sub-attributes that involved in the development of the decision framework for evaluating and selecting supplier Performance in supply chain. In the process of selecting the vendor, they used a survey as their process of doing their selection. Questionnaires were issued to respondent. The respondents for the survey are selected randomly from different functional areas that are directly involved with the materials supplied by the vendors. If performance measurement is been set for a long-term and continuous performance improvement, then it is prudent that different phases of the performance measurement and management processes like the identification of appropriate measures to be used are to be implemented successfully. The performance evaluation is very important to be use as a strategy tool in order to achieve the objective that is required and fulfilling the motive of an organization mission statement.

2.4 Factors Affecting Supply Chain Performance

Since supply chain is a process or a stage to deliver a final product to a customer from raw material which could meet their demand. Supply chain is developed according to customer’s demand. Supply Chain Performance refers to the extended supply chain’s activities in meeting end-customer requirement, product availability, on-time delivery, and all the necessary inventory and capacity in the supply chain to deliver that performance in a responsive manner. Supply

chain has a direct and significant impact on organizational performance. The impact of SCM capabilities on business performance is to determine the degree of customer-oriented and how SCM issues influence competitive position and organizational performance. Supply chain performance can be seen to an extent by which supply chain's activities effectively and efficiently ensure realization of organization goals and objectives. Mehmeti et al. (2016) define supply chain performance as an aggregate of the performance of every company that is operating in the chain. Supply chain performance and practices have been found to be different among companies with different supply chain characteristics. supply chain performances are assume increasing relevance that is due to numerous elements (Cucchiella et al., 2002).

There are different variables that do normally affect SCM, but this research will use the following: ICT, environmental uncertainty, management support and value-added processes. All these variables are supportive for lowering the lead time of supply chain and cost. The factors that affect SC performance measures such as customer satisfaction and product quality, and quantitative measures such as order-to-order lead time, response time, flexibility, resource utilization and delivery.

2.4.1 Information Technology

The use of information technology allows the distributors, retailers, suppliers, manufacturers, and customers to minimize lead time and other unnecessary activities. Organizations are looking for lead time reductions and cost with the specific purpose of improving service but also to increase inter-organizational relations. The implementation of IT in order to enhance the management of SC is no longer a new phenomenon. The implementation of Electronic Data Interchange (EDI) has evolved to the current web technologies such as Business to Business technologies and collaborative commerce technologies. The Enterprise Resource Planning (ERP) systems must be able to provide a competitive advantage for the organization. Advantages of ERP implementation might involve improving the decision-making process by accurate information, improving planning and control

and improve the operations of organizations which will also increase customer satisfaction. Without the use of Information Technology, companies will find it very difficult are to handle costs, provide superior customer service and become leader in logistics performance. It is also obvious that organizations cannot manage cost, provide high customer service, and become leaders in supply chain management without the incorporation of information technologies. The use of information technology in supply chain management has helped to provide improved visibility and accountability in the field of supply chain. It helps to bring the necessary transparency into the process of supply chain management which helps manufacturing companies to have better control over product flow and information across supply chain.

2.4.2 Environmental Uncertainty

Environmental uncertainty is unexpected changes in supplier, competitor, customer, and technology. Uncertainty has been very instrumental in a number of fields, which involves organization theory, marketing, and strategic management (Chen & Paulraj, 2004). Uncertainty is the inability to assign probabilities to future events (Ganbold, 2017) there are three different types of uncertainty that plague supply chains. Supplier uncertainty which arises from on-time performance, and degree of inconsistency; Manufacturing uncertainty which also arising from process performance, machine breakdown, and supply chain performance; and demand or customer uncertainty which also arise from forecasting errors, irregular orders (Chen & Paulraj, 2004). Environmental uncertainty in any way cannot be avoided. In this current trend, more than ever before, enterprises are faced with a difficult task and uncertain competitive environments. If organizations want to sustain better performance, they must be in the position to understand the business SCM strategy, organizational structure and the information system strategy. Organizations are today faced with complex task and uncertain competitive environments. From the bullwhip effect, it is easy to link the demand uncertainty with the bullwhip effect. This explains that the higher the demand uncertainty the

higher the fluctuation (Mehmeti et al., 2016). This is an indicator that the environmental uncertainty is linked in a negative way with the SC performance.

2.4.3 Management Support

The top management Support should be a function rather than individuals, which has a decisive impact on a company's supply chain performance. From the role of SCM it has to deal with the influence and link the physical flow of products with the overall strategic content in a company. The top-level managers of any manufacturing company have a considerable impact on company performance (Mehmeti et al., 2016). This implies that top-management support of companies' particular manufacturing companies has a positive impact on the SC performance. The Top-level managers have detail and indebt understanding about the needs for having supply chain management. Chen & Paulraj, (2004) mentioned that one of the major functions of top management executives is to ensure that they influence the setting of organizational values and to also develop a suitable management style in order to improve the firm's performance. The top management support is categorized in terms of time and resources contributed by the top management.

2.4.4 Value-added process/ Manufacturing

Value-added products is the products that have already exist that you can use smart modifications. Supply chain performance in any manufacturing institutions is measured on its Supply Chain system responsiveness in order to support efficient and effective service delivery to customers. "Customers always want to pay the cost that they think is correct, and if they get something added to the product, they got value-added" (Quesada et al., 2012). It will be very important for manufacturing institutions to ensure that they concentrate on the provision of its core processes and outsource non-core processes from partner organizations and supplier members. An effective supply chain management needs collaboration with suppliers and internal coordination with procurement, logistics, engineering, customers and marketing in order to properly coordinate the activities and the

material flows across the supply chain. According to Ibrahim (2015), He mentioned that two factors are very important flexibility and quality.

Quality is not a bonus for the customer; quality is important for the sale of a product. Poor quality means high costs, low productivity, and loss of market shares. The ability to respond and familiarize quickly to changes in the market is known as flexibility. Logistical competency of an industry is measured by how well the firm is able to adapt and handle unpredictable situations. Companies have flexibility in their products and can adopt the required products easily. With the manufacturing flexibility, industries should also have the abilities to maintain quality according to customer expectations. Flexibility can be understood as the ability to react and adapt quickly to changes the market due to an increase or decrease in customers' requirements, accelerating or decelerating the manufacturing processes when it is requested.

2.5 Supply chain Operations Reference Model

The supply chain operations reference (SCOR) method is a major way to measure supply chain performance (Abdullah et al., 2018). " The SCOR model was formed by the supply chain council in order to provide a self-assessment method and comparison of supply chain performance activities as a cross-industry supply chain management standard" (Putri et al., (2019). The supply chain operations reference model (SCOR) is a product of supply chain council, which is a global non-profit consortium whose benchmark and methodology helps organizations to make a rapid and drastic improvement in the SC processes. According to P. Liu et al. (2014), the main motive behind developing SCOR is to support large establishments compare and evaluate their different supply chain activities by providing a standard framework. It is also a management tool that is used to address supply chain management decisions in order to support communication among SC partners and to improve the effectiveness of SCM within a company, suppliers and customers of a company in order to satisfy customer's demands. The Supply Chain Operations Reference ensure they help companies to inspect and measure their

supply chain processes, in order to determine where weak links exist and to identify possible improvements (P. Liu et al., 2014). Some of the benefits of using the model is because it helps a company analyze its supply chain by giving companies an idea about how advanced the supply chain is. The SCOR scope model have been develop to describe the activities of the business associated with all the faces of satisfying the demand of the customers.

2.5.1 Strategy and Design

The Strategy of supply chain contains the vision and the leadership of the organization. Supply chain strategy must be associated with the business strategy of the organization, and it should also be reflected by the strategies of the functions within the supply chain (Pujawan & Er, 2015). This implies that, when a company's competencies are directly aligned with its organizational strategy, the outcome of that company tends to be greater performance and a strong market position. In Lambiase et al. (2013) Managers who take decisions at diverse levels of the supply chain need to be reinforced by robust tools in order to assess the impact of different strategies on a firm's performance, before making them in the real environment. Many companies in the supply chain are involved in manufacturing products. Whereas almost all business organizations are engaged in procurement and market distribution operations. The strategy of SC is an iterative process that purely deals with how to evaluate the cost-benefit trade-offs of operational components. The strategy of manufacturing companies is a tool that ensures effective use of manufacturing strength as a competitive weapon for the achievement of business and corporate goals. The strategy of SC manufacturing can be vitally important in two ways. Firstly, it can be reactive but center to the implementation of an already devised business strategy, Secondly, manufacturing strategy can be seen as proactive whereby manufacturing is one of a number of core capabilities/competencies which can be exploited and used to create new opportunities and to target a new market. An organizational strategy deals with the number of actions a firm proposes to take in order to attain long term goals.

organizational strategy is implemented by segregating various goals grouped together to be executed one after another (Ali Syed Ahmad, 2018). It is now very vital for organizations to develop long-term strategic relations between suppliers and customers, and because of the introduction of new products with shorter lifetimes and the heightened prospects of customers (Singh et al., 2013). The design of supply chain deals with the process by which a company structures and manage the SC of an organization in order to identify the right balance between transportation, inventory and manufacturing cost. The design and management of a supply chain seek to obtain the best global performances so as to achieve better performance of a single link of the chain (Lambiase et al., 2013).

2.5.2 Enabling Infrastructure

Enabling infrastructure consists of Information Communication Technology, Human Resource, and Organizational Structure. It shows that there should be people who have vast knowledge on the concept of supply chain management in order to control supply chain process. It also needs the right technology to support the execution of supply chain processes, with an integrated organization of functions which are related to all aspects of supply chain management.

2.5.2.1 Information Communication Technology

It is very important for supply chain Engineers to understand the use of ICT within their supply chain. Any supply chain professional must have information available to enable them to effectively and efficiently carry out their role. The SC performance is enhanced through the availability of information like demand information, capacity information, and supply availability information.

Organizations are currently making the use of ICT as a tool for gaining competitive edge over other competitors and because of these reason organizations are trying to develop their operations by given the prominent accorded to SCM in realizing strategic goals in SCM. According to Zhang (2014), In information coordination and cooperation where there is an unpredictable market place, competitive

advantage needs to be increased from a seamless supply chain. Information sharing in any institution can change the way the Supply Chain is been managed and the changes that might occur in the SC may lead to, among other things, lower inventories. According to Mehmeti et al. (2016) One of the essence of sharing information in SC is to ensure there is a reduction in the bullwhip effect. In this case, it will be very useful to explain the bullwhip effect than understand the role of information sharing in reducing it. Mehmeti et al. (2016) cited in Simchi-Levi et al (2003) describe the bullwhip effect as the increased variability in orders placed as we travel up in the SC. This implies that even if the demand of customers for a specific product does not fluctuate much, but the inventory and back-order levels will significantly fluctuate across the SC. As stipulated by Ravindran & Warsing, (2013) in order to properly manage SC successfully and effectively, two types of ICT are very important, that is, Information Technology and Manufacturing technology. The design of a product can often have more impact on whether supply chain efficiencies can ultimately be achieved. It is not information technology that only plays roles in creating brilliant supply chain management, it also includes communication technology, material handling technology, identification technology (Pujawan & Er, 2015). In Johnson .N et al. (2016), the distribution of information among supply chain networks permits the supply chain drivers to work together with the aim of integrated and coordinated supply chains for effective supply chain management. The involvement of IT in the Supply Chain has many impacts on the performance of organizations. To realize all the things that are required to make products efficiently, manufacturers must have effective and far reached information system which makes organizations to aware about what is going on in their far-reached network of customers and suppliers (Crandall et al., 2010). Because of the high-level best practice, SCM technology can apply to any type of business. According to Johnson N et al. (2016) they mentioned that IT plays an important role in integrating suppliers, manufactures, distributors and customers in order to satisfy the quantity and quality of products. Information technology

makes available the flow of information which makes the supply chain more robust and resilient without undermining its efficiency (Tseng et al., 2011).

2.5.2.2 Human Resource

Human Resource is the backbone of any firm's system and it is the key enabler for all the functions of an organization to be effectively performed properly. According to Pujawan & Er (2015), human resources are people who are well trained and well recognize with the concept of SCM with relevant experiences in managing SC processes. Two types of employees are critical to determine in an effective supply chain management in any company. Firstly, the technical employees undertake an important role in designing networks that will minimize costs for a company while at the same time trying to achieve high levels of customer service performance. Secondly, managerial employees must similarly have a solid conceptual grasp on the key issues addressed by the models and tools of the technical staff, and must clearly understand how such tools can be applied to ultimately allow the firm to achieve its strategic goals (Ravindran & Warsing, 2013). An organization's Human Resource system can be seen as a place of knowledge about firm-specific knowledge, skills, abilities, relationships, and the work-related values of its employees (Marwah, 2014).

2.5.2.3 Organizational infrastructure

Structure in one sense is the arrangement of duties use for the work to be done (Tran & Tian, 2013). In the context of a firm, the organizational structure refers to the organizational subunits that are linked together in order to accomplish the firm's general objective. As posited by Koufteros et al. (2012), organizational structure can be observed as a way responsibility and power are allocated inside the organization, and how work procedures are carried out by organizational members The primary motive of a SC organizational structure includes increasing the efficiency and reducing the costs involved in SCM. The workers in the SC organizational structure can accomplish these goals with the implementation of

stringent quality control methods and an effective internal auditing procedure through the entire supply chain. “In a large company, supply chain represents a major role and involves a large number of functions, each performs specific Processes” (Pujawan & Er, 2015). Whether supply chain management activities that has to do with the internal of the firm, and across other firms in the supply chain, are organized in more of a vertical orientation, or with greater decentralization (Ravindran & Warsing, 2013). The supply chain organizational structure incorporates element of both horizontal and vertical differentiation. The horizontal differentiation separates workers by task, while the vertical differentiation orders workers by rank based on seniority and experience.

The process of organizing the functions of organizational structure into an integrated structure is critical in the aspect to support cross-functional team within the company as well as cross-enterprise coordination within the supply chain.

Organizations that want to ensure they succeed needs to enhance their connections with other organizations in order to acquire and mobilize complementary resources for their core activities (Koufteros et al., 2012).

2.5.3 Processes

A process is known to be a unique activity that can be executed in order to meet pre-defined outcomes. The processes that are involve in supply chain operations research have been recognized as exceptional processes, supply chain needs to execute in order to support its primary objective which is to fulfil customer orders. The process of SCM plays a vital role in running the major operations of nearly all organization. Supply chain processes contain management relationships with customers, management relationships with suppliers, sales and operations planning, management of inventory, and management of warehousing. Some of the processes of supply chain operations reference are explained below.

2.5.3.1 Customer Relationship Management

In today's business environment, organizations are experiencing a very tight aggressive competition not only from the local market but from the international market as well. Customer Relationship Management has to do with a set of practices that organizations must adapt in order to sustain and increase their customer base (Hasan Haslinda & Awadh, 2017). Business organizations develop CRM systems in order to support or improve their service quality and to also ensure they evaluate the inputs of customer, communicating with clients and by ensuring that they build a profitable relationship with their customers (Wali & Wright, 2016). Management has the sole responsibility to ensure they identify group of customers that need to be targeted as part of the firm's corporate and marketing strategies and also determines how the customers within each group will be segmented. These decisions of management in identifying the groups that they need to be targeted are made by the leadership team of the organization and the owner (s) of the strategic process should be the Chief Executive Officer. The motive is to ensure how best to collect and gain customers based on their value over time and increase the faithfulness to target customers by providing customized products and services for their customers. Since CRM deals with acquisition, analysis and the use of knowledge about how customers need to ensure that they sell more goods and services effectively and efficiently by providing a profitable service not only for the organization but also for its customers (Wali & Wright, 2016). Considering customers as the heartbeat for all type of businesses, developing a very strong relationship with people is crucial towards the success of the business. Through good and bad times, maintaining a very strong customer relationship will aid in sustaining the performance of your business. As mentioned by Taleghani et al. (2012), they explained that customer relationship management will help organizations to ensure they identify key customers and the importance of maintaining them for future exchange and thereby making sure that costs is reduce, attract new customers and at the same time increase the income from loyal customers.

Customer relationship management (CRM) is needed in all business organization for their long-term operations. CRM comprises of sales, marketing, and customer service activities which aims are to attract new customers, nurture and retain them for future business (Anshari et al. 2018). The main motive why organization uses CRM is to ensure that they meet their customers' expectations. Crandall et al. (2010) discussed the CRM implementation that is needed to bring together business processes within and across companies, and that the success of CRM did not only depend on the reliable delivery of marketing and sales activities, but they also depend on other business activities.

2.5.3.2 Delivery

With globalization, delivering of raw materials and finished product on time within the supply chain is critical for suppliers. The Delivery process describes the activities that are purely associated with the creation, maintenance and fulfilment of customer orders, which also embodies the receipt, validation and creation of customer orders, scheduling order delivery, pick, pack and shipment and invoicing the customer (Supply Chain Council, 2012). The concept of Order-to-delivery (OTD) is very important and it is something to be watched very closely in order to meet each market's specific demands. Lack of integrated planning processes in any organization is a serious shortcoming because it leads to many supply chain inefficiencies which will result to late supply of product or service to customers (Kaipia, 2008). In nowadays competitive business environment among companies, customers need reliable on-time delivery from their suppliers. According to Guiffrida & Tanai (2014) "competitive market place organizations are under increased pressure to shorten product lifecycles, reduce cost, and improve customer service in order to gain and maintain competitive advantage". Both Early delivery and late delivery introduce waste in the form of excess cost into the supply chain, this means that early deliveries subsidise to excess inventory holding costs, while on the other hand late deliveries also contribute to production stoppages costs which will result to a loss of goodwill for the company. Any reductions in early deliveries

reduced inventory holding costs but whenever delivery is made on time, the costs incurred by the supplier are considered to be “normal costs” which implies that no consequence cost is incurred. On-time delivery is very important in any supply chain situation because measuring and improving delivery is desirable to increase competitiveness. In order for companies to gain competitive advantage and efficiency improvements, the companies must have higher delivery reliability (Rao et al., (2011). In the process of delivering goods or services, SCM is mainly concern with the flow of materials and services which include delivery to the ultimate customer as well as the associated flow of money and information.

2.5.3.3 Warehouse Management

Warehouse is today playing a more vibrant role than it ever has in the success or failure of businesses. Warehouse management deals with the various processes related to maintaining and controlling a business warehouse. It passes through every step of the process, which is from start to the end. Warehouse management covers everything that occurs in a warehouse. In Randhawa (2018), warehouses are the precise storage structures that are erected specifically for the safety of quality and quantity of stored product. Warehouse plays a very important role in organizations. The management of warehouse has to do with the storage and the movement of materials throughout the warehouse. It has to do with the monitoring and the progress of goods or product through the warehouse. The main aim of a warehouse is to support the storage and movement of goods from suppliers to the customer and Customer’s demand can be met by ensuring that deliver their goods on time and in a cost-effective manner if a sufficient quantity of good quality warehouses is available (Dhawale et al., 2019). This shows how warehouse management system plays a very important role for an effective overall supply chain. The system of warehouse management commenced in order to control movement and the storage of materials within a warehouse. According to Faber et al. (2013), they mentioned that “warehouse management is a combination of the planning and control systems and the decision rules used for inbound, storage, and

outbound flows". One of the major warehouse layouts in manufacturing process is often the amount of time it takes to pick all the raw materials that are littered throughout a warehouse. In Hamdy et al. (2018), Warehouse Management System is an information system that combines software systems in order to monitor, control, manage quantities and storage locations and with the primary motive of optimize warehousing decisions. information system normally supports warehouse management which can be built precisely for a warehouse (Faber et al., 2013). Warehousing is known to be very important in supply chain management because warehousing has the responsibility to receive products, to store materials until they are requested and to also extract products from inventory and ship them in response to the customers' orders. The warehousing process deals with both inbound processing and outbound processing. It has to do with what is coming into the warehouse and what is going out of the warehouse. The inbound processing addresses the issue of goods that are coming into the warehouse from an external procurement, while outbound processing prepares and ships goods to their destination.

2.5.3.4 Sourcing

Sourcing is the practice of locating and selecting businesses of individuals based on set criteria. According to Sunil & Peter (2016), sourcing is the set of business processes that required to purchase goods and services. Sourcing has to do with the process of finding suppliers of goods or services for a certain need. Managers have the sole right to decide whether the task needs to be taken by a responsive. The managers also need to know whether the source will be internal to the company or it needs a third party. Sourcing is not a single act. There is a chain of tasks that are done with the final outcome being the procurement. Sourcing, in essence, is a part of the supply chain of any company. Outsourcing to a third party is meaningful if that third party increases the supply chain surplus that will be more than what the organization can do on its own (Sunil & Peter, 2016). Companies are realizing that manufacturing (especially of low-value added activity) is not a core

competency and they noticed that outsourcing of such activity can lead to a reduction in costs and increase productivity per employee. Anyone of these strategies must be in the position to save costs and improve return on investment. Depending on which strategy that is used by the company. Su & Gargeya (2012) Strategic sourcing helps a firm to attain its competitive advantages by ensuring that they provide value in effective cost management, offering the firm valuable information regarding supply trends, and by also establishing a very close relationship with key suppliers. The reason for having sourcing is to ensure there is a growth in the size of the total surplus that needs to be distributed across supply chain. It is based on this that it is very important for any organization to keep its supply chain function in-house if the third party that they want to incorporate cannot add to the supply chain surplus. Strategic sourcing helps a firm to obtain its competitive advantages by providing value in effective cost management, offering the firm valuable information regarding supply trends, and establishing a close relationship with key suppliers.

2.5.3.5 Planning

Planning is the process that describes the activities that are directly connected with developing plans in order to run the supply chain. The processes of planning include the gathering of requirement, gathering information on available resources and other sources that lead to planned capabilities. Supply chain planning has to do with the component of supply chain management that develops a strategy for balancing supply and demand, predicting future requirements and monitoring fulfilment. According to Supply Chain Council (2012), they stated that "the development and establishment of courses of action over specified time periods that represent a projected appropriation of supply chain resource to meet supply chain requirements for the longest time fence constraints of supply resources". Planning in supply chain is a forward-looking process that is responsible for coordinating assets to optimize the delivery of goods, services and information from suppliers to the customers balancing supply and demand.

2.5.4 Performance

The performance of supply chain operations reference (SCOR) concentrates on understanding the overall outcomes of the supply chain which also consists of two types of elements: Performance Attributes and Metrics. A performance attribute is the categorization of metrics used in order to express a specific strategy. An attribute cannot be measured but rather it is used to set strategic direction. Metrics is used to measure the ability in order to achieve these strategic directions. A managed performance and achievement of certain key supply chain indicators. Any brilliant supply chain player will record their performance, analyze their movements, compare their achievements with other companies and explain any exceptional performance (Pujawan & Er, 2015).

2.5.4.1 Responsiveness

Responsiveness is the ableness of the supply chain to respond purposefully and within an appropriate timeframe to customer requests or changes in marketplace in order to bring about or maintain competitive advantage (Minnich & Maier, 2006). According to Ravindran & Warsing, (2013) Responsiveness refers to the extent to which customer needs and expectations are met, and also the extent to which the supply chain can flexibly accommodate changes in the needs and expectations. Responsiveness mainly focuses around product development, manufacturing and logistics. The Responsiveness attribute describes the speed at which tasks are performed. supply chain responsiveness is regarded not to be an operations pattern in its own right, but rather as a thought that can implicitly rest at the core of various operations strategies (Reichhart & Holweg, 2007). Any organization or firms whose supply chains are focused on responsiveness are ready to accept higher stages of cost (i.e., lower-cost efficiency) in order to ensure that there is an improvement in their ability to meet and flexibly accommodate customer requirements (i.e. Higher responsiveness). Common measures of responsiveness are as follows:

- Reliability and accuracy of fulfilling customer orders
- Delivery time

• Product variety
• Time to process special or unique customer requests (customization)

2.5.4.2 Flexibility

For supply chain in any organization to be effective and manage their business risk, it should consider manufacturing flexibility within their strategy. Flexibility is the speed in which supply chain responds to changes in demand and the entire business environment in order to create competitive advantage. One major strategy for gaining and keeping a competitive advantage in any dynamic environment is to make provision for a flexible organization. Flexibility is the organization's capability to ensure they meet an increasing variety of customer expectations without excessive costs, time, organizational disruptions, or performance losses. According to Teixeira & Brito (2004), flexibility is said to be used more frequently in manufacturing industries, which deals with the ability to answer fast and reliable in changing the product mixing. Supply chain has a greater flexibility to adapt in changing the demand of customers and shorter lead times. Flexibility is known to be used where there is a vast range of products which share some characteristics and at the same time can be manufactured at the same product line. Flexibility in Supply chain is one of the major factors of supply chain performance (Farok et al., 2014). Efficient supply chain flexibility can increase the organization’s ability to adapt to the changes in its business environment. The adaptation of the many suppliers dimension could increase flexibility generating alternative sourcing for procurement by reducing supply chain risks. Farok et al. (2014), mentioned that Flexibility has to do with the ability to respond to cost-effectively for quick changes in any element of the chain.

2.5.4.3 Reliability

According to Lukinskiy et al. (2014), reliability is one of the major characteristics of the operative of supply chains since it has an important impact on the completeness and quality of delivered parties, on the implementation time of

logistics cycle and on logistics costs in supply chains. It is often recognized as a key capability for achieving a competitive advantage and it also concentrates on the likelihood of the outcome of a process. Reliability is a typical matric that permits inventory to be delivered to customers' on-time. In Supply Chain Council (2012), "Reliability focuses on the predictability of the outcome of a process. Typical metrics for the reliability attribute includes, On-time, the right quantity, and the right quality". Reliability is very important in implementing an effective SCM strategy since it enhances productivity and cuts costs. Because of the effective SCM strategies and other important duties, it has now become an important performance measure for assessing the supply chain.

2.6 Empirical Literature Review

A study conducted by Shukla et al. (2011) on understanding supply chain found out that Organizations adopt different business improvement methodologies to improve the business performance of manufacturing industries. Because of this, manufacturers and researchers take note of several numbers of problems regarding supply chain activities. The study found that management of the supply chain and the roles of various actors involved differ from industry to industry and firm to firm. As a result, it is because of this reason that researchers believe that Supply Chain Management (SCM) has become a vital issue for manufacturers, professionals and researchers. The study also believes that SCM basic objective is to optimize performance of the chain to add as much value as possible for the least cost possible which is to maximize productivity in the supply chain and deliver the most benefits to all related parties. Another study conducted by Tan et al. (2009) on supply chain management in the manufacturing sector found out that suppliers, manufacturers and customers, that in order to achieve an effective supply chain, there must be an effective integration. The research shows that integration must be part of the process of ascertaining an effective and efficient SC integration especially in a position where the supply chain involves multiple organizations which are also expected to bring to customers products at the lowest cost and quickest time. Lhassan &

Daanoune (2019) on supply chain performance measurement tools found that supply chain performance measurement is a strategic way and important element in companies, which explains its role and which has to do with identifying opportunities in order to improve profitability and align the objectives of all actors in the chain. Lhassan & Daanoune (2019) also found that companies adopt the supply chain performance measurement tools based on functional or process approaches, where they measured three tools which are used in three levels namely strategic, tactical and operational. Supply chain is the management of physical, financial and information flows. The supply chain performance of the companies is combined in the organization and the value of the logistics activities of the supplier until the customer, have a reliable tool that makes it possible to measure this performance (Lhassan & Daanoune, 2019).

Another study that was conducted by Addo (2017) on manufacturing industries refers to the industries involve in the processing and manufacturing of items and indulge in either the creation of new commodities or in value addition. The study found that manufacturing industry can be seen as an industrial production, in which they mentioned that raw materials are converted into finished goods on a huge scale. The research also shows that both internal and external factors influence the competitiveness of manufacturing companies through the deployment of a combination of strategies (Addo, 2017). A study that was done by Dabade & A. Kulkarni, (2019) on e-Supply Chain Management which demonstrated that the Internet can have an important impact on the management of the supply chain and it can improve the competitiveness of firms. The research also showed that e-SCM has been acknowledged as an outstanding topic in the process of dealing with supply chain. Growing customer expectations, ongoing developments in communications, and transportation technologies have forced businesses to invest and direct attention to their supply chains. Subsequently, in order to remain competitive, there is pressure on businesses in order to decrease costs and improve customer service levels. According to the Automotive Industry Development Centre (in South Africa), increasing operational complexities within

the automotive industry, rising fuel prices, higher manpower costs owing to higher living costs and growing pressure from China and India to remain competitive have led to the industry's growing awareness of the impact that an efficient supply chain can have on business sustainability (Gabru 2008).

2.7 Supply Chain Management Practices

SCM practice is a multidimensional concept that has to do with both the upstream and the downstream supply chain as well as the internal supply chain with the sole aim of gaining competitive advantage over other competitors (Hamid et al., 2012). SCM practices is also a set of events take on in an institution in order to promote effective management of its supply chain. Siddig Balal Ibrahim & Hamid (2014), Supply Chain Management contains a set of methods and practices in order to effectively integrate suppliers, manufacturers, distributors and customers for improving the long-term performance of the firms individually in a cohesive and the high-performing of supply chain as a whole. SCM practices also has to do with the stages that can be used in managing integration and coordination of supply, demand and relationships in order to ensure that there is a maximum satisfaction in consumers in an effective and profitable manners (Siddig Balal Ibrahim & Hamid, 2014). Supply base management is the practice of incorporating company's social, environmental and economic goals into the coordinate of inter-business processes in order to improve the long-term economic performance of the individual company and its supply chain. Today, the way SCM, and it best practices that light the way for practitioners in the field, requires a nuanced understanding of the entire SC realm from the different methodologies available to supplier performance to global regulations to economic concerns.

2.7.1 Managing Supply Chain

For any successful SCM implementation, managers must ensure that they properly know the issues concerned with how the planning of supply chain looks like. In the process of developing supply chain, the managers need to be in the

position to properly know how to analyze the critical factors for external and integration. For SCM to be totally implemented there must be a process of distribution and return management of goods. This section shows the necessary stages that are required for the adoption and implementation of SCM practice. This shows that training contributes to most performance measure. According to Swaminathan (2007), Managing a supply chain within a single country is complex due to many types of uncertainties in demand, supply and process. Most developed economies, there are restricted uncertainties in availability of basic requirements for any kind of business.

2.8 Research Gaps

The theoretical and the empirical literature gave a comparative and a theoretical review of the major activities that have been undertaken to investigate the impact of SCM on the performance of organizations in the manufacturing industry in Sierra Leone. However, Suhardi & Widyatama (2019); Ronoh & Koech (2014); Luo et al. (2018); Wan Mahmood et al. (2013) and past studies on supply chain management in manufacturing company, but none of them provide investigation on how Manufacturing companies are faced with the challenges of getting raw materials from suppliers through different channels, and how they transform raw materials into finished products and ensure that they pass through different channels to the final consumer with the motive of attaining the performance of the company. Request for both the supply of raw materials used by manufacturing firms and supply of goods manufactured by manufacturing firms needs to be smooth in order to increase performances of the manufacturing companies, there must be an effective supply chain management. Any weaknesses in the supply chain management can severely affect production and delivery of products to consumers. As a result, there is a knowledge gap that needs to be addressed. It is the objective of this study to fill that knowledge gap by focusing on Sierra Leone Bottling Company (SLBC) as a case study.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the approaches used to carry out this research. It describes the methodology used in collecting and analyzing the data for this research using SLBC as a case study. This study assumes a cross-sectional survey design using both quantitative and qualitative approaches. It includes the research design and the method used to collect data, presentation of the data, analysis, samples, sample population size method, and finally the tools used to collect the data from the right sources and how best the data was analyzed.

3.2 Research Design

Mohajan (2017), asserts that research design is the conceptual structure in which the research is conducted, it shows how the collection, measurement, and analysis of data design look like. The study adopted descriptive research. The methodology used in this study is vital for any research work to be carried out. Kothari (2004), stated that "A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure". The design used a cross-section study where data was gathered just once over a period in the Sierra Leone bottling company. The Research design is needed because it helps the smooth sailing of the numerous research operations, thereby making research as efficient as possible yielding the highest information with a nominal expenditure of effort, time and money (Kothari, 2004). The research design shows the plan of the research to meet the expected results of the study. The research explained how Supply Chain management is related to the economy and how effective Supply chain management had been used or not in terms of policy applications used at SLBC. The research used a descriptive approach that describes the phenomenon undertaken in order to ascertain and be able to describe the characteristics of variables of interest, and it also used

quantitative instruments to analyze the data collected. The information gathered was interview made, self-administered questionnaire through google-form.

3.3 Flowchart methodology

The flowchart methodology of this research is available in figure 3.1

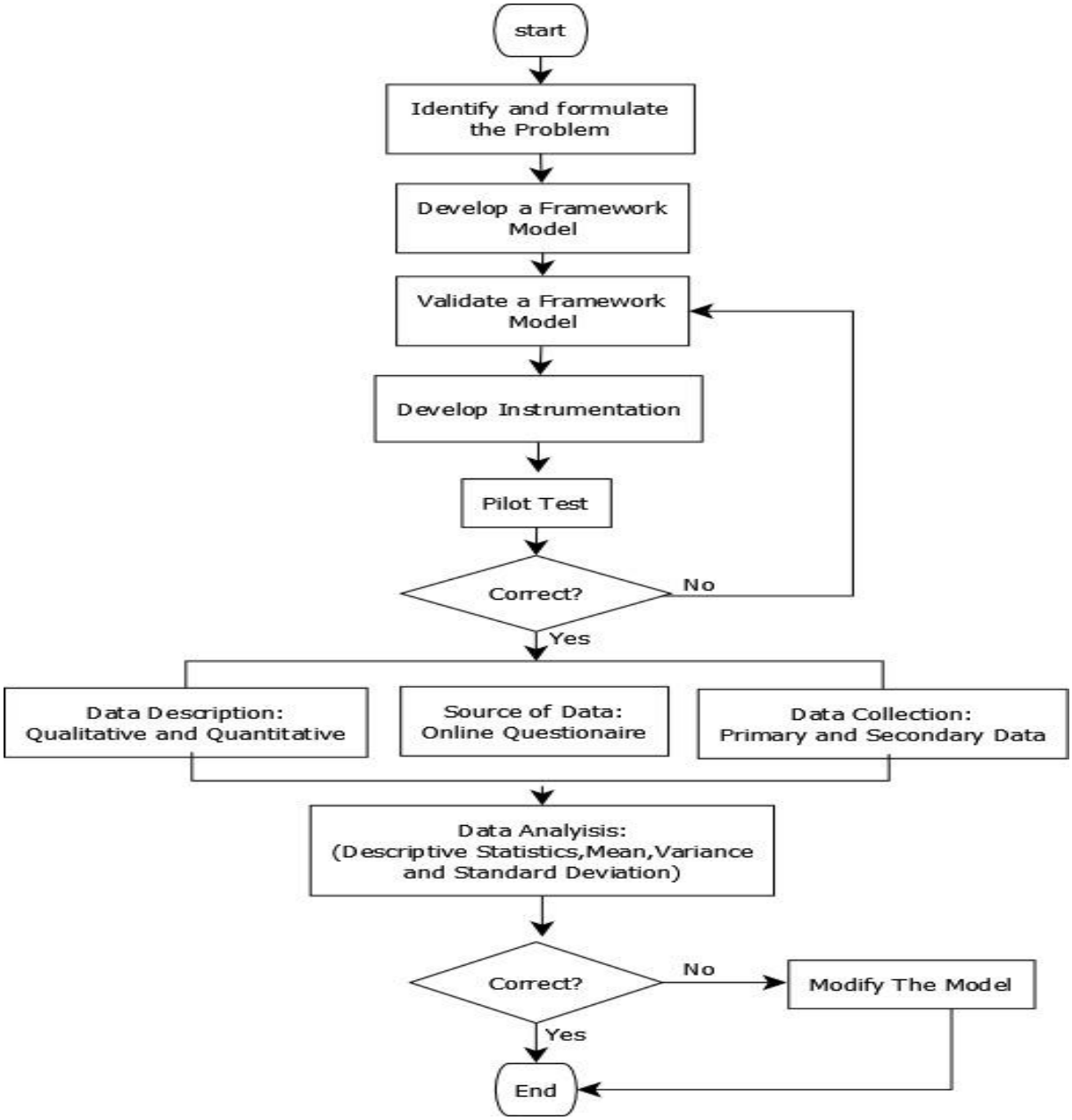

Figure 3. 1: Flowchart of the research

3.4 Conceptual Framework

The study was guided by a conceptual framework as shown in figure 3.1. According to the conceptual framework, investigating the impact of supply chain management of this research include strategy and design, HR, ICT, Organizational structure, CRM, Warehousing, Delivery, transportation, Responsiveness, Packaging, and Reliability. For the supply chain management to be effective in carrying out its objective, it must ensure that it attains the performance of the company by fulfilling the need of their customers and the shareholders.

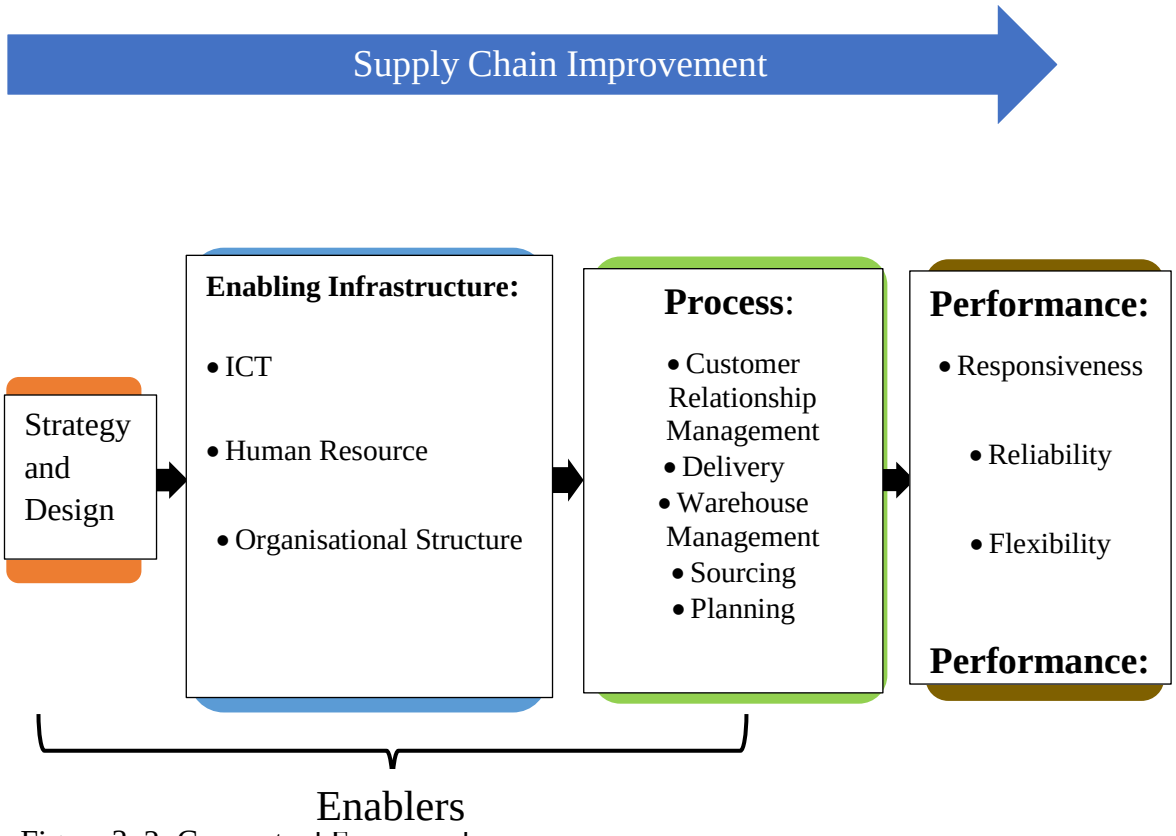

Figure 3. 2: Conceptual Framework

3.5 Target Population

Population is the total composition of elements from which a sample is drawn. Best & Kahn, (2006) described a population as any group of individuals that has one or more characteristics in common and that are in the sole interest of the researcher. A target population has to do with the population the researcher studies,

and whose discoveries are used to generalize the entire population. For this study, table 3.1 shows the targeted population comprised of staff of the Sierra Leone Bottling company who are part of the supply chain management activities. As a fact, the motive of establishing an organization will result in the establishment of an organization structure by its authorities to show how the organization has been governed, responsibilities of the different authorities and, the desire to achieve excellent management performance and efficiency with the organization. It is from this rationale that the SLBC Limited organization chart has been established.

Table 3. 1: Entire Population of SLBC

Respondents	Population
Administration and HR	10
Marketing/ Commercial	17
Production/ Technical	20
Managers	8
Finance	10
Logistics/ Warehouse	18
Supervisors	17
TOTAL	100

Source: (Human Resource Manager)

3.6 Sample, Sample Size and Sampling Techniques

A sample is a small proportion of the population that is selected for proper observation and analysis (Best & Kahn, 2006). The study used stratified random sampling to members who are in the network of manufacturing and distribution of the operations of the SLBC. The sampling process is taken with due considerations of job safety and the overall well-being of the interviewee concerned. The Sample was drawn from SLBC Limited and focused on all departments dealing with Supply Chain management issues. According to Kothari (2004), a sample design has to do with a definite plan for obtaining a sample from a given population. It refers to the

technique or the procedure the researcher would adopt in selecting items for the sample. A sample size of 30 respondents out of 100 was drowned from the sample frame through the use of stratified sampling as is shown in table 3.2. Kothari (2004), stated that a representative sample could be 30% of the targeted population. The sample included 3 members of SLBC from the Administration and HR department, 5 members of staff from the Logistics department, 5 members from the Marketing/commercial department, 6 members from the production/Technical department, 5 members from the supervision department, 3 managers, and 3 members from the Finance department.

Table 3. 2: Sample Size

Respondents	Population	Sample size
Administration and HR	10	3
Marketing/ Commercial	17	5
Production/ Technical	20	6
Managers	8	3
Finance	10	3
Logistics/ Warehouse	18	5
Supervisors	17	5
TOTAL	100	30

3.7 Research Instrument

A self-administered online questionnaire was used to solicit information from the respondents. The questionnaires serve as a reminder and a guide as to the respondents for their inputs. The questions are designed by the researcher based on the review of the literature. The study uses a five-point Likert scale. The ends labeled “strongly disagree” (1) to “strongly agree” (5). The mid-point (3) labeled “uncertain”. The questionnaire was sent to the respondents through mail. This is to prevent the influence of an external force and to make the study bias-free. A copy of the questionnaire and its responses is attached in the Appendix

3.8 Data Collection

The task of data collection begins after a research problem has been defined and research design/ plan chalked out (Kothari 2004). Data has to do with the facts of raw without any processing, organizing or analysis, and hence they have little meaning and few benefits to the administrators and decision-makers. They are un-interpreted materials on which a decision is to be created and rely on facts which may include anything known to be true or exist (Mohajan 2017). The research develops and administers an online questionnaire that investigates the impact of SCM on the performance of the manufacturing company through the use of google from a well-represented sample of members from the SLBC. The questionnaire was divided into various sections. The source is also been proved to be reliable as the personnel consulted are also reliable for the purpose of this research. Both Primary and secondary sources were used in the process of collecting the data. As stipulated by Kothari (2004), primary data are those which are collected afresh and for the first time, and which happen to be original in character. Various individuals were contacted from the SLBC through administering an online questionnaire to indicate their agreement on the questions submitted to them base on their experience working with the company. Secondary data, on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process (Kothari, 2004). Secondary sources of data were obtained from Textbooks, Journals, and articles. Newspaper, reports and seminar papers research websites, (i.e. already existing information from internal sources which are found within the organization external sources).

3.9 Data Analysis Procedure

The main motive of analyzing data is to show out convincing conclusions. This research shows different statistical procedures where a test was done base on the available data. Data analysis which involves the systematic process of establishing a relationship between and among data collected through various instruments used. The data and information that has already been collected and presented during the

study were reduced into summary from which it was processed. Analysis, particularly in case of survey or experimental data, includes estimating the values of unknown parameters of the population and testing of hypotheses for drawing inferences. The analysis, therefore, categorized as a descriptive analysis and inferential analysis (Kothari, 2004).

The study thus used descriptive statistics mainly mean, variance and standard deviation to summarize the response. According to Hassani et al. (2010), "descriptive statistics provide simple summaries about the sample which include the statistical measures of central tendency and dispersion". This was used to analyze the objective and to integrate both qualitative and quantitative techniques in the data analysis. The analysis was done through a software packaging for Social Scientists (SPSS) version 23. The data was presented diagrammatically by the use of tables, pie charts, and histograms.

3.10 Pilot testing of the research instrument

Pre-testing of the instrument was undertaken before the main study on a group of respondents. A sample size from the range of 1- 10% of the sample frame is an fitting frame to engage in a pilot test. 30 respondents were used to do pilot testing in order to ascertain the correctness and clarity of the questionnaire items in addressing the variables under investigation and at the same time determine the reliability of the instrument. The selected respondents for the pilot test were not again used in the main study.

3.11 Data Reliability and Validity

The accuracy of data to be collected largely depend on the data collection instruments in terms of validity and reliability. Validity will be achieved by having objective questions included in the questionnaire. To certify the validity and reliability of data collected during the research, a recognizance survey and pilot study was conducted. This helped to be familiar with the targeted area which makes it easier for data collection. It shows the accuracy of data collected largely depends

on the data collection instruments in terms of validity and reliability. The Validity was achieved through objective questions included in the questionnaire. This was achieved by pre-testing the instrument used by identifying and change any ambiguous questions while the Reliability, on the other hand, refers to a measure of the degree to which research instruments yield consistent results. In this research, the reliability analysis used a Cronbach Alpha in order to show how best the variables are well-matched for the questionnaire.

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CHAPTER 4
DATA ANALYSIS, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter deals with the study findings on the impact of SCM on the performance of Sierra Leone Bottling Company. It describes in detail the method and procedures used in bringing out this research, the parameter used in the collection, interpretation, and presentation of data. The research has analysed and presented these data in accordance with the prescription, as stated in chapter three of this study. The research has further endeavoured to analyze the data in line with specific and relevant literature. It involves the presentation and interpretation of the findings in relation to the objectives of the study.

4.2 Response rate

The questionnaires were given to a sample of 30 respondents from the Sierra Leone Bottling Company (SLCB) from different departments. All the 30 questionnaires were received from the respondents. This shows that the research has a response rate of 100% thereby signifying a preparedness of the respondents to participate in the study. This response rate was favourable, according to Mugenda and Mugenda (2003) in which they assert that a 50% response rate is adequate, 60% good, and above 70% rated very well. This is shown in Table 4.1.

Table 4. 1: Response rate

	Targeted	Achieve	Percentage
Respondents	30	30	100%

Source: Research data (2019)

4.3 Biographical Information of the Respondents

4.3.1 Gender (Sex)

It is very important to know the gender distribution of responses to help categorize the respondents by sex. The reason is that the Sierra Leone Bottling Company employs both females and males. Out of the 30 targeted respondents of staff from the SLBC in the different departments, the respondents were asked to indicate their gender. Table 4.2 below shows the responses.

Table 4. 2: Gender of Respondents

Gender	Frequency	Percentage
Male	23	76.7%
Female	7	23.3%
Total	30	100%

Source: Research data (2019)

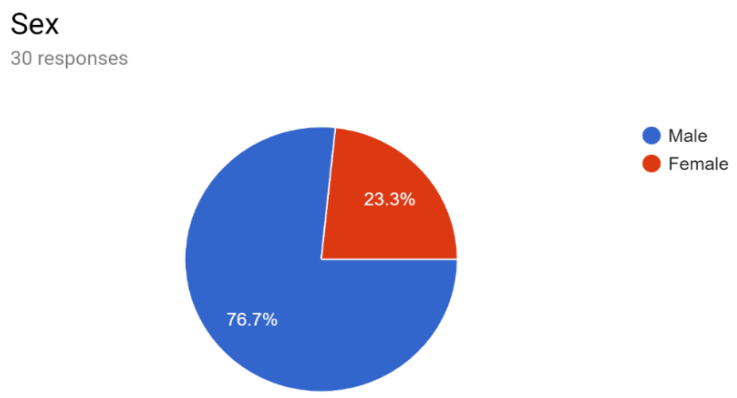

Figure 4. 1: Gender of Respondents

Table 4.2 and Figure 4.1 above show that 76.7% of the respondents were male, while 23.3% were female. This shows that male respondents formed the majority of the targeted population. The result reflects the industrial world where males are highly recruited as a result of the nature of work they usually undertake. The more responses from males do not, however, affect the research

data since the research focus was on the institutions rather than personal opinions.

4.3.2 Educational level of the Respondents

The study seeks to find out the educational level of the targeted employees from the Sierra Leone Bottling Company. The respondents were selected from different sectors and the participants were from different educational backgrounds as shown in table 4.3 below.

Table 4. 3: Educational level of the Respondents

	Frequency	Percentage
BSc	16	53.3%
Masters	9	30%
Diploma	4	13.3%
Certificate	1	3.3%
Total	30	100%

Source: Research data (2019)

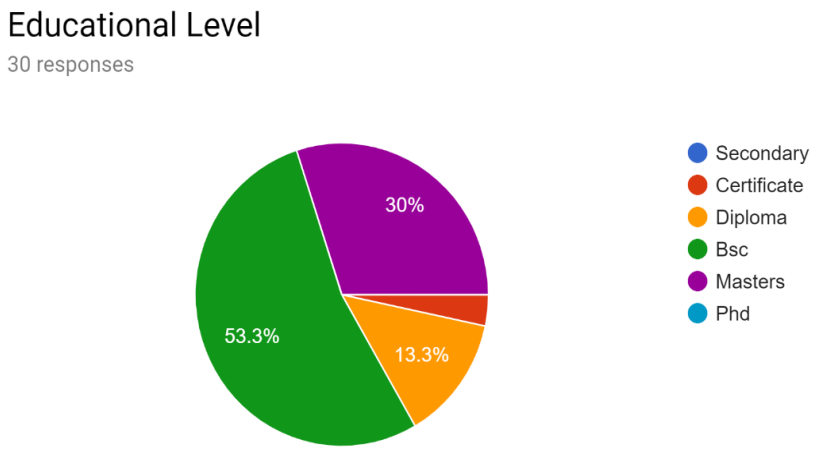

Figure 4. 2: Educational level of the Respondents

The study shows that 53.3% of the employees were graduates with Bachelor from different disciplines**.** 30% of the employees have a Master's degree, while

13.3% of the respondents have a diploma that qualified them to be employees of the company, while 3.3% have a certificate. This shows that the company has a well-educated staff. It shows that nothing could be seen to represent those that have Ph.D and Secondary education. This is so because there were no respondents with Ph.D and Secondary education. It is very important to note that it does not mean the entire organization does not have employees with Ph.D and Secondary level of education, but I am not fortunate to meet them.

4.3.3 Years of service in the current position

The study wanted to find how long the respondents have served their organization in their current positions. The responses were shown in the table below

Table 4. 4: Years of Service in the current position

Years of Service	Frequency	Percentage
1-5 years	14	46.7%
6-10 years	10	33.3%
Above 10 years	6	20%
Total	30	100%

Source: Research data (2019)

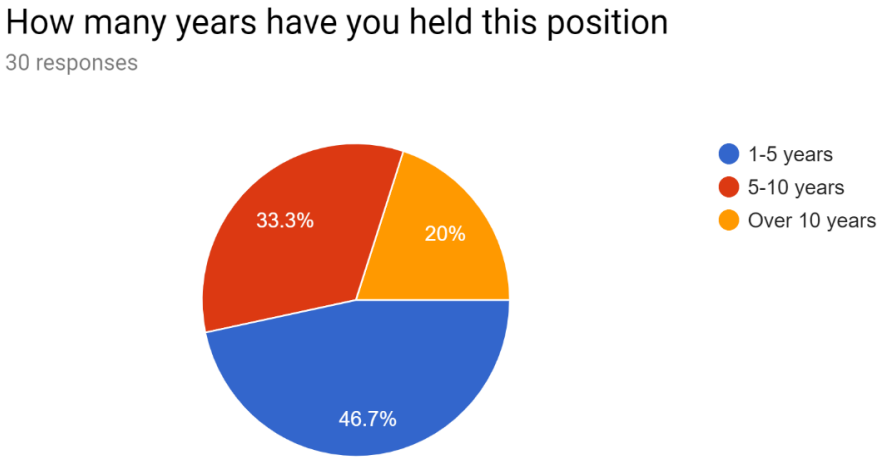

Figure 4. 3: Years of Service in the current position

Table 4.4 and Figure 4.3 shows respondents who have served from 1 year to over 10 years. This means that the organization has a blend of experienced and young professionals. 14 respondents representing 46.7% have worked in their current positions between 1-5 years, while 10 respondents which also represent 33.3% have worked in their position between 6-10 years, and 6 from the 30 respondents which represent 20% have served for over 10 years.

4.3.4 Description/Position of Respondents

The Sierra Leone Bottling Company (SLBC) as an organization, developed its Organizational Structure that flows onto various job positions. The Organization places the right people in their right job position in order to require different kinds of consistent, planned, and control their systems to improve their performance. 30 respondents from various sectors/ departments took part in the study. All the 30 participants were workers of the Sierra Leone Bottling Company (SLBC) up till the day the research was conducted.

Table 4. 5: Job Description (position) of Respondents

Description/ Position	Frequency	Percentage
Production/ Technical	6	20%
Logistics/ Warehousing	5	16.7%
Marketing/ Commercial	5	16.7%
Supervisors	5	16.7%
Admin/Human Resources	3	10%
Managers	3	10%
Finance Officers	3	10%
Total	30	100%

Source: Research data (2019)

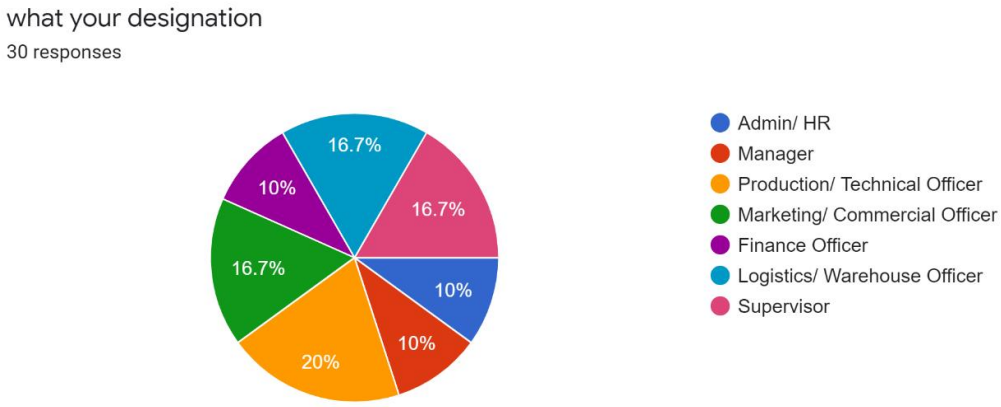

Figure 4. 4: Job Description (Position) of Respondents

Table 4.5 and Figure 4.4 above give the various positions of employees who responded to the questionnaire. The production/technical department formed the majority with 6 representing 20%. Logistics/Warehousing, Marketing/Commercial, and Supervisors each department have 5 representing 16.7%, while Admin/Human Resources, Managers, and Finance officers each department also constitute 3 which represent 10% of the respondent.

4.4 Reliability

Reliability is when two or more indicators in one construct strongly correlated with each other. It is also the share of measurement of a construct that is tested using the coefficient alpha. In this study, reliability was calculated using Cronbach's alpha which was done by entering all the valid questioners that give the reliability values for the whole construct. The Cronbach alpha coefficient value for the constructs is 0.968 which is higher than 0.7. It means that the questioner is reliable.

Table 4. 6: Reliability Statistics

Cronbach's Alpha	N of Items
.968	77

From table 4.6 above, it is clear that the coefficients of alpha is above 0.7, which means that the questioner is reliable and that the constructs are strongly correlated with each other and conclude that there is reliability amongst the constructs.

4.5 The Impact of SCM improvement process implementation

The researcher is interested to know the major ways to measure supply chain performance in order to evaluate and inspect the supply chain processes which will help to determine the weak links and identify possible improvement in different supply chain activities of the Sierra Leone Bottling Company in areas like strategy and design, enabling infrastructure, process, and performance. The researcher has posed certain questions on a scale of 1-5 where 1 strongly disagreed and 5 strongly agreed. The results given have been analyze below for the different variables.

4.5.1 The extent of supply chain management on Strategy and Design

From the survey, it was found that the Sierra Leone Bottling Company has a supply chain strategy that was aligned with the business strategy and also reflected by the strategies of the functions of the company. This was proven by the response gathered in relation to the vision and leadership of the company by ensuring that the company supply chain strategy is clearly defined, by developing the supply chain base on the market situations, by ensuring that the strategies of the company are regularly review, and by also aligning the company's strategy with corporate strategy. This was done when respondents were asked to indicate the level of their agreement with various statements on a scale of 1-5 where 1 is "Strongly disagree" and 5 is "Strongly agree" base on their experience working with the institution.

Table 4. 7: Mean, standard deviation, and Variance of Strategy and Design

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Our supply chain strategy is clearly defined	30	2	3	5	4.63	.556	.309
Supply chain strategy is developed carefully based on market situations	30	3	2	5	4.33	.758	.575
Our company review supply chain strategy regularly	30	3	2	5	3.57	.898	.806
Our supply chain strategy is aligned with corporate strategy	30	2	3	5	4.07	.450	.202
Our supply chain strategy is supported by functional strategies	30	3	2	5	3.77	.898	.806
Valid N (listwise)	30						

Source: Research data (2019)

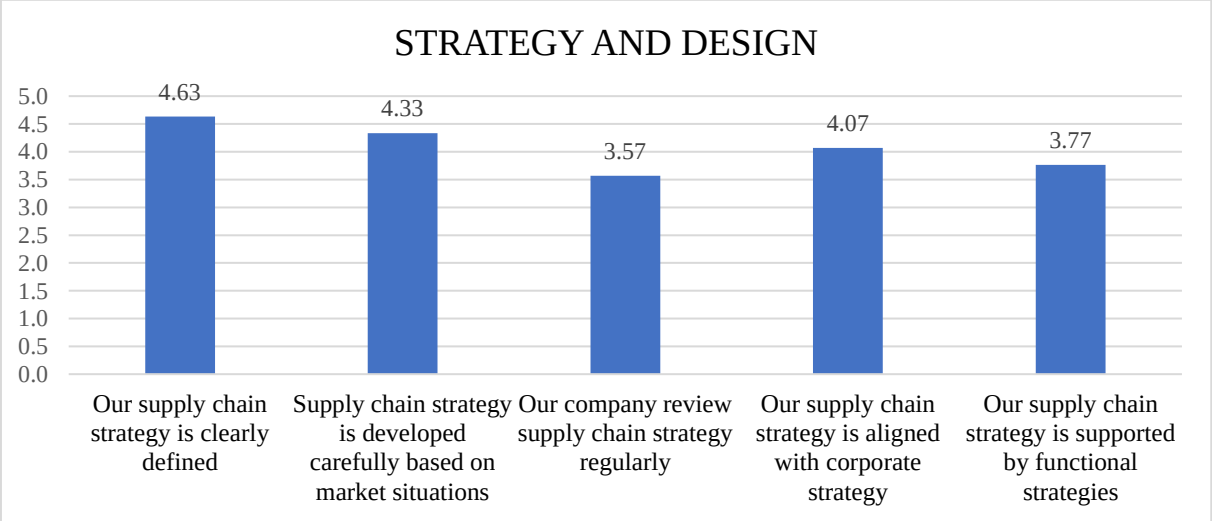

Figure 4. 5: Mean of Strategy and design

Based on Table 4.8, it was found out that the total observations in this study is 30, and it clearly shows that our supply chain is defined with a mean of 4.63, a standard deviation of 0.556 which indicates that there is uniform spread in the data,

and a variance of 0.309 with a minimum range of 3 and maximum of 5. Supply chain strategy is developed carefully based on market situations has a mean of 4.33 and a standard deviation of 0.758 which also indicates that there is a high spread of the data, a variance of 0.575 shows a minimum range of 2 and a maximum of 5. Our company review its strategy regularly has a mean of 3.57, a standard deviation of 0.898 which is higher than all of the others as it indicates a corresponding higher variability of .806 with a minimum value of 2 and maximum of 5. This shows that the company usually review its strategy. Also, our supply chain strategy is aligned with corporate strategy of 4.07 as the mean, and a lower standard deviation of 0.450 and a corresponding smaller variability of 0.202 with a minimum value of 2 and maximum value of 5. Supply chain is clearly supported by functional strategies with a mean of 3.77, which is higher than the company review strategy but less than the other functional strategies, a standard deviation of 0.898 which shows extremely high variability with the same minimum value of 2 and maximum value of 5. This also shows that the supply chain does not work in isolation of other functional units but they are intertwined with relevant strategies for it to function correctly.

Figure 4.5 shows that supply chain strategy is clearly defined as it has major impact in the company and it also shows that it strategies are based on market situations, this means that every market situation has its own strategy and therefore it must be defined properly at the initial stage for it to be able to yield a better result. It is also seen that these strategies are supported by functional strategies that are able to give the desired results and thus align with corporate strategy. However, it also shows that it is very important for companies to review their strategies regularly to match daily trends in the market.

4.5.2 The Extent of Supply Chain management on Enabling Infrastructure

The research sought to investigate the different supply chain management on enabling infrastructure which comprises of three sub-variables namely: information communication and technology, human resource, and organizational

structure. They were measured through the use of a 5-point Likert. A descriptive statistic was used to exhibit the fitted for the data and the results.

Table 4. 8: Mean, Standard deviation, and Variance of Enabling Infrastructure

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Information Communication and Technology	30	2.00	2.57	4.57	3.8330	.49410	.244
Human Resources	30	2.14	2.86	5.00	4.1290	.53360	.285
Organizational Structure	30	1.84	2.83	4.67	4.0890	.48783	.238
Valid N (listwise)	30						

Source: Research data (2019)

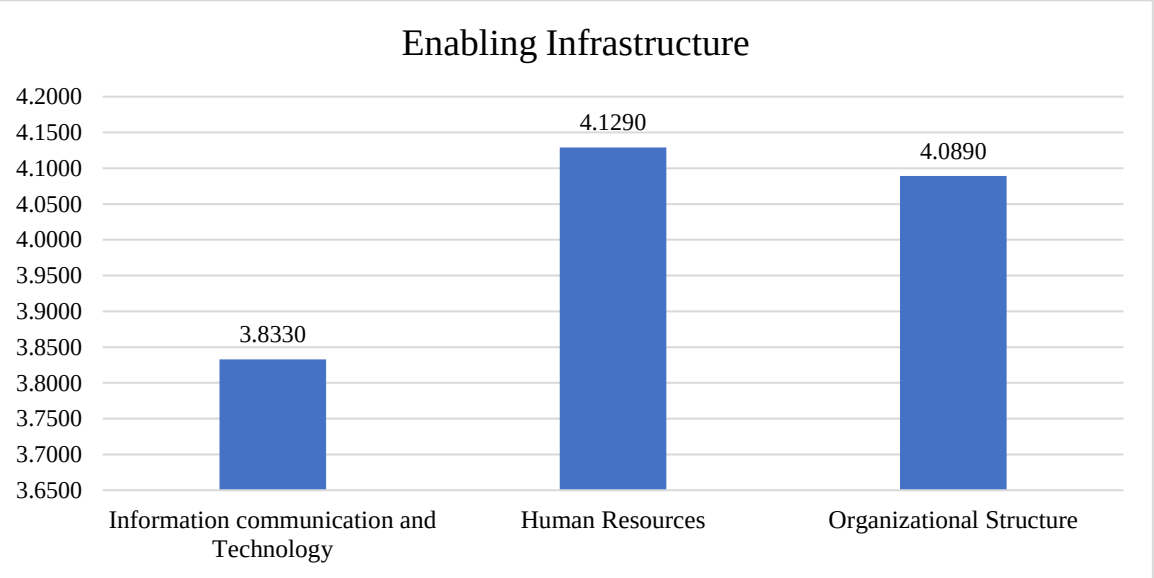

Figure 4. 6: Mean of Enabling Infrastructure

Table 4.8 shows the mean, standard deviation, and variance for each of the three measurement points: Information Communication and Technology, Human Resource, and Organizational Structure. It has a sample size of 30 respondents in which information communication and technology have a minimum value of 2.57 and a maximum value of 4.57. The respondents disagree that the company provides training for new employees on new technologies (3.37) as shown in appendix 2. ICT has the smallest mean of 3.833 as compared to human resource which has the

highest mean of 4.129. This is as a result that the company have few employees who have graduated with a supply chain degree (4.37) as it is also shown in appendix 2. Organizational structure has a mean of 4.089. Information communication and technology has a standard deviation of 0.4941 as compared to human resource which has a standard deviation of 0.534, and organizational structure of 0.488. It is evenly distributed with a variance of 0.244 for information communication and technology, 0.285 for human resource, and 0.238 for organizational structure. It is clearly shown on its bar chart with its mean value.

4.5.3 The extent of supply chain management on process

The research sought to establish the supply chain on the operations of process. It is a unique activity that can be executed in order to meet a pre-defined outcome which is to fulfil customer orders. The respondents were asked to indicate their level of agreement with various statements based on their experience working with the company on a scale of 1-5 where 1 strongly disagreed and 5 strongly agreed. The summary statistics of the responses are provided in table 4.9.

Table 4. 9: Mean, Standard deviation, and Variance of Process

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Customer Relationship Management	30	1.43	3.14	4.57	3.9757	.39774	.158
Warehouse Management	30	1.20	3.80	5.00	4.5400	.26859	.072
Delivery	30	2.40	2.20	4.60	3.3933	.56686	.321
Sourcing	30	1.28	3.29	4.57	4.1627	.29250	.086
Planning	30	1.14	3.57	4.71	4.2093	.29497	.087
Valid N (listwise)	30						

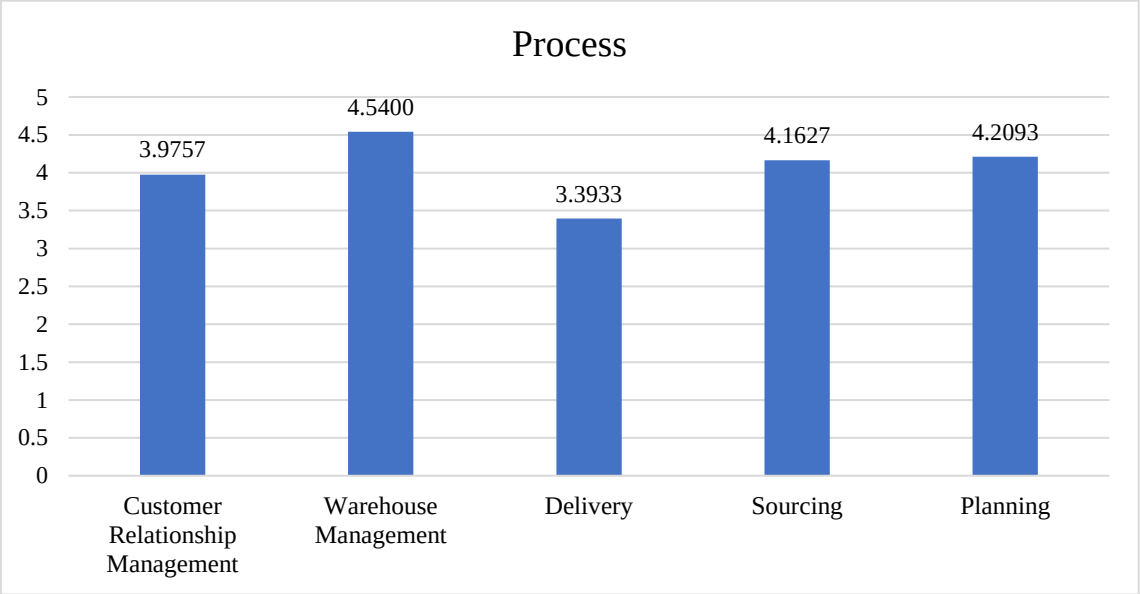

Figure 4. 7: Mean of Process

The descriptive statistics, displayed in table 4.9, provide the mean, standard deviation, and the variance for each of the five variables (Customer Relationship Management, Warehouse Management, Delivery, Sourcing, and Planning). The measure of central tendency for customer relationship management which has a mean of 3.9757, while the measure of variability for standard deviation is 0.39774 and the variance is 0.158. It has a minimum value of 3.14 and a maximum value of 4.57 with a range of 1.43. Warehouse management has the highest mean of 4.5400 when compared to the others, while the variability for its standard deviation is 0.26859 and its variance is 0.072. It has a minimum value of 3.80 and a maximum value of 5.00. The respondent agreed that the warehouse management of the company is responsible for the storage and movement of materials within the organization (4.83) as it's attached in appendix 2. Delivery has a mean of 3.3933 which is the smallest when compared to the others. It has a standard deviation and a variance of 0.56686 and 0.321 respectively. The respondents disagree that the organization distribution centres are closer to the customers (2.13) as shown in appendix 2. The mean for sourcing is 4.1627 with a standard deviation and a

variance of 0.29250 and 0.086 respectively, while the mean for Planning is 4.2093, a standard deviation and a variance of 0.29497 and 0.87 respectively.

4.5.4 The impact of supply chain management on performance

The research sought to establish the performance of SLBC with the following variables reliability, responsiveness, and flexibility. It has to do with the understanding of the overall outcome of the supply chain of the company by recording their performance and also compare their achievements. The respondents were asked to indicate their level of agreement with different statements on performance on a scale of 1-5. The mean, standard deviation, and the variance ratings were then computed. The table below shows the outputs.

Table 4. 10: Mean, Standard deviation, and Variance of Performance

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Reliability	30	1.57	3.14	4.71	4.3140	.36956	.137
Responsiveness	30	1.42	3.29	4.71	3.9053	.37912	.144
Flexibility	30	1.14	3.43	4.57	4.0103	.31018	.096
Valid N (listwise)	30						

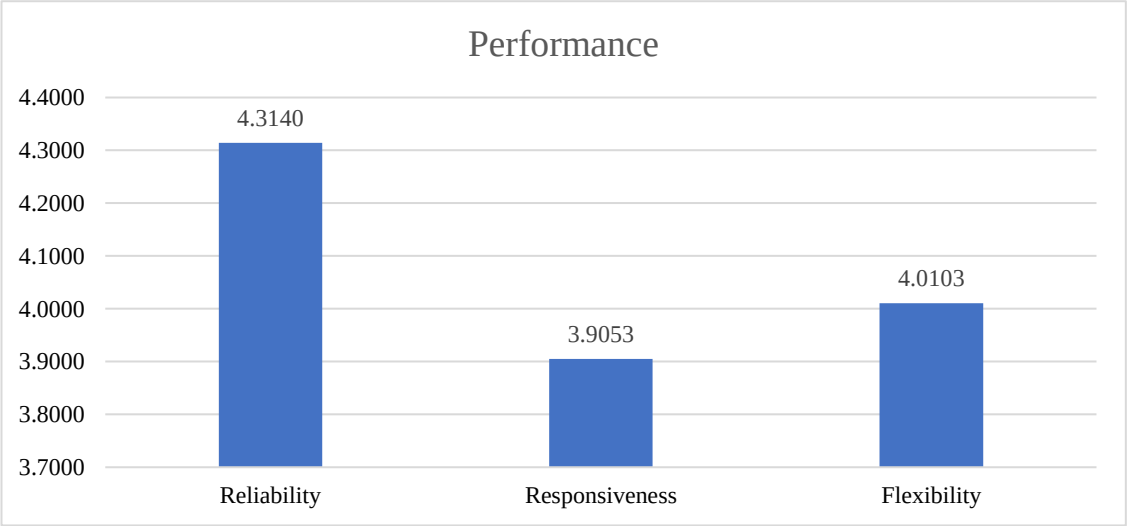

Figure 4. 8: Mean of Performance

Table 4.10 and Figure 4.8 shows the descriptive statistics for reliability, responsiveness, and flexibility of 30 respondents. Reliability exhibits a range of

values from 3.14 to 4.71 with the highest mean of 4.3140 because respondents agreed that they deliver the kind of products needed by their customers (4.70) when compared to responsiveness which has the smallest mean of 3.9053 because respondents disagreed that they are not the first in the market in introducing new products (2.77) as illustrated in appendix 2, and a mean of 4.0103 for flexibility. Reliability has a standard deviation of 0.36956 as compared to responsiveness which has 0.37912 and flexibility of 0.31018. Reliability has a variance of 0.137 while responsiveness and flexibility have a variance of 0.144 and 0.096 respectively. From the results of the whole organization, performance highly relies on reliability than responsiveness and flexibility.

4.5.5 Improvement process implementation of SCM for the variables

This research sought to establish the different SCM process on the impact of SLBC that had been adopted by different institutions. The respondents were asked to rate the variables base on their level of agreement with different statements on a scale of 1-5. The outputs of the responses are provided in table 4.11.

Table 4.11:Mean of Strategy, Enabling Infrastructure, Process, and Performance

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Strategy and Design	30	1.60	3.00	4.60	4.0733	.40166	.161
Enabling Infrastructure	30	1.85	2.75	4.60	4.0170	.41836	.175
Process	30	.86	3.64	4.50	4.0570	.20785	.043
Performance	30	1.19	3.33	4.52	4.0760	.27535	.076
Valid N (listwise)	30						

Source: Research data (2019)

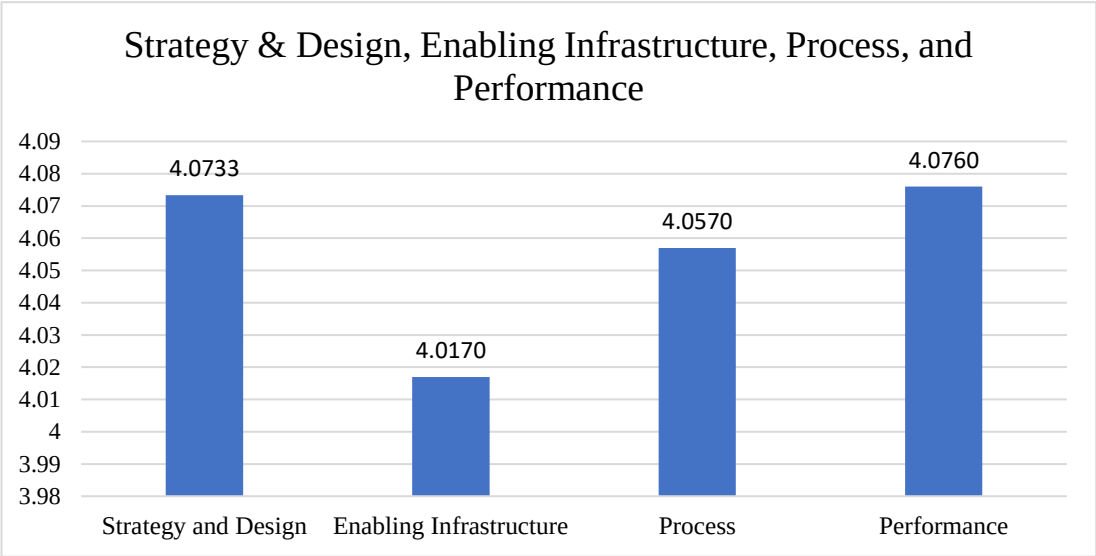

Figure 4. 9: Strategy & Design, Enabling Infrastructure, Process, and Performance

Strategy and design, enabling infrastructure, Process, and Performance from table 4.11, shows the way in which the following variables can be adopted either to a great extent or to a moderate extent. A variable(s) can be adapted to a great extent if (mean lies between 3.51 and 5) and for a moderate extent the mean must lie between 2.51 and 3.5. From the results, Strategy and design have a mean of 4.0733, Enabling infrastructure has a mean of 4.0170, Process has a mean of 4.0570, and Performance has a mean of 4.0760. These findings show that the SCM improvement process implementation has been adopted and implemented to a great extent, where there is no moderate extent from the results. It doesn't mean that the SLBC did not have grounds to cover in terms of improving the company SC.

4.6 The important and relationship of SCM on the performance of SLBC

In an extent to know the relationship that exists among the following variables: strategy and design, Enabling infrastructure, Process, and Performance. A correlation analysis tests was done in order to know the relationship between two continuous variables in terms of how strong the relationship is, and in what direction the relationship goes. The strength of the relationship lies between -1 to +1. In order to know whether the relationship is strong or weak, the research use this rule of

thumb. From -1 to 1 the correlation is strong, from -0.9 to -0.7 up to 0.7 to 0.9 the correlation is strong, from -0.6 to -0.4 up to 0.4 to 0.6 the correlation is moderate, and from -0.3 to -0.1 up to 0.1 to 0.3 the correlation is weak. The negative and positive reflect the direction of the relationship. A negative correlation means that as the values of one variable increases, the value of the other variable decreases, while for positive correlation means that as one value of one variable increases, the value of the other variable will also increase.

Table 4. 12: Correlation for the different variables

		Strategy and Design	Enabling Infrastructure	Process	Performance
Strategy and Design	Pearson Correlation	1	.618**	.203	.140
	Sig. (2-tailed)		.000	.283	.461
	N	30	30	30	30
Enabling Infrastructure	Pearson Correlation	.618**	1	.500**	.596**
	Sig. (2-tailed)	.000		.005	.001
	N	30	30	30	30
Process	Pearson Correlation	.203	.500**	1	.821**
	Sig. (2-tailed)	.283	.005		.000
	N	30	30	30	30
Performance	Pearson Correlation	.140	.596**	.821**	1
	Sig. (2-tailed)	.461	.001	.000	
	N	30	30	30	30

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

The correction coefficient for Strategy design and enabling infrastructure is 0.618 which is positive. Concerning the strength of the correlation, 0.618 can be said to be strong. Sign (2- tailed) shows the P- value for the correlation. Since the P-value (0.000) is less than (0.05) suggest that the correlation is statistically significant at 5% level.

The correlation between Enabling infrastructure and process is 0.500 which is positive. The strength of the correlation 0.500, in this case, it can be said to be

moderate. Since the P-value (0.005) is less than 0.05, it indicates that the correlation is significant at 5% level.

The correlation coefficient that exists between Enabling infrastructure and performance is positive 0.596. Since the P-value (0.001) is smaller than 0.05, it means that the correlation is statistically significant at a level of 5%. The result shows that there is a moderate linear relation between enabling infrastructure and performance.

The correlation coefficient for process and performance is 0.821 positive which means that the relationship between process and performance has positive properties. The strength of the correlation is strong. Because the P-value (0.000) is smaller than (0.05). This implies that the correlation between process and performance is statistically significant at 5% level

A Pearson correlation was used to assess the predictive relationship between the following factors: strategy and design, enabling infrastructure, process, and performance with the overall performance of the company. Finding shows a positive correlation among the factors toward the performance of the company. Process was found to have a very strong correlation with performance (0.821), enabling infrastructure and performance (0.596) as it shown in Table 4.12. The output clearly shows that the factors have a strong impact on the aspect of productivity, profitability and the overall performance. The correlation outputs between the following factors are: strategy design and strategy design (r = 1), enabling infrastructure and enabling infrastructure (r = 1), process and process (r =1), performance and performance (r =1).

4.7 Evaluate the problem faced by the SLBC while they adopt SCM

The study further sought to establish the challenges faced by the organization while the adoption of SCM practices by the SLBC. The respondents were asked in their opinion to indicate the problem(s) which they think is a SCM issue that the

company faced. According to the responses, the respondents agreed that there are problems within the company. The table below shows the department of the respondent's individual opinion and the problems faced by the company.

Table 4.13: Respondents department and their problem(s) highlighted

Respondents department	**Problem(s) highlighted**
Production/ Technical	Lack of branch Production centre
Logistics/ Warehouse	Inadequate number of distributors
Marketing/ Commercial	Long supply lead time. Lack of key supply outlets.
Supervisor	Lack of top management officers to give deserved attention to the functions of the suppliers and distributors
Admin/ Human Resource	Old and outdated equipment and machinery, and poor technology

From the opinion of the respondents, they believe the highlighted problems have an adverse effect on the company objective. It had led to a reduction in the company's profit and even led to a loss.

The respondent from the Production/Technical department mentioned that

> *"The company lacks branch production centres which had caused delay in the company production process and the supply of the company's customers on time particularly those that stay in the provinces. This problem of our one production centre has a negative impact on the output of the company objective, and that in most case we failed to supply our customers at the agreed time. As a senior member in the production department and considering the challenges that we are still facing, the management of the company should try to decentralized the company production processes by ensuring that we open branch production centres in other areas to satisfy our customers and on time and to gain competitive advantage in the market".*

The respondent from the Logistics/ Warehouse department mentioned that

> *"The company have inadequate number of distributors which normally lead to the scarce of the company's product in the market. This problem of inadequate distributors had caused and it still causing a delay in reaching a wide range of our customers countrywide because of the low number of our distributors. This problem had also caused scarcity of our company's product particularly during the festive seasons as a result of too many channels within the company, and the agents within the distribution channel in most cases hold on to the stock with the anticipation of high prices of the products. As a company, we need to seriously look into this problem in order to gain competitive advantage in the market. There is also a problem of warehousing where the company branch warehouses are very small".*

The contact person from the Marketing/ Commercial department stated in his opinion that

> *"The company have a problem of long supply lead time and also the company lacks key supply outlets. We always receive an order from our customers with the hope of our customers that they will receive the products at the date agreed, but it is saddening to say that in most cases we failed to supply them at the agreed date/time. This is because of the lack of supply outlets. This problem in most cases has led to a loss of customers to our main competitors. As the leading manufacturing company in beverage products, we need to create more supply outlets all over the country where customers can easily access the product of the company and reduce supply lead time in order to maintain our position as the number one leading production company in Sierra Leone".*

The Administration/ Human Resource department respondent did mention that

> *"The company has a problem of poor technology and outdated equipment and machinery. These are major problems and without the function of these*

equipment and machinery production will not take place. The old and outdated equipment and machinery delay the company production process by frequent breakdown when production is ongoing. The problem of poor technology of our company contributed to the long supply lead time of our customers. Management of the company needs to ensure all those old and outdated equipment and machinery are replaced. We also have a problem of not training our employees on new technologies".

The respondent from the Supervisors department stated that

"The company lacks top management officials to give deserved attention to the functions of the suppliers and distributors. The lack of sufficient staff is also a major issue that we as a company we are facing. Management integration with the suppliers and distributors will be able to minimize the problems of the company. There are other problems that have affected the operations of the company that had led to a loss of customers to competitors, delay in the production process, reduction in the company's profit, increase the chance of competitors to gain competitive advantage over the company. We should improve on the supply of raw materials, manufacturing where the management needs to change the outdated equipment and bring in new technological innovations, and the distribution and logistics".

4.8 Discussion

It has proven that the SLBC supply chain management has a great impact on performance. A drastic and rapid improvement of the company supply chain has to do with the productivity and profitability. Therefore, management of the company should make sure that they minimize cost and satisfying the needs of their customers. Since supply chain processes affect both the speed and efficiency service delivery of the company, it is important for management of the company to strengthening suppliers' relations for systematic and interaction with suppliers and other lines of business. In the analyses from the empirical investigation on

improving competitive advantage and organizational performance, the research investigates the performance of Sierra Leone Bottling Company (SLBC) where a survey instrument was developed. A statistical software for social scientist (SPSS) 23 was employed. The average means score obtained from the four variables (i.e. strategy and design, enabling infrastructure, process, performance) were rated high at means of 4.0733, 4.0170, 4.0570, and 4.0760 respectively. Looking at the results, it is however concluded that performance has the highest mean value when compare to the others while enabling infrastructure has the lowest mean value. The supply chain management in the Sierra Leone Bottling Company was effective as well as performing well with all the four variables which clearly show the spread of the data and how far and close, they are from each other. In looking at the relationship among the variables, a Pearson correlation was used to assess the relationship. The result shows a positive correlation among factors towards the performance of the company. Strategy and design and enabling infrastructure have a positive correlation. The findings also show that process and performance have a very strong positive correlation between them which significantly impact performance. The out puts are statistically significant at a level of 5%

Discussion on the challenges faced by the Sierra Leone Bottling Company while adopting supply chain management. The company in most cases don't supply their customers on time which is as a result of the old and outdated equipment that they are using which normally lead to frequently breakdown. They need to change the old machines with new in order to meet the demand of their customers. Another problem why the company do not supply their customers on time is because the company's distribution centres are far away from their customers. The need to build centres where customers can easily have access to them. Having just a single production centre slow the production and have a negative impact which leads to loss of customers to their competitors. Management of the company needs the supervision or the attention of top management to the functions of the suppliers and the distributors. Management should ensure they trained employees on new technologies and also incorporate enterprise resource planning.

4.9 Chapter Summary

This chapter had presented data collected through the prescribed methodology, and the data have been presented the data for analysis and interpretations. The interpretations have been attached to each area analysed. It is believed that results provided in this chapter will aid in summarizing findings, taking a concluding stance and given recommendations as to how to improve on the supply chain management process to experience a meaningful impact on the process to a manufacturing organization. The preceding chapter, therefore, give a summary of findings, recommendations and conclusion.

CHAPTER 5
FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

This chapter gives summary of findings, recommendations and conclusions. It is prepared to give readers a summary of the findings obtained, analyzed, and interpreted as per research objectives of the study, the conclusion is drawn from those findings which clearly indicate a stance the researcher has taken in support of the research topic, and finally make recommendations for future study.

5.1 Summary of Findings

The research was guided by three key objectives namely, to evaluate the SCM of SLBC in order to make rapid and drastic improvement in a supply chain process, to assess the importance of SCM on the performance of SLBC, and to evaluate the problems/challenges faced by SLBC while adopting SCM. The following were the major findings obtained from the data analysis**.** In relation to the evaluation improvement of the company supply chain management process, respondents have different views about the entire performance process of SLBC operations. The result of the investigation shows that strategy and design has a mean of 4.0733, Enabling infrastructure which include (information communication and technology, human resource, and organizational structure) have the smallest mean of 4.0170, Process which include (customer relationship management, warehouse management, delivery, sourcing, and planning) has a mean of 4.0570, and finally performance which also comprises of (reliability, responsiveness, and flexibility) have the highest mean of 4.0760. It was found that SCM process had been adopted and implemented by the SLBC in order to make a drastic improvement. The findings show that the SCM improvement process implementation has been adopted and implemented to a great extent, where there is no moderate extent from the results. It doesn't mean that the SLBC did not have grounds to cover in terms of improving the company supply chain. It is worth noting that there are some still lacking behind.

Concerning the important and the relationship between the SCM process and the organization performance. The strength of the relationship lies between -1 to +1, and in determining whether the relationship is strong or weak, the research use this rule of thumb. From negative one to positive one shows that the relationship is perfect, from negative 0.9 to 0.7 up to positive 0.7 to 0.9 shows that the relationship is strong, from negative 0.6 to 0.4 up to positive 0.4 to o.6 shows that the relationship is moderate, while from negative 0.3 to 0.1 up to 0.1 to 0.3 shows a weak relationship. Two sets of variables out of the four, strategy & design and enabling infrastructure have a strong relationship, process & performance were also found to have strong statistically significant relationships with each other. The other two sets of variables, namely process and performance were found to have moderate relationships with enabling infrastructure which were also statistically significant. All the relationship that occurred among the different variables has a positive relationship which means that as one value of one variable increases, the value of the other variable also increases.

Finally, several setbacks face the Sierra Leone Bottling Company in the process of investigating the impact of supply chain management. These include the failure on the part of top management officials to give deserved attention to the functions of the suppliers and distributors, delays in the clearing of materials at the quay, poor technology, old and outdated equipment and machinery, lack of branch production centre, long lead time, inadequate number of distributors, lack of supply outlets.

5.2 Recommendations

To improve performance, profitability, productivity and the success of proper supply chain management practices with the Sierra Leone Bottling Company, the following recommendations have been put forward by the researcher.

- From the output, the SLBC should strengthen the company SCM by ensuring they pay more attention on strategy and design, enabling infrastructure, process, and performance in order to rapidly improve the performance of the company.

- Management of the company should ensure they decentralize their production process by extending production branch factories in the provinces
- Management of the company should replace the old and outdated equipment and machinery, and also introducing technological innovations in the company production process. By also ensure they incorporate enterprise resource planning.
- The company need to build more outlet throughout the country, where customers can easily have access to the company products.
- Because of the low result obtained from ICT, it is highly recommended that management should provide frequent training for the employees on new technologies and also ensure they move with the new technological trend.
- In order to avoid supply management challenges arising from the suppliers in future contracts, management of SLBC should consider a supplier who has demonstrated reliability in their previous contract by fulfilling its obligation of the contract.
- From the results obtain in the human resource department, it is recommended that the human resource should frequently embark on providing training to staff members on the best practices of SCM in form of workshops and seminars in order to overcome the challenges of lack of awareness on the process of the company operations
- From the output of the correlation, out of four variables, only two were found to have a strong and positive relationship. Management should ensure that there is a cordial relationship that exists between the manufacturer (buyer) and the supplier, manufacturer and distributors, and they should have an intermediary that exist between the company and it suppliers by ensuring that they receive their supplies on time.

5.3 Conclusions

Based on the topic under review which problem statement was developed with a specific objective set out upon which a particular methodology was drowned, data collected were presented, analyzed and interpreted. From the above findings, the researcher has come to the following conclusions. Firstly, the SCM systems have a very great impact on the aspect of productivity, profitability and the overall performance of the operations of SLBC. Secondly, it was concluded that strategy design and enabling infrastructure, plus process and performance have a strong positive relationship with the Sierra Leone Bottling Company while process and performance have a moderate relationship with enabling infrastructure. Thirdly, the researcher concluded that the SLBC faced some challenges in their bid to implement SCM best practices. These include the failure on the part of top management officials to give deserved attention to the functions of the suppliers and distributors, delays in the clearing of materials at the quay, poor technology, old and outdated equipment and machinery, lack of branch production centre, long lead time, and inadequate number of distributors. Finally, the researcher also believes that the operations of the unit is caused by several problems but have hastened to suggest recommendations through which these problems can be mitigated.

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APPENDIX 1: QUESTIONNAIRE

Dear Respondent,

My name is Alimamy Kamara, a student in the department of Industrial and Systems Engineering major in Operations and Supply chain Engineering, Sepuluh Nopember Institute of Technology (ITS), Surabaya- Indonesia. I am carrying out research on the impact of Supply Chain management on the performance of manufacturing industries in Sierra Leone, taking Sierra Leone Bottling Company (SLBC) as a case study. The information you provide will be confidential and used strictly for the purposes of this study.

PART A: GENERAL INFORMATION

1. Name.....

2. Sex: (a). Male (b). Female

3. Educational Level:

(a) Secondary (b) Vocational (c) Certificate, Diploma, BSc, Masters, PhD

4. What is your designation?

(a) Admin/HR (b) Manager (c) Production/ Technical Officer (d) Marketing/ Commercial Officer (e) Finance Officer (f) Logistics/ Warehouse Officer (g) Supervisor

5. How many years have you held this position?

(a) 1-5 years (b) 5-10 years (c) Over 10 years

6. Indicate your work experience

(a) Below 1-year (b) 2 to 5 years (c) 5 to 15 years (d) Above 15 years

The following are some of the factors affecting supply chain performance in manufacturing companies. Kindly indicate to what extent the following factors affect the Supply Chain performance. In a scale of 1-5, where 1= Strongly disagree, 2= Disagree 3= Uncertain 4= Agree 5= Strongly agree

SECTION B: STRATEGY AND DESIGN

Please indicate your level of agreement on the following statements concerning strategy and design based on your experience working in this company. The rating is in a scale of 1-5 (1=Strongly disagree, 2= Disagree, 3= Uncertain 4= Agree 5= Strongly agree)

No	**STRATEGY AND DESIGN**	1	2	3	4	5
1	Our supply chain strategy is clearly defined					
2	Supply chain strategy is developed carefully based on market situations					
3	Our company review supply chain strategy regularly					
4	Our supply chain strategy is aligned with corporate strategy					
5	Our supply chain strategy is supported by functional strategies					

SECTION C: ENABLING INFRASTRUCTURE

Please indicate your level of agreement on the following statements concerning Enabling Infrastructure based on your experience working in this company. The rating is in a scale of 1-5 (1=Strongly disagree, 2= Disagree, 3= Uncertain 4= Agree 5= Strongly agree)

No	**Information Communication and Technology**	1	2	3	4	5
1	Our organization moves with the current technological trend					
2	Our organization provide training for employees on new technologies					
3	Our ICT enables the organization to process and analyze data on time					
4	Our organization moves heavily on IT					
5	We use our IT systems to do electronic data interchange (EDI)					
6	ICT enables the easy access and identification of inventories in our organization					
7	ICT helps our organization to write report on time					
No	**Human Resources**	1	2	3	4	5
1	Our employees have enough training					
2	We have few employees who are certified in supply chain professionals.					
3	We have few employees who have graduated with supply chain degree/major.					
4	Our organization places the right person in the right job					
5	The human resource strategy is aligned with the company's strategy in the organization					
6	Selection of candidate in our organization is strictly based on merit					
7	The contents of our training programs organized by the human resources are always relevant to the changing needs of our organization jobs and business					

NO	**Organizational Structure**	1	2	3	4	5
1	The goals of our organization are clearly stated					
2	The organization introduces enough new policies and procedures					
3	The leadership norms of our organization help its progress					
4	The division of labor in our organization is intended to help it reach its goals					
5	Our organization's planning and control efforts are helpful to its growth and development					
6	Our organization separate workers by task and ranked them based on Seniority and experience					

SECTION D: PROCESS

Please indicate your level of agreement on the following statements concerning Process based on your experience working in this company. The rating is in a scale of 1-5 (1=Strongly disagree, 2= Disagree, 3= Uncertain 4= Agree 5= Strongly agree)

No	**Customer Relationship Management (CRM)**	1	2	3	4	5
1	Our organization often makes follow-ups with our customers for service/ quality response					
2	Our organization often evaluates the complaints of our customers					
3	Our organization responds to customers issues before the customer realizes the problem/ issue					
4	Our customer service representatives respond to customer service issues with					

	officially developed response procedures					
5	Our organization often measures and evaluate customers satisfaction					
6	Our organization periodically evaluates the importance of its relationship with its customers					
7	Our organization frequently interacts with its customers in order to set it reliability and responsiveness					
No	**Warehouse Management**	1	2	3	4	5
1	The warehouse management is responsible for the storage and movement of materials within the organization					
2	The warehouse management of our organization record the location of each product by room or shelf					
3	Our organization warehouse keeps track of qualities on hand of each product					
4	The warehouse management system plays a vital role for the effective overall supply chain performance of our organization					
5	Our organization checks the received order against the actual purchase order					
NO	**Delivery**	1	2	3	4	5
1	Our organization deliver products at the time specified by the customer					
2	Our organization distribution centres are closer to customers					
3	Our organization have remedies to potential delivery problem such as breakdown, natural disaster					

4	Our organization consistently meet schedule delivery times					
5	Delivery lead time increase the supply chain performance of our company					
NO	**Sourcing**	1	2	3	4	5
1	Our company frequently inform our suppliers with their performance records					
2	We have good relationship with our suppliers					
3	Our company always maintain alternative sources of supply					
4	The supplier of our company has high level of reliability					
5	We manage our supply risk systematically					
6	We develop suppliers for better capability					
7	Our company has formal performance goals relating to the outsourcing practice					
NO	**Planning**	1	2	3	4	5
1	Our company has a strategic plan for operating all its events					
2	Our company strategic plan has a timeline for implementation					
3	We do a collaborative planning with our suppliers					
4	Our company do a collaborative forecasting and demand management plan					
5	Our company strategic plan is reviewed periodically for improvement					
6	Our company have a safety stock plan					
7	Our company has an inventory plan of our suppliers/ partners					

SECTION E: PERFORMANCE

Please indicate your level of agreement on the following statements concerning performance based on your experience working in this company. The rating is in a scale of 1-5 (1= Strongly disagree, 2= Disagree, 3= Uncertain 4= Agree 5= Strongly agree)

No	**Reliability**	1	2	3	4	5
1	On-time delivery is extremely high					
2	Our organization deliver goods to its customers on-time, at the right quantity and at the right quality					
3	Our organization considers quality as a major criterion in selecting supplier					
4	We offer dependable and consistent in solving customer's complaints					
5	We deliver the kind of products needed by our customers					
6	The products of our organization are always available and reliable					
7	Our organization keep all it records accurately					
No	**Responsiveness**	1	2	3	4	5
1	We deliver product to market quickly					
2	We have time-to market lower than industry average					
3	We are first in the market in introducing new products					
4	There is shorter supply lead-time towards service delivery					
5	Our employees are always willing to help customers					
6	Customers complaints are handled with utmost attention					
7	Our employees are always ready to respond to customers request promptly					

NO	**Flexibility**	1	2	3	4	5
1	Our organization can respond to urgent request					
2	Our organization can increase the capacity quite easily					
3	Our organization can adjust the shipping schedule easily					
4	Our organization has the capacity to respond and meet to the entrant of new products, markets or new competitors					
5	Our organization can urgently respond in order to meet it demand during poor supply performance					
6	Our company can quickly adapt to changes in demand in the market					
7	Our organization can use different mode of delivery service					

SECTION F: PROBLEMS FACED BY THE COMPANY

In your opinion, what are the major challenges that your organization has faced in the implementation of supply chain management?

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APPENDIX 2

Means, standard deviation, and Variance of Strategy and Design

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Our supply chain strategy is clearly defined.	30	2	3	5	4.63	.556	.309
Supply chain strategy is developed carefully based on market situations.	30	3	2	5	4.33	.758	.575
Our company review supply chain strategy regularly.	30	3	2	5	3.57	.898	.806
Our supply chain strategy is aligned with corporate strategy.	30	2	3	5	4.07	.450	.202
Our supply chain strategy is supported by functional strategies.	30	3	2	5	3.77	.898	.806
Valid N (listwise)	30						

Means, standard deviation, and Variance of Information Communication & Technology

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Our organization moves with the current technological trend.	30	4	1	5	3.93	1.112	1.237
Our organization provide training for employees on new technologies.	30	3	2	5	3.37	1.159	1.344
Our ICT enables the organization to process and analyze data on time.	30	3	2	5	3.93	.740	.547
Our organization moves heavily on IT.	30	4	1	5	3.43	1.194	1.426
We use our IT systems to do electronic data interchange (EDI).	30	3	2	5	4.13	.937	.878
ICT enables the easy access and identification of inventories in our organization.	30	3	2	5	4.20	.664	.441
ICT helps our organization to write report on time.	30	3	2	5	3.83	.592	.351
Valid N (listwise).	30						

Means, standard deviation, and Variance of Human Resources

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Our employees have enough training	30	4	1	5	3.73	1.015	1.030
We have few employees who are certified in supply chain professionals.	30	3	2	5	4.17	.874	.764
We have few employees who have graduated with supply chain degree/major.	30	3	2	5	4.37	.809	.654
Our organization places the right person in the right job	30	3	2	5	4.20	.805	.648
The human resource strategy is aligned with the company's strategy in the organization	30	3	2	5	4.17	.913	.833
Selection of candidate in our organization is strictly based on merit	30	3	2	5	4.20	.887	.786
The contents of our training programs organized by the human resources are always relevant to the changing needs of our organization jobs and business	30	3	2	5	4.07	.691	.478
Valid N (listwise)	30						

Means, standard deviation, and Variance of Organizational Structure

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
The goals of our organization are clearly stated	30	1	4	5	4.67	.479	.230
The organization introduces enough new policies and procedures	30	3	2	5	3.37	1.033	1.068
The leadership norms of our organization help its progress	30	4	1	5	4.03	1.189	1.413
The division of labor in our organization is intended to help it reach its goals	30	3	2	5	4.00	.743	.552
Our organization's planning and control efforts are helpful to its growth and development	30	3	2	5	4.20	.664	.441
Our organization separate workers by task and ranked them base on Seniority and experience	30	4	1	5	4.27	.828	.685
Valid N (listwise)	30						

Means, standard deviation, and Variance of Customer Relationship Management

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Our organization often makes follow-ups with our customers for service/ quality response	30	4	1	5	3.93	1.048	1.099
Our organization often evaluates the complaints of our customers	30	3	2	5	3.93	.907	.823
Our organization responds to customers issues before the customer realizes the problem/ issue	30	4	1	5	3.33	1.155	1.333
Our customer service representatives respond to customer service issues with officially developed response procedures	30	3	2	5	3.77	.817	.668
Our organization often measures and evaluate customers satisfaction	30	3	2	5	4.23	.817	.668
Our organization periodically evaluates the importance of its relationship with its customers	30	2	3	5	4.17	.592	.351
Our organization frequently interacts with its customers in order to set it reliability and responsiveness	30	2	3	5	4.47	.629	.395
Valid N (listwise)	30						

Means, standard deviation, and Variance of Warehouse Management

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
The warehouse management is responsible for the storage and movement of materials within the organization	30	1	4	5	4.83	.379	.144
The warehouse management of our organization record the location of each product by room or shelf	30	3	2	5	4.57	.679	.461
Our organization warehouse keeps track of qualities on hand of each product	30	2	3	5	4.33	.547	.299
The warehouse management system plays a vital role for the effective overall supply chain performance of our organization	30	1	4	5	4.33	.479	.230
Our organization checks the received order against the actual purchase order	30	2	3	5	4.63	.556	.309
Valid N (listwise)	30						

Means, standard deviation, and Variance of Delivery

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Our organization deliver products at the time specified by the customer	30	3	2	5	3.73	1.202	1.444
Our organization distribution centers are closer to customers	30	4	1	5	2.13	1.279	1.637
Our organization have remedies to potential delivery problem such as breakdown, natural disaster	30	4	1	5	3.27	1.112	1.237
Our organization consistently meet schedule delivery times	30	3	2	5	3.73	.785	.616
Delivery lead time increase the supply chain performance of our company	30	3	2	5	4.10	.662	.438
Valid N (listwise)	30						

Means, standard deviation, and Variance of Sourcing

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Our company frequently inform our suppliers with their performance records	30	3	2	5	3.53	.819	.671
We have good relationship with our suppliers	30	3	2	5	4.43	.774	.599
Our company always maintain alternative sources of supply	30	1	4	5	4.37	.490	.240
The supplier of our company has high level of reliability	30	2	3	5	4.47	.571	.326
We manage our supply risk systematically	30	2	3	5	4.37	.556	.309
We develop suppliers for better capability	30	2	3	5	4.00	.371	.138
Our company has formal performance goals relating to the outsourcing practice	30	2	3	5	3.97	.615	.378
Valid N (listwise)	30						

Means, standard deviation, and Variance of Planning

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Our company has a strategic plan for operating all its events	30	1	4	5	4.53	.507	.257
Our company strategic plan has a timeline for implementation	30	1	4	5	4.53	.507	.257
We do a collaborative planning with our suppliers	30	3	2	5	4.00	.788	.621
Our company do a collaborative forecasting and demand management plan	30	2	3	5	4.07	.583	.340
Our company strategic plan is reviewed periodically for improvement	30	2	3	5	4.50	.630	.397
Our company have a safety stock plan	30	3	2	5	4.07	.640	.409
Our company has an inventory plan of our suppliers/ partners	30	2	2	4	3.77	.504	.254
Valid N (listwise)	30						

Means, standard deviation, and Variance of Reliability

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
On-time delivery is extremely high	30	3	2	5	4.00	.695	.483
Our organization deliver goods to its customers on-time, at the right quantity and at the right quality	30	3	2	5	4.37	.718	.516
Our organization considers quality as a major criterion in selecting supplier	30	1	4	5	4.63	.490	.240
We offer dependable and consistent in solving customer's complaints	30	3	2	5	4.00	.587	.345
We deliver the kind of products needed by our customers	30	2	3	5	4.70	.535	.286
The products of our organization are always available and reliable	30	3	2	5	4.23	.817	.668
Our organization keep all it records accurately	30	3	2	5	4.27	.640	.409
Valid N (listwise)	30						

Means, standard deviation, and Variance of Responsiveness

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
We deliver product to market quickly	30	3	2	5	3.77	.935	.875
We have time-to market lower than industry average	30	3	2	5	3.63	.850	.723
We are first in the market in introducing new products	30	4	1	5	2.77	1.305	1.702
There is shorter supply lead-time towards service delivery	30	3	2	5	3.93	.828	.685
Our employees are always willing to help customers	30	1	4	5	4.50	.509	.259
Customers complaints are handled with utmost attention	30	2	3	5	4.53	.571	.326
Our employees are always ready to respond to customers request promptly	30	3	2	5	4.20	.664	.441
Valid N (listwise)	30						

Means, standard deviation, and Variance of Flexibility

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Our organization can respond to urgent request	30	3	2	5	4.23	.728	.530
Our organization can increase the capacity quite easily	30	3	2	5	3.67	.758	.575
Our organization can adjust the shipping schedule easily	30	3	2	5	4.03	.850	.723
Our organization has the capacity to respond and meet to the entrant of new products, markets or new competitors	30	3	2	5	3.93	.640	.409
Our organization can urgently respond in order to meet it demand during poor supply performance	30	2	3	5	4.33	.547	.299
Our company can quickly adapt to changes in demand in the market	30	2	3	5	4.10	.548	.300
Our organization can use different mode of delivery service	30	3	2	5	3.77	.971	.944
Valid N (listwise)	30						

Strategy and Design

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Strategy and Design	30	1.60	3.00	4.60	4.0733	.40166	.161
Valid N (listwise)	30						

Enabling Infrastructure

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Enabling Infrastructure	30	1.85	2.75	4.60	4.0170	.41836	.175
Valid N (listwise)	30						

Process

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Process	30	.86	3.64	4.50	4.0570	.20785	.043
Valid N (listwise)	30						

Performance

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Organizational Structure	30	1.84	2.83	4.67	4.0890	.48783	.238
Valid N (listwise)	30						

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BIOGRAPHY

The author is a Sierra Leonean, and a graduate with a Bachelor of Science degree with Honours in Accounting and Finance from Fourah Bay College, University of Sierra Leone (USL), the oldest university in West Africa that was established on 16th February 1827 and was affiliated with Durham University in England. His academic qualification plus other pieces of training and seminars attended have enhanced and improved his methodology and skills in tackling and solving problems. He has worked for reputable institutions that have fully exploit and utilize his experience and capabilities and expose him to array of challenges that have enable him to learn and make valuable contributions in his workplace. He has served as a Resident control officer for the United Bank for Africa (SL), and he also served as an Admin and Finance Officer for a local non-governmental organization. He has worked peacefully with people of multi-ethnic backgrounds in which he maintained an effective and efficient working relationship. His creativity, ingenuity and intelligence have proved invaluable for the institutions he has worked for. He is a superb communicator; cautious in dealing with people from all facets of life, aspiring and focused whilst realizing the need to remain adaptable, he has the ability to follow written and oral instructions, impartial, skilful and accurate in handling confidential information and materials. His good attitude has earned him a lot of respect amongst his peers and superior.

He was the President of the Association of Accounting Students; he has also represented the University of Sierra Leone in an international conference in Ghana at the regional inter-universites speech contest on the impact of money laundering on Economics of West Africa. He was awarded a scholarship by the government of Indonesia to study a master's degree in operations and supply chain engineering, in the department of industrial and systems engineering, faculty of industrial technology and systems engineering at the Institut Teknologi Sepuluh Nopember (ITS) in Surabaya.