



THESIS - TI 185401

**ASSESSING SUPPLY CHAIN PRACTICES AND HOW
THEY ARE PERCEIVED TO IMPACT PERFORMANCE
OF FIRMS IN SIERRA LEONE: A CASE STUDY OF
SIERRA LEONE TELECOMMUNICATION COMPANY
LIMITED (SIERRATEL)**

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**MASTER PROGRAM
OPERATIONS AND SUPPLY CHAIN ENGINEERING
DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING
FACULTY OF INDUSTRIAL TECHNOLOGY AND SYSTEMS ENGINEERING
INSTITUT TEKNOLOGI SEPULUH NOPEMBER
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SURABAYA
2020**

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in

Institut Teknologi Sepuluh Nopember

by

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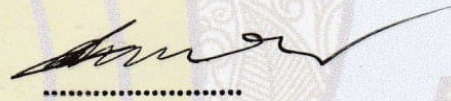
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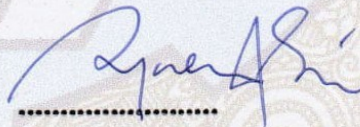


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TABLE OF CONTENTS

TABLE OF CONTENTS	I
LIST OF TABLES	V
LIST OF FIGURES	VII
STATEMENT OF AUTHENTICITY	IX
ACKNOWLEDGMENT	XI
ABSTRAK	XIII
ABSTRACT	XV
CHAPTER 1 INTRODUCTION	1
1.1 Introduction	1
1.2 Background of the study	2
1.3 Statement of the Problem	5
1.4 Justification of the Study	8
1.5 Objectives	10
1.6 Scope and limitation of the study	10
1.7 Assumption of the study	11
1.8 Organization of the research work	11
CHAPTER 2 LITERATURE REVIEW	13
2.1 Theoretical Framework	13
2.2.1 Strategic choice theory	13
2.2.2 The Theory of Constraints	15
2.2.3 Service Supply Chain Management Theory	16
2.2.4 Factors Affecting Services Supply Chain Management	17
2.2 Conceptual Framework	25
2.3.1 Strategy	26
2.3.2 Process	31
2.3.3 Supply Chain Performance	35
2.3 Empirical review of Literature	40
2.4 Research gap	41

CHAPTER 3 RESEARCH METHODOLOGY.....	44
3.1 Research design	44
3.2 Target Population	45
3.3 Sample and Sampling Technique	46
3.4 Research Instrument	47
3.5 Sources of data	48
3.6 Data collection procedure.....	48
3.7 Pilot testing of the research instrument	49
3.8 Reliability and Validity of the Study.....	49
3.9 Flow Chart of Research Methods	50
3.10 Data analysis and presentations.....	51
3.11.1 Descriptive Statistics	51
3.11.2 Reliability Analysis.....	52
3.11.3 Correlation Analysis.....	52
CHAPTER 4 DATA PRESENTATION AND ANALYSIS.....	54
4.1 Response Rate	54
4.2 Demographic	55
4.3.1 Job Designation.....	55
4.3.2 Work Experience.....	56
4.3.3 Educational Attainment.....	57
4.3 Validity and Reliability Analyses.....	58
4.4.1 Construct Validity	58
4.4.2 Scale Reliability (Cronbach’s alpha).....	58
4.4.3 Composite Reliability.....	59
4.5 Supply Chain Practics.....	60
4.5.1 Supply Chain Strategy.....	60
4.5.2 Supply Chain Processes:	62
4.5.3 Supply chain Performance	64
4.5.4 Summary of Supply Chain Practices.....	65

4.5.5	Impact of Supply Chain Practices.....	66
4.6	Correlation.....	67
4.7	Management Response and Rating of Supply Chain Practices	68
4.8	Conclusion	71
CHAPTER 5 SUMMARY, CONCLUSION AND RECOMMENDATIONS.....		72
5.1	Summary of Findings.....	72
5.2	Conclusion	73
5.3	Recommendations	74
REFERENCES.....		76
APPENDICES		86
APPENDIX 1: QUESTIONNAIRE		86
PART I: DEMOGRAPHIC INFORMATION.....		87
PART II: ASSESSMENT OF SUPPLY CHAIN STRATEGY		89
PART III: ASSESSMENT OF SUPPLY CHAIN PROCESS.....		90
PART IV: PERFORMANCE		93
PART V: ASSESSING IMPACT OF SUPPLY CHAIN PRACTICES.....		95
APPENDIX 2: DATA ANALYSES		97
APPENDIX 2A- DESCRIPTIVE STATISTICS ON SUPPLY CHAIN STRATEGY		97
ORGANIZATION		97
TECHNOLOGY		99
APPENDIX 2B- DESCRIPTIVE STATISTICS ON SUPPLY CHAIN PROCESS		100
PLAN		100
SOURCE.....		101
DELIVER.....		102
INFORMATION SHARING		103
APPENDIX 2C- DESCRIPTIVE STATISTICS ON SUPPLY CHAIN PERFORMANCE		104
FLEXIBILITY		104

RESPONSIVENESS	105
RELIABILITY	106
AGILITY	107
MANAGEMENT RESPONSE AND RATING (LEVEL OF SIGNIFICANT OF THE VARIABLES)	107
APPENDIX 2D- CORRELATION	108
CORRELATIONS BETWEEN SUPPLY CHAIN STRATEGY AND SUPPLY CHAIN PROCESS	108
CORRELATION BETWEEN SUPPLY CHAIN STRATEGY, SUPPLY CHAIN PROCESS AND SUPPLY CHAIN PERFORMANCE	109
BIOGRAPHY	113

LIST OF TABLES

Table 3. 1 Resarch Population	46
Table 3. 2 Sample seize.....	47
Table 4. 1 Response rate from the respondents	55
Table 4. 2 Working Experience of Personnel	56
Table 4. 3 Educational Attainment of Personnel	57
Table 4. 4 Scale Reliability	58
Table 4. 5 Reliability statistics	59
Table 4. 6 Supply Chain Strategy	60
Table 4. 7 Supply chain Process	62
Table 4. 8 Supply Chain Non- Financial Performance	64
Table 4. 9 Summary of Supply Chain Practices	65
Table 4. 10 Impact of Supply Chain Practices	66
Table 4. 11 Correlation between Strategy, Process and Performance	67
Table 4. 12 Respondents Interviewed	68

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LIST OF FIGURES

Figure 2. 1 Proposed Conceptual Framework.....	26
Figure 3. 1 Expanded Model View	45
Figure 3. 2 Flow Chart of the Research	50
Figure 4. 1 Job designation of respondents.....	55
Figure 4. 2 Working Experience of respondents.....	56
Figure 4. 3 Educational attainment of Personnel.	57
Figure 4. 4 Supply chain strategies	61
Figure 4. 5 Supply Chain Processes.....	62
Figure 4. 6 Summary of Supply Chain Practicesses.....	65

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STATEMENT OF AUTHENTICITY

I, the undersigned,

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declare that both partial and entire contents of my thesis proposal entitled:

“ASSESSING SUPPLY CHAIN PRACTICES AND HOW THEY ARE PERCEIVED TO IMPACT PERFORMANCE OF FIRMS IN SIERRA LEONE: A CASE STUDY IN A TELECOMMUNICATION COMPANY”

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 consequences in accordance with regulations.

Surabaya, 23 January,2020

Yours Sincerely

Hassan Andrew Fornah

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**MENILAI PRAKTEK RANTAI PASOKAN DAN BAGAIMANA MEREKA
DAPAT MELAKUKAN KINERJA PERUSAHAAN PADA SIERRA LEONE:
STUDI KASUS DI PERUSAHAAN TELEKOMUNIKASI**

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ABSTRAK

Karena persaingan tidak lagi antara organisasi tetapi di antara pemain rantai pasokan, proses rantai pasokan telah menjadi strategi utama yang digunakan oleh banyak bisnis untuk memperoleh keunggulan kompetitif dan meningkatkan kinerja organisasi. Tujuan dari penelitian ini adalah menilai Praktek Rantai Pasokan dan bagaimana mereka dianggap mempengaruhi kinerja perusahaan di Sierra Leone, sebuah studi kasus di Perusahaan Telekomunikasi (Sierratel). Dua paradigma rantai pasokan dikembangkan untuk penelitian ini. Pemberdayaan rantai pasokan (Organisasi, Orang, Teknologi, Rencana, Sumber, Pengiriman, Berbagi Informasi) dan kinerja rantai pasokan non keuangan (Fleksibilitas, Daya Tanggap, Keandalan dan Agility). Kuisisioner yang dikelola sendiri dikirimkan kepada tiga puluh empat (34) responden melalui platform google form menggunakan teknik stratified random sampling sederhana. Statistik deskriptif diterapkan untuk menganalisis data melalui SPSS. Diasumsikan bahwa perbaikan berkelanjutan dari praktik rantai pasokan akan mencapai keunggulan kompetitif dan karenanya kinerja perusahaan.

Hasil dari temuan menunjukkan perbedaan dalam berbagai praktik rantai pasok yang diadopsi dan diimplementasikan oleh perusahaan. Sumber daya manusia, teknologi, pengiriman, koresponsifan, reliability, dan agility tidak menunjukkan dampak yang besar pada kinerja perusahaan.

Analisis lebih lanjut juga mengungkapkan bahwa proses-proses rantai pasok sebagai salah satu praktik yang diadopsi dan diimplementasikan di antara yang lain, hampir di jalur yang benar dibandingkan dengan strategi dan kinerja.

Kata kunci: praktik rantai pasokan, strategi rantai pasokan, enabler, kinerja, keunggulan kompetitif

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ABSTRACT

As competition is no longer between organizations but among supply chain players, Supply chain processes have become a major strategy employed by many businesses to gained competitive advantage and improving organizational performance. The purpose of this research was assessing Supply Chain Practices and how they are perceived to impact the performance of firms in Sierra Leone a case study in a Telecommunication Company (Sierratel). Two paradigms of the supply chain were developed for this research. Supply chain enablers (Organization, People, Technology, Plan, Source, Deliver, Information Sharing) and supply chain non-financial performance (Flexibility, Responsiveness, Reliability and Agility). Self-administered questionnaires were sent to thirty-four (34) respondents through the google form platform using a simple stratified random sampling technique. Descriptive statistics are applied to analyses the data through SPSS. The results shown differences in the various supply chain practices adopted and implemented by the company. The people, technology, delivery, responsiveness, reliability and agility did not show much impact on the company's performance. Further analysis also revealed that supply chain processes as one of the practices among the others adopted and implemented are almost in its right footpath as compared to strategy and performance but the continuous improvement of supply chain practices will attain a sustainable competitive advantage and hence firm's performance

Keywords: supply chain practices, supply chain strategy, enablers, performance, competitive advantage, continuous improvement

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Nowadays, organization has realized that they only control and command a small portion of the value chain in their operation and the opportunities for creating improvement are very much limited. This realization by supply chain practitioners demands a supply chain strategy that comprises the organization itself, people and technology with a strategic focus, vision, and strong leadership. Supply chain (SC) involves a whole set of processes ranging from collaboration and coordination, planning, sourcing, delivery, strategic partnership, customer/supplier relationship, information technology as a source for competitive advantage for the supply chain partners if successfully implemented. Supply chain management practices (SCMP) are a new phenomenon in the service industry and have played a pivotal role in the successful achievement of any organization. The practices itself has served as an engine that accelerated economic growth for businesses. Supply chain management (SCM) has been perceived as a strategic response to the global challenges ahead of the SC players due to the over dependencies of the inflow and outflow of information, products and services among SC members (Xu & Beamon, 2006).

According to Sindhu & Panghal (2016), Supply chain is a whole set of activities involved in taking and managing the product from point of production to point of consumption. With the help of (SCM), the unpredictable demand of the end-user can be met by integrating the business through collaboration with other value chain partners. Supply Chain Management has attracted much greater interest and attention over recent years especially in the field of operations management research. Development of new ideas such as outsourcing decreased in inventories, Just-in-Time Philosophy, cooperation and collaboration, and firm's strategic partnerships within the supply chain (Kern et al, 2012).

1.2 Background of the study

Performance of supply chains has become paramount for most businesses and therefore examining the relationship between organizational performance and supply chain performance has argued managers, entrepreneurs, practitioners and researchers to seek better knowledge and understanding of the performance of supply chains. This, to a large extent, has prompted many organizations recently to adopted and iintegrates different supply chain practices such as e- collaboration within the supply chain network (Hove-Sibanda & Pooe, 2018). The term supply chain management is an integrated management approach that deals with an interdependent network of suppliers, manufacturers, distributors, and retailers in order to facilitate the smooth flows of goods, services, and information from suppliers to end customers, with the ultimate aim of minimize cost, while sustaining required service levels (Avelar-Sosa et al., 2014).

According to Harland (2005), Supply chain management involves the management of supplier relationships as well as managing a network of interconnected businesses with the ultimate aim of providing the required product and service to the end-users and with satisfaction. The practices of supply chain management are increasingly becoming more significant every now and then and at the same time has drawn much higher attention for an organization to have a competitive edge over its competitors in the global market. The number of competitors in the market is increasing and expanding gradually, and organizations have to re-establish their operations to respond to the changing market dynamics both locally and globally to produce goods and services of high quality that differentiates from others through the efficient and effective management of the Supply Chain (Stock & Boyer, 2009).

Over the years the nature of supply chain management has changed to the extent that organizations no longer compete against companies on the basis of quality as it was practiced in the nineties (90s) (Fawcett et al., 2007). As competition in the 1990s continues to intensified in the global markets as well as the challenges associated with improving customer service level in terms of

delivering the product or service to the right place, at the right time and at lowest cost, organizations then began to think ahead that more has to be done to improve efficiencies within an organizations and their entire supply chain network to be more responsive and competitiveness. Understanding the supply chain strategies and implementing effective supply chain management (SCMP) practices is an essential prerequisite to global competition and profitability in the market (Power et al., 2001; Li et al., 2005). However, Pujawan (2008), mentioned that to survive in this tight competition, continuous improvement of supply chain practices should be adopted and integrated by companies as it is largely believed by many practitioners and other academicians that, efficient and effective supply chain practices will lead to better performance.

According to Musa & Pujawan (2018), organization no longer compete between themselves but among the supply chain and therefore, the current trend of supply chain management (SCM) practices has become a future path for scoring competitive advantage and hence improving organizational performance. The new source of business competition lies outside the walls of the firm, it is determined by how effectively these organizations link their operations with the supply chain partners. An organization that able to create effective business relationships with its customers, suppliers and other strategic partners anchored on long term commitment (Mattson,2002). The telecommunication industry in Sierra Leone is experiencing rapid growth after the post-civil conflict era. The industry has continued to attract other multinational companies to heavily invest in the sector thereby creating a liberal and competitive atmosphere. Sierra Leone Telecommunication Company Limited (Sierratel) being the only state-owned telecommunication company is not adequately equipped to compete with the other foreign telecommunication companies in terms of size, operations and strategic alignment to supply chain management practices. The company largely depends on government funding and still operates on traditional approaches to supply chain management practices which deters them into fair competition with their

competitors. As discussed, early, supply chain management involves a whole sets functions ranging from planning, identifying strategic suppliers to outsourcing, partnership, coordination and collaboration, information technology and information sharing, flexibility, responsiveness, reliability and agility, etc.

Sierra Leone Telecommunications Company Limited (*Sierratel*) came into being on 1st April 1995 as a result of a merger between two former Telecommunication entities, Sierra Leone External Telecommunications Company Limited (SLET) and Sierra Leone National Telecommunication Company (SLNTC). SLET operated an external or international telephone outfit. SLET emerged from what was initially Cable and Wireless of the United Kingdom (UK). Cable and Wireless provided international telephone links to Sierra Leone from the colonial era to the post-colonial period when in 1964 it was transformed into SLET. The Government of Sierra Leone is the owner of the two companies decided to merge them to avoid unhealthy competition which was developing and to gradually give rise to the speedy development of telecommunication, and increase the penetration of the network country-wide. SIERRATEL is 100% state-owned parastatal with a mandate to operate national and international telephone services. It operated a monopoly from its inception in 1995 until 1999/2000 when the telecommunication industry was liberalized and Celtel started a mobile telecommunication company as the first major competitor. After being affected by several factors such as poor liberalization process, vandalism of its infrastructure during the Revolutionary United Front (RUF) war, SIERRATEL finally entered into the mobile phone market in August 2008 when it introduced the CDMA (Code Division Multiple Access) phone network. SIERRATEL still controls the monopoly of the Landline/Fixed Network despite the liberalization. The landline suffered heavy destruction during the civil war and the level of landline penetration reduced drastically. In 2010 SIERRATEL embarked on improving on the wireline service through a development program known as the SIERRATEL Infrastructure Modernization (SIM) project. The SIM project improves or modernizes the Landline network by

the introduction of the Optic Fiber and advanced copper. The optic fiber is a high-speed voice and data infrastructure. This service is definitely more competitive than any wireless system. SIERRTEL will then have a big competitive edge over its competitors especially in the data market when this project hits success.

1.3 Statement of the Problem

As discussed in the background information, supply chain management practices are designed to reduce cost, if not to eradicate the high incidence of wastages among the supply chain networks especially when competition becomes keen in the telecommunication sector in Sierra Leone. Supply Chain management itself is compounded by a network of key players both at the strategic and operational levels. This problem sometimes leads to low coordination and fall in performance standards of attaining their strategic objectives. Survey has revealed that a high percentage of telecommunication companies in Sierra Leone are still prone to traditional practices and lack strategic supply chain management practices which are not in any way to enhanced increased performance. Such practices as it is observed had little or no effect in increasing the performance of companies especially SIERRATEL to meet both local and global competitiveness. Many studies on supply chain management have been carried out both locally and internationally but majority of them are focused on processing and manufacturing sectors. Supply chain management within the services sector, especially in the telecommunication sector, has not been fully addressed by many researchers. Studies by (Blowfield & Dolan, 2010) have found varied impacts of supply chain management (SCM) on organizational performance. Some of the findings include but not limited to; improved performance measurement, continuous improvement of organizational practices. Supply chain practices require effective collaboration, cooperation and strategic partnership at all levels of management both internal or external to attained organizational performance of which presently this has not been adequately showcased in the service sector of Sierra Leone with emphasis placed on the Sierra Leone Telecommunication company limited.

The critical challenges mostly faced by many businesses in Sierra Leone include the adoption and integration of effective SCM practices and procedures, Poor integration of Information and Communication Technology (ICT) among others. Richard (2008), observed that with the increased globalization and internationalization of firms, firms within technologically efficient countries have entered the market making competition very keen. As such, Sierra Leone telecommunication company should be able to quickly identify the best SCM practices such as Planning, Sourcing, Deliver, Information sharing, Flexibility, Responsiveness, Reliability and Agility to improve their efficiency and responsiveness to the market. Sierratel being a telecommunication company should use sophisticated IT-based systems across its entire network of operation as an organizational process to do automated routing and real-time processing and monitoring capability. Information technology is a pathway for connectivity and integration in doing businesses thereby linking different supply chain players to a whole operation in an efficient and effective way with higher data quality. Technology within the supply chain is often seen as an 'enabler' due to its substantial reduction in paperwork, improve communication and reduce supply chain cycle times if appropriately implemented (Handfield & Bechtel, 2002)

Several studies have focused on SCM practices but most have failed in their quest to provide enough information on the best practices and their effects on the performance of telecommunication firms. As Richard (2008), states that no emphasis has been made by the service sector in managing and creating efficiency in SCM. This seeks to justify the existence of supply chain mishaps in the telecommunication industry in Sierra Leone impeding the attainment of a competitive path. Therefore, it is against this background that this study seeks to address and bridge the gap between Supply Chain practices and organizational performance thereby assessing the way forward in enhancing continuous improvement. Assessing supply chain practices and how they are perceived to impact the performance of telecommunication companies in Sierra Leone especially

Sierratel is expected to obtain answers from the following questions which will significantly help in achieving the objectives of the study. Therefore, one would like to ask how SCP contributed immensely to improving the organizational performance and to what extent do these practices will help in achieving competitive advantage. Competitive advantage improves organizational performance but the question is, to what extent can the authorities of these institutions as well as the central government formulate policies towards gaining competitive advantage and hence improving the organizational performance of the telecommunication industry for better economic growth?

According to recent management reports of 2018, there are numerous complaints from customers such as customers queuing to purchase recharge cards, delays in delivery and response time, poor quality connection lines and lack of strategic management action to redeem the acute problem. The quality of the supply chain management of Sierratel is also faced with a lot of problems causing dissatisfaction among customers. According to the public perception of their products and services they offered to the public, major concerns raised were dissatisfaction among customers that the company does not have a comprehensive strategy to improve performance in their supply chain. The company has enormous potential for growth and to command a large sector of the market only if strategies are put in place. To ensure successful growth, the company's supply chain should eliminate quality defects through the implementation of a robust and continuous improvement strategy to increase the level of service to customers' satisfaction with minimum cost. The fact that the company's main activities involves services operations and it required sophisticated IT systems and personnel, management should employ trained and qualified people to handle the IT systems as well as providing the necessary training capacity to match the current technology. A clear supply chain strategy and processes of the company is very timely to enhance its performance at a higher level compared to its competitors. Therefore, this study is expected to identify practical recommendations besides those theoretical

contributions mentioned in the literature and move the organization to the next performance level.

1.4 Justification of the Study

Basically, it is needless to say that Sierra Leone Telecommunication company has been faced and is still facing numerous challenges on its supply chain management practices even though several attempts have been made to curb the situation, yet still, such effort ended up worsening the situation rather than solving it due to rapid changes in management structures as well as the unwillingness of top management to adopt and integrate supply chain best practices as part of an integer process of it operations. It is, therefore, necessary to make critical analyses on the impact of supply chain practices on performance and to identify the problem areas to which management would come up with relevant policy recommendations for a more robust and sustainable supply chain strategy of the organization. It is a well know phenomenon that supply chain management practices is relatively a new concept especially in the services sector and has faced series of challenges to its fullest implementation interns of meeting customer satisfaction as well as maintaining organizational strategic objectives. This however motivates the researcher that there is a need to carried out extensive research on the topic to unveil the various fundamental obstacles affecting supply chain improvement and organizational performance. The research focused on how supply chain practices would succeed in filling the gap between organizational performance and continuous improvement. Thus, this inspired the desire to undertake this academic work and come up with policy recommendations that could serve as guides to the operatives of the company. Although progress has been made interns of given some attention on the practices, but yet still the problem has not been solved, and the overwhelming majority of the line managers especially those at the upstream level continue to pay low attention and swiftly failed to coordinate and to adopt effective

supply chain strategies that would enhance organizational improvement. Supply chain practices have been growing rapidly in other parts of the world and there have been concerns that these rapid growths of the practices have a potential risk of undermining organizational performance unless managed well.

Despite the fact that a lot of studies have been carried out on supply chain management practice and its impact on organizational performance, but some of the studies are mainly centered on manufacturing and production while some have methodological problems, hence conclusions reached are untenable. This is justified by (Hong & Zailani, 2011), that, supply chain management practices, in general, is not fully matured in businesses, especially in the service sector. The neglect of these issues also raised key points that need to be addressed by the authorities of these telecommunication company in their strive towards enhancing organizational performance and sustainability in the service industry. Furthermore, knowing the various supply chain challenges and the complexity of the supply chain networks of this institution, it's rather imperative to address these problems especially when it has an impact on the performance which is one of the facts this research seeks to elucidate. Until recently, managers of telecommunication companies started to realize that, SCP is very important and has an impact on the service sector but little attention is been given by stakeholders in the industry and thus becomes an obstacle to the performance of these institutions. The facts that supply chain is dynamic and involves the constant flow of information, products, cooperation and collaboration between different stages or players, there is a need to come up with new comprehensive supply chain strategies and processes to mitigate telecommunication companies managed their supply chains practices effectively and efficiently in order to improve overall performance. Effective supply chain strategies and processes have an impact on the overall performance of organizations. It is fair to state that most failure of businesses in relations to performances like the Sierra Leone Telecommunication company can be directly attributed to their ineffective supply chain strategies and processes (Plan, sourcing,

customer and supplier relationship, strategic partnership, information communication technology, operations, Agility, responsiveness, cost, and supply chain flexibility) which this research seeks articulate.

Since Sierratel lacks a comprehensive approach and measures to strengthen the implementation of its supply chain practices that will earn them a competitive advantage and enhanced organizational performance. The study seeks to provide supply chain strategies that will help in streamline their up and downstream supply chain networks. Sierratel largely centralized most of its operations at its headquarters in Freetown with few concentrations to other outlets within in the capital city “Freetown” as well as other branches in the provinces, there is a clear justification to carry out a study of this nature especially when it has an impact on supply chain management practices with respect to organizational performance

1.5 Objectives

The research generally examines the extent to which supply chain practices has helped to improve on the performance of Telecommunication companies in Sierra Leone. However, the research also attempt to address specific objectives which include the following.

- ❖ To assess the SCPs and how they are perceived to impact performance.
- ❖ To provide a framework for effective/ excellent supply chain management.
- ❖ To identify supply chain strategies that will enable companies to achieve superior performance
- ❖ To formulate policies and recommendations towards improving supply chain practices and organizational performance.

1.6 Scope and limitation of the study

The study covered a survey of staff of the Sierra Leone Telecommunication company limited (Sierratel) to assess the impact of supply chain practices of the

company for the period June -2019 to December 2019. As the topic under investigation is broad and a sensitive one, the study limit itself to mostly key personnel who were involved in daily activities of the supply chain process and at the same time have the required knowledge to respond to the researcher's questions. Furthermore, the research also limited to supply chain strategy (organization, people and technology), supply chain process (plan, source, deliver and Information Sharing) and supply chain performance (Flexibility, Responsiveness, Reliability and Agility). As the cost incurred in this research is enormous, not all materials and resource persons relevant to the study are reached, therefore this also serves as a major limitation of the study. In essence, data unavailability, financial constraints, time limitation and academic activities served as a major delimitation to this research but the researcher ensured that these constraints have not in any way influenced the conclusion negatively

1.7 Assumption of the study

Since the topic under investigation is broad and dynamic in nature, it is assumed that only items mentioned in the research framework in Figure 2.1 and Figure 3.1 were considered among the supply chain practices to assess the impact it has towards organizational performance with respect to Sierra Leone Telecommunication company as a case study. Time and budget were satisfactory for the research and the methods used for data collection yield reliable results in solving the research problems. Also, the respondents understand and interpreted the questions very well and provided genuine responses.

1.8 Organization of the research work

The research aimed at investigating the impact of supply chain management practices on the performance of a telecommunication company in Sierra Leone with emphasis laid on Sierratel. To enhance the easy understanding of the work, the research is apportioned into five chapters which dealt with various aspects of the study.

Chapter one dealt with the introduction and general background of the study which includes aims and objectives, statement of the problem, justification/rationale behind the study, research questions, scope and limitation of the study. In chapter two, the researcher reviewed existing relevant related literature regarding the topic on both theoretical and empirical studies. Chapter three embarked on research design and methodology. Descriptive statistics and correlation were the methods used. Also, other areas such as target population, sample and sampling techniques, research instrument, sources of data, pilot testing and finally reliability and validity of the research instrument are also captured. Chapter four looked at the presentation and analysis of data through the application of qualitative and quantitative data techniques. Descriptive statistics, correlation, reliability and validity test have been applied to analyses the data through the use of Statistical Package for Social Sciences (SPSS) version 23, Minitab and Microsoft Excel 2016. Efforts have also be made to construct charts, tables and histograms to represent the behavioral pattern of the data. Finally, chapter five ends the research with a summary of findings, conclusions and policy recommendations that might be useful to policymakers of these institutions and the government as a whole.

CHAPTER 2

LITERATURE REVIEW

Assessing the impact of supply chain practices and organizational performance is broad in nature. Emphasis is laid on a review of existing literature that has been done in the past on the impact of the Supply Chain Strategies (SCT); Supply Chain Process (SCP) and Supply Chain Performance (SCPERF).

According to Cooper (1988), a literature review seeks to describe, summarize, evaluate, clarify and/or integrate the content of primary reports. In essence, a literature review seeks to acknowledge the works of those who have already explore the discipline before you. This chapter looked at specific thematic areas such as theoretical Framework, conceptual framework, critical review of empirical studies as a summary of the approaches and solutions to a given problem as defined by the reviewers and finally a research gap.

2.1 Theoretical Framework

A theoretical framework is a collection of postulated concepts based on theories that guide your research and determining what things you will measure, and what statistical relationships you will be looking for into your research. For the purpose of these studies, three contemporary theories are used as the theoretical framework viz viz: Strategic Choice theory, Theory of Constraints, and Service Supply Chain Management theory and factors affecting service supply chain management.

2.2.1 Strategic choice theory

According to Quinn (1993, p. 23) as cited by Campling & Michelson (1998), “a strategic choice approach is a process of identifying, selecting and implementing the most effective means of securing long-term compatibility between the internal skills and resources of an organization and the competitive, economic, political and

social environments within which that organization operates”. He went further to define strategy as a process to integrates an organization's major goals, policies, and actions into a unified whole. In industrial organization, marketing and administrative behavior requires an integrative approach of strategic management and cross-functional cooperation within the organizations to establish a close working relationship that can contribute to a better understanding of strategic content matters (Jemison, 2011). Strategic choice theory shows the relationship and interface between management’s choices, the environment and organizational performance. The inadequacy of the deterministic organizational approach points out the significant aspect of managerial choice. Rafat & Ssalama, (2017), views organizations are sometimes influenced by the environments and affect top management choices(Miles et.al., 1978). Despite the opposing views to deterministic management theories, Campling & Michelson (1998), formulates the strategic choice resource dependence model to further analysis the interdependence of both external and internal environment and to exercise a degree of choice over the way in which they manage and adapt to changes in the organizations with respect to the integration of strategic choices on the overall firm’s performance.

The integration of resource dependence theory in conjunction with strategic choice theory explains to the extent as to why managers make strategic decisions within the organization and how organizations acquire resources are managed dependently to effect behavioral change. The 'strategic choice' standpoint was initially characterized as a corrective and an integrative view that the way in which organizations are designed and structured is determined by their operational contingencies (Child, 1997). In practice, the actions of top management whether in public or private businesses have the power to influence the structures of their organizations to suit their strategic choice preferences. Organizations are begin looked at either analyzers or defenders depend on the influence they can create and how well organize their manager and organizations can operate in the procurement process. (Nollet et al., 2005), prospectors of strategic choice theory would try to

be proactive, innovative and effect change to their product portfolio internally whereas (Stock et al.,2009), holds a contrary view that defenders would rather prefer to outsource their product from a strategic supplier in order to ensure efficient production and maintain a stable product portfolio. In situations where management has to make a decision whether to make or buy a product, serious considerations should be made to have balance dependence versus value to reach organizational goals. Regarding decision point, the sourcing strategies, strategic choice theory advises to minimize dependence in order to ensure the high freedom of choice for the dominant coalition. Then the decision on supplier's strategies can consider whether to collaborate or rather exploit suppliers.

In the context of this study, some of the variables i.e. Organization, people, technology, Plan, Source, Deliver and Information sharing are strategic focuses of this research because it involves the top management to make critical decision on which strategic choice to invest on in other to improve the performance of their organizations and achieve a competitive advantage.

2.2.2 The Theory of Constraints

The theory of constraints is an approach to the management of operations and it was developed by Goldratt in 1984. It provides a management theory of how organizations should be run. The concept was extended to the theory of constraints (TOC) with a publication in 1999 which views any manageable system as being limited in achieving more of its objectives by a very small number of constraints. There is always one constraint and the TOC uses a focusing process to identify the constraint and restructure the organization around it (Cox & Goldratt, 1986). TOC emphasizes the optimization of performance within a defined set of constraints of the existing process and it provides an action framework that combines the activities of the managers and the visible system elements.

This theory incorporates the idea that the goal or mission of an organization exists, and organizations can be measured and controlled by variations on three

measures throughput, operational expense, and inventory. Throughput is the rate at which the system generates money through sales, inventory is all the money that the system has invested in purchasing things it intends to sell. Operational expense is all the money a system spends in order to draw the inventory into throughput. In the context of this study, one of the variables of Outsourcing will show the linkage to one of the measures operational expense used to measure the performances of organizations in the telecommunication industry.

2.2.3 Service Supply Chain Management Theory

The concept of service in operations management is a separate field in management science and is aligned with Earl Sasser's article publication the Harvard Business Review in 1976," Match supply and demand in service industries". (Sasser et al., 1978), then pioneered and published a textbook known as Management of Service Operations which it now refers to as classic service cases and issues. They define the 'service concept' as the "total bundle of goods and services sold to the customer and the relative importance of each component to the customers" Richard Chase in 1978, wrote an article on service for the HBR titled, "Where does the customer fit in a service operation?" Chase challenged the operations management community to consider two types of operations: the traditional back-office factory customer-facing and the customer contact front office. These researchers had the lineages to provide credibility and authority to the study of customer-influenced operations (Johnston, 1998). "The new back office concentrates on customer service" (Matteis,1979) and "Marketing's potential for improving productivity in service industries"(Loverock & Young 1979). Taken together, these works and others like it spawned a new age of service operations management research (Robert, 1999).

Narasimhan & Jayaram, (1998) presented a process model for successfully planning business services and acknowledged four unique features of service delivery systems that affect project planning. This includes customer involvement,

need for customer preparation, concurrency of the document, financial and information flows and process customization. Similar studies on service supply chain management have also been carried by (Wynstra,et.al,2006). They proposed a classification of business services model based on how the buying company applies the service with respect to its own business processes. (Ahlstrom & Nordin (2006), identified sourcing contracts as key areas that cause problems in starting service supply relationships. Among those areas identified were writing legal agreements for service exchanges, clearly agreeing service processes to be transferred to suppliers, handing over service delivery to suppliers, and losing control over the relationship with the customer.

2.2.4 Factors Affecting Services Supply Chain Management

2.2.4.1 Nature of the Service

The service industry has been characterized as fragmented with many different types of service concepts. Toward unpacking these concepts, there have been several key characteristics that have been postulated to distinguish the nature of services offered. With the rapid growth in E-business technologies, understanding these service characteristics is important for positioning the service firms in terms of their strategies and operations (Nie & Kellogg, 1999). The nature of the service will be analyzed based upon three seminal pieces of work that have been held up to considerable review and discourse. These are the works by Lovelock (1983), Chase (1981), and (Schmenner,1986)(Schmenner, 2004). Lovelock introduced a series of classifications back in 1983 to classify service industries in order to generalize the service industries into useful market segments. His research paper identified five two-by-two classification matrices based on various service concepts. These included concepts on 1) the nature of the service act (tangible vs. intangible services), 2) the nature of the service delivery (continuous or discrete transaction delivery), 3) customization (of the service delivery and the employees' ability to exercise judgment), 4) the nature of demand

to supply (based upon variation in either) and 5) the method of service delivery (based upon the availability of service locations or access).

Loverock & Young (1979), introduced a classification for dividing services into two classes: those that do something for consumers themselves and those that do something for consumers' possessions. Chase (1981), first proposed the Concept of Customer Contact where it was assumed that common service systems could be grouped according to decreasing contacts into various categories: pure services, mixed services and quasi-manufacturing services.

2.2.4.2 Trust

Different meanings of trust have been advanced by many scholars depending on the background of their research. For example, Dyer & Chu, (2000), defined trust as one party in a relationship being confident that the other party will not exploit its vulnerabilities. Trust is also defined as a willingness to take a risk (Mayer et al, 2020) and the decision to rely on a partner with the expectation that the partner will act according to a common agreement (Currall & Inkpen, 2002). Trust in supply chain management is centered in between supply chain partners. (Ireland & Webb, 2007), have identified the differences between trust in a partner and trust in a situation. They stated that “Trust between organizations as partners creates an atmosphere in which firms willingly exceed the minimal requirements of a relationship to increase the likelihood of success for all partners whilst Trust in a situation results in an arrangement in which firms contribute the minimum amount of resources and time to an inter-organizational relationship to achieve efficiency.”

Trustworthiness is considered an important factor in selecting a supplier, along with integrity, commitment, and characteristics that imply ‘fair dealing’ (Anderson & Narus, 1990). Trust is a predictor of positive performance within inter-organizational relationships (Currall & Inkpen, 2002); a determinant to the level of supplier responsiveness (Handfield, et al., 2000); a predictor of partnership success (Mohr & Spekman, 1994); and a predictor of cooperation (Stuart &

Mccutcheon,2000) and commitment (Kwon & Suh,2014) in buyer-seller relationships.

2.2.4.3 Information Sharing

Information sharing refers to one party's willingness or propensity to provide critical and proprietary information to other parties. Supply chain members in a partnership relationship is linked with trust. Shared information can vary from strategic to tactical in nature and from information about logistics activities to the general market and customer information (Mentzer et al., 2000). By taking the available data and sharing it with other parties within a network, information can be used as a source of competitive advantage (Jones, 1998). Information sharing has been linked to other benefits as well. When teams share precise information openly they build trust and increase their influence on other team's strategies (Fawcett et al.,2009). The sharing of accurate, timely information with suppliers enables reliability even in a speedily competitive environment (Power & Rahman, 2001).(Subramani, 2014) opposes that the association suppliers develop with buyers is directly controlled by communication within the firm.

Meanwhile, (Mohr & Spekman, 1994) found information sharing to be a predictor of partnership success. (Dyer & Singh, 1998)D propose that firms can create the likely for achieving competitive advantage by moving away from an arm's-length relationship through tangible investments in relation-specific assets, substantial information exchange, complementary resources and capabilities, and effective governance. (Kwon & Suh, 2005), initiate that information sharing will lesser the degree of behavioral uncertainty and potential speculation and indirectly improve the level of trust among supply chain partners. Information sharing has also been singled out as the most vital factor for a successful supply chain alliance (Handfield et al., 2000,2002).

2.2.4.4 Long-term Relations

In a related topic, long-term relationship is a factor related to advanced purchasing practices for manufacturing firms. But its influence on the service industry is projected to be no less significant. Research states that when a buying firm employs advanced supply chain management practices, there are several items that generally fall out of the practice, the development of long-term relationships with suppliers is one of those items. (Carr & Pearson, 1999) identified that firms that conduct long-term planning and consider purchasing to be strategic are more likely to build long-term cooperation relationships with their key suppliers. Long-term sourcing policies have been shown to have a positive effect on inter-organizational communication (Paulraj et al., 2008), to be a main contributor to better-quality supply chain performance (Shin et al., 2000), a positive effect to advanced buyer-supplier practices (Toni & Nassimbeni, 1999), positively related to the buying firm's involvement in supplier development (Krause, 1999).

Researchers like Ellram & Krause (1994), believes that buyer-supplier relationships tend to last longer for non-manufacturing firms than manufacturing while non-manufacturers believe that it would be more difficult to substitute their supplier partner. These findings lead to the assumption that service relationships need more effort to develop (Field & Meile, 2008). For the parties involved, long-term relationships relate more to the intention that the arrangement is not going to be temporary (Chen et al., 2004). Some researchers have identified the importance of long-term relationships in their supply chain management constructs. Li, et al., (2005,& 2006) identify strategic supplier partnership as a key factor in supply chain management. They defined a strategic supplier partnership as a long-term relationship between an organization and its suppliers. (Min & Mentzer, 2004) cite the performance value of a long-term orientation for the supply chain and its individual members. Meanwhile, (Chen et al., 2004) tie 'partnerships' and 'partnership sourcing' arrangements to closer, longer relationships with suppliers.

2.2.4.5 Supply Base Reduction

By developing a long-term orientation with a supply base, it is natural for the total supply base to shrink in size. Developing long term partners reduces the turnover effect of competitive bidding inherent in more adversarial buyer-supplier relationships, which often emphasizes purchased prices over the performance of the purchased item (Mohr & Spekman, 1994). By focusing attention on fewer, more strategically aligned firms, the sourcing department is able to reduce the number of suppliers in its portfolio. This is a key step toward the future development of the chosen suppliers (Handfield, 1993). The very concept of multiple suppliers for every sourced material or component is based upon transaction cost theory (Williamson, 1985). This derives from the premise that (1) competition is the basis of the economic system, (2) purchasing must not become source dependent and (3) multiple sourcing is a risk-reducing technique (Shin et al., 2000). This concept believes that the administrative or transaction costs associated with managing a large number of vendors will not outweigh the benefits (Dyer, 2000). Yet research has shown otherwise.

Chen et al., (2004) identify eleven (11) benefits supply base reduction has over the traditional multi-source methods. Among some of the most significant advantages cited in their literature that stand out for the service industry are volume consolidation and quantity discounts, and improved buyer-supplier product design relationship (Toni & Nassimbeni, 1999), improved trust due to communication (Newman, 1988), improved performance (Shin et al., 2000), and better customer service and market penetration (John & Heriot, 1993).

2.2.4.6 Supplier Involvement

Webster's Dictionary defines collaboration as the act of working together, especially in a joint intellectual effort. Collaboration is played out in the supply chain arena in the areas of teamwork, cooperation, partnerships, and alliances. While each area applies a different level of collaboration, they all require

investments from both sides (buyer and supplier). It is the involvement related to the supplier that is specifically understudied in this construct. Collaboration has been cited as a differentiator for companies involved in supply chain management best practices (Bovel & Martha, 2000). When considering collaboration, it has been found that both internal and external collaboration is required to ensure supply chain performance (Stank et al., 2001). They found external collaboration to directly influence internal collaboration, which in turn increased logistic performance. Similarly, in a study on the impact of information technology on supply chain strategy, the authors defined supply chain integration as a concept of supplier partnering, closer customer relationships and cross-functional teams (Vickery et al., 2003).

However, this research focus on external supplier involvement due to the significant impact suppliers have on the quality, delivery and performance of sourced goods and services. When the supply base is strong, the level of trust will develop effective communication and information sharing while supplier involvement through collaboration will impact the firm's growing performance. Experience has shown how long-term, collaborative relationships mutually benefit both a buyer and a supplier. When both parties have a vested interest in the success of the relationship, they must work to make it a success (Burt & Soukup 1985).

2.2.4.7 Capacity Management

One commonality found between manufacturing and services is the high degree of uncertainty in supply chains. However, because services cannot be inventoried, they require added attention toward capacity and demand management. As Ellram et al. stated in 2004, the focus of efficiencies in service supply chains is not on inventory management but on the management of capacity, flexibility of resources, information flows, service performance and cash flow management. Sasser espoused the topic of capacity management back in 1976 when he illustrated how services typically involve simultaneous production and consumption. He

explained how services are unable to match capacity and demand with the use of inventories or to smooth capacity utilization by producing for inventory. Typical examples given to illustrate this are the unsold bus or plane seat that cannot be used once the trip begins. Similar arguments can be made in many service industries from academia to healthcare to financial service arenas, where unused capacity carries no value (Bowen & Ford, 2002).

On the capacity management side, services employ schemes to give themselves the more flexible capacity to meet customer demand fluctuations. Capacity can be managed in several ways, but for labor-intensive services, the most typical methods involve the use of part-time or seasonal employees, flexible work schedules and supply chains (Lovelock & Wright, 1999). By employing capacity management schemes, capacity acts as a replacement for inventory. This permits a supplier to modify its production level in order to respond to customer demands. This is similar to how a goods-producing supplier would increase safety stock to offset demand fluctuations. Both offer buffering effects which increase responsiveness and flexibility to meet customer demand needs. From a broader service industry survey (Ng, Irene 1999), considered capacity management as a significant consideration for improving service performance. A service firm's ability to employ these schemes successfully by utilizing their supply chains should have a positive effect on the firm's performance.

2.2.4.8 Supplier Management

Supplier management is related to the governance methods employed in managing a firm's supply network. This is a key function of the purchasing group in a manufacturing environment. But research has shown that there are unique features to services supplier management that must not be overlooked. The first area of interest is the contract. Here, decisions are required on how to define the service, the type of agreement to use, the negotiating decision criteria to use, and the completion or sign-off evaluation, among others (Ahlstron & Nordin, 2006). As an organization determines what type of contracts to utilize (formal legal contracts,

service level agreements, statements of work, etc.), they must consider the impact these agreements have on the development of trust between the channel partners. While contracts can lay the groundwork for trust, its evolution is often tied to tangible commitments between partners and satisfactory performance over time (Handfield & Bechtel, 2002)

Another important factor in managing service suppliers is to manage demand. The focus of demand management for goods producers is forecasting customer requirements while attempting to match capacity. For manufacturers, this is accomplished through production control, inventory buffers, outsourcing, and flexible systems (Davis,1993). However, the services sector has less flexibility to deal with uncertain demand due to the inability to inventory services. As a result, demand management in many of the service sectors focuses on how to meet, or even generate customer demand.

2.2.4.9 Customer Involvement (i.e. customer interaction)

Firms in many industries are identifying pressures to contain costs in order to protect margins. These pressures are causing them to look outside of their walls for opportunities to save costs. This is resulting in new requirements to consider. In some industries, customers now demand access to real-time data and expect this access to be available at any time, any place, and via any means, the customer may choose. For example, in the financial services industry transactions are now being executed on customer terms, not industry or individual company terms (Mulligan, & Gordon, 2002). As customer expectations are evolving, suppliers are identifying the need to react to their customers more quickly. When coupled with the direct involvement customers have on the service delivery system, it results in the need to develop a client relationship component in the service supply chain management construct. Several previous researchers have included elements of the customer in their supply chain management constructs. Customer relationship (associated with all practices employed to manage customer complaints, build long-term

relationships with customers, and improve customer satisfaction) is a factor making up the construct of (Li, et al, 2005, 2006).

Tan (2001), employs a similar construct called customer service management. (Chen & Paulraj, 2004b), identify ‘customer focus’, based upon satisfying needs and providing timely service, as one of three key external driving forces instrumental to the development of their notion of supply chain management. Meanwhile, according to (Mentzer et al, 2001), supply chain management requires a customer focus to create unique and individualized sources of customer value, leading to customer satisfaction. In purchasing a service, the consumer interacts with the workforce, equipment, and physical environment that create the service. Meanwhile, “Agile” firms have been found to be more customer-focused and are able to apply a combination of management techniques and new technology to meet changing customer requirements (Power et al., 2001). Consequently, a service supply chain network must engage, extract and distribute information regarding the customer’s needs in order to be successful.

2.2 Conceptual Framework

The conceptual framework emphasizes the interrelated nature of SCM and the need to proceed through several steps to design and successfully manage a supply chain. The SCM framework is divided into three closely interrelated elements: the supply chain strategy, supply chain process, and performance. The first two categories of the framework refer to the enablers whereas the third represents the performance. The model is further expanded in details in chapter three where the supply chain strategy includes (Organization, People, Technology); supply chain process (Plan, Source, Deliver, Information sharing) and performance which includes:(Flexibility, Responsiveness, Reliability and Agility)

The conceptual framework below shows the relationship variables under investigation for the period under review.

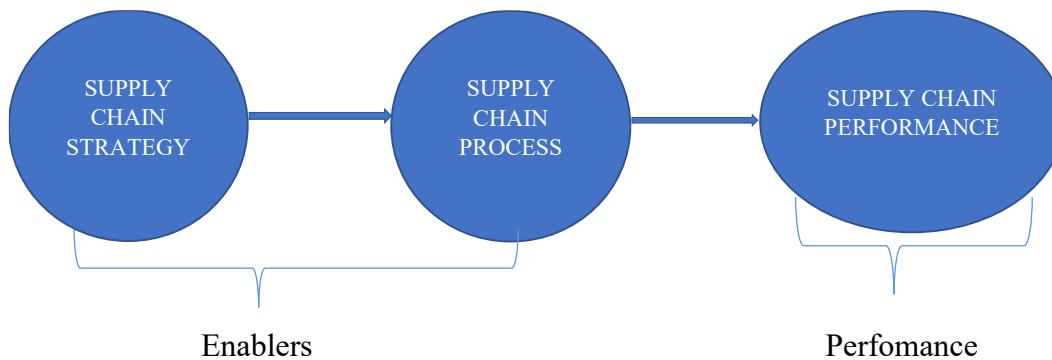


Figure 2. 1 Proposed Conceptual Framework

2.3.1 Strategy

According to the English dictionary, a strategy is a plan of action intended to accomplish a specific goal. A supply chain strategy or design describes how the structure of the supply chain over the next coming years will be. Also, it decides exactly what the chain’s configuration will be and how effective the available resources will be allocated and what process each stage will perform. The supply chain strategy has to classify processes based on whether they are initiated in response to a customer order (pull) or in anticipation of a customer order (push) which is very important when considering strategic decisions relating to supply chain design. A supply chain strategy has to be well structured with a clear focus, vision, and mission with the right leadership to drive the organization achieved business goals and at the same time identify its (SWOT) strength, weakness, opportunities, and threats while also comparing current performance against various benchmarks. The strategy should involve a team of supply chain managers who will be with the responsibility of developing a supply chain maturity model to examines the skills and competencies of the people, the process, technology, and the performances related to the supply chain design.

Pujawan & Er (2015), developed a supply chain excellent model for manufacturing companies and identified five categories of supply chain practices and performance that companies need to use in other to assess the supply chain improvement of their companies. These categories include such as:

- ❖ Strategy: the direction
- ❖ The organization, people, and technology
- ❖ Processes
- ❖ Performance
- ❖ Supply chain performance

They refer the first three (3) categories as enablers, the fourth as performance while the fifth category is the improvement stage that connects the loops between the enablers and the performance. The supply chain strategy should be aligned with the aims and objectives of the business and must reflect all the functions of the company. The strategy should also focus on functions and processes, internal and external integration, and cross-enterprise collaboration. This research will focus on three thematic areas namely, the organization, People and technology. These three will serve as part of the “enablers” of the supply chain framework of any organization and will help to accelerate supply chain improvement if managed efficiently.

2.3.1.1 Organization

Executing functions relating to all aspects of supply chain management required a well-defined and integrated organizational structure to perform specific processes. Organizing those functions into an integrated structure is critical to support cross-functional teams within the company as well as cross-enterprise coordination and collaboration within the supply chain network(Pujawan & Er, 2015). They maintained that, for large companies to be effective with their supply chain practices, an appropriate policy, as well as effective system and procedures, should be included as an integral part of the organization to continuously improve their performance. A supply chain improvement model as well as the traditional Deming Circle (PDCA), and the lean six sigma approach can also be used to improve supply chain performance.

According to Edgar Schein, an organizational psychologist identified four key elements of an organization's structure: common purpose, coordinated effort, division of labor, and the hierarchy of authority. Each of the four elements represents an essential component of an effective structure that would be instrumental in defining the organization's culture. An organization with a clear focus or mission is one that is easy to understand and manage. A common purpose brings employees together and helps them understand the company's strategic direction. A common purpose would be the company strategy, mission statement, company values or culture, and the organization's short, medium and long-term goals. A coordinated effort is important within the organization. A well-define, an integrated and coordinated organization will function well to maximize the efficient use of resources with a clear focus in mind. An organization should motivate employees with skills and experience that will continue adding value to job satisfaction.

Centralization and Decentralization have to be established within the structures of the organization to allow the efficient functioning of processes. To improve business processes across functional lines, an organization has to integrate the degree to decision making an approach at both upstream and downstream level so that everyone is involved and feel been part of the process. The hierarchical structure of the organization also determines the formal reporting lines and expresses who reports to whom. The stages in the hierarchy determine the span of control in terms of how many employees directly report to a manager.

2.3.1.2 People

People are the most important assets of the organization and can play a pivotal role in business success. They run the business and implement business functions in a coordinated way. People either in the front or back-office help to define the experience of the customer whether it is good to win or if it is bad to lose. Now, as a matter of fact, to improve supply chain management performance and

gained a competitive advantage, organizations need to employ well-trained people who have vast knowledge in supply chain management as well as having the relevant experience to manage supply chain processes. To manage and execute supply chain processes cannot be done alone without the total involvement and commitment of people. The adoption and integration of sophisticated technology into supply chain processes requires appropriately trained people towards achieving an excellent supply chain. Therefore, it is imperative that people with a high degree of formalization of position and experience are employed to hold key positions that will match the standards of the organizations and compete effectively in the market. If a job is highly formalized, then the employee has little to no discretion over what to do, when to do it, and how to do it.

2.3.1.3 Technology

With the advent and rapid development of technology, Information technology has transformed the way organization does their services by enabling the development of long-term relationships among supplier and customer through the support and effective implementation of the appropriate technology by the supply chain players. Recent supply chain managers or practitioners have considered Information technology as a key strategy towards achieving excellent supply chain management thereby creating a platform for communication technology, identification technology and material handling technology(Pujawan & Er, 2015). Information and Communication Technology involves the designing, developing, implementing, supporting or management of computer-based information systems particularly software applications and computer hardware encompassing the information systems. It's the capability to electrically input, process, store, output, transport and receives data and information including text, graphs, sound, video as well as the ability to control machines of all kinds electronically (Shelly, 2009). Information technology in SC has been shown to have numerous impacts on the performance of organizations.(Mentzer et al., 2001)

Mabert (2001), found the Enterprise Resource Planning (ERP) systems are able to provide a competitive advantage for the organizations that implement it. Information technology has been found to be an important element in supply chain management concepts. Donlon (1996), included information technology sharing; Alvarado & Kotzab (2001), added the use of inter-organizational systems (ex. EDI as an instrument to allow interaction between partner firms); (Chen & Paulraj, 2004) extended the application of inter-organizational systems' to generate collaborative planning; (Min & Mentzer, 2004) focused upon information sharing and considered EDI as a key component to drive.

However, it is believed that information technology is a crucial element to many practices within the service operations management spectrum. Information technology comes in a wide range of applications within services management. It includes everything from personal productivity tools (spreadsheets, word processing and simple customer databases) to more sophisticated decision support systems and everything in between (Fletcher 1991). It includes all hardware, software, communications, telephone and facsimile facilities (Weill, 1992), including the Internet. E-commerce, as it is known, is the process of doing business online, typically via the Web. With E-commerce, one company's computer system transacts with another company's computer system, query their inventory and transmits purchase orders to another company's computer in an automated, real-time mode (www.answers.com). Sharing information with supply chain partners through EDI is a critical component of supply chain management in the 21st Century.

The adoption and integration ITC in the current supply chain practices are unavoidable as the Industry Internet of Things(IIoT) requires new technological changes in logistics domain such supply chain visibility, integrity control(right product, right time, place quantity and at the right cost) in the supply chain. (Barreto, Amaral, & Pereira, 2017), This proliferation and sophistication of IT application brings the emergence of cloud-based systems, Big Data, Industry 4.0,

BYOD(Bring Your Own Device) CYOD(Choose Your Own Device)), Warehouse Management Systems (WMS), Transportation Management Systems (TMS) and Intelligent Transportation Systems (ITS) which provides solutions for cooperation and a reliable path to transport Electronic Toll Collection (ETC), Highway Data Collection (HDC), Traffic Management Systems (TMS), Vehicle Data Collection (VDC), Transit Signal Priority (TSP), Emergency Vehicle Preemption (EVP) in order to offer better innovative services and hence gain competitive advantage. Information powers the supply chain and the speed of the information processing is capable of changing business behaviors to increases or decreases the number of services available to customers

2.3.2 Process

At this stage, the organization has to consider which supply chain strategy it will include in the process. The process has to be push or pull. A push strategy anticipates customers' orders while a pull strategy response to an initiated customer order. Business Process Orientation concept proposes that companies may increase their overall performance by adopting a strategic view of their processes. (Paulo et al., 2003). According to (Lockamy & McCormack, 2004), companies with great leadership for their business processes reach superior levels of organizational performance and have a better work environment that is based on much more cooperation and less conflicts. A process is a progression of set activities identified to meet or achieved pre-defined outcomes within a defined framework and time. The supply chain requires unique processes in order to execute its primary objectives to fulfill customer orders. Supply chain processes include management of relationships with customers, management of relationships with suppliers, sales and operations planning, management of inventory, and management of warehousing.

SCM practices are defined as a set of activities undertaken in an organization to promote effective management of its supply chain. Supply base

management refers to how firms utilize their suppliers' processes, technologies, and capabilities to enhance competitive advantage (Farley, 1997), and how the manufacturing, logistics, materials, distribution, and transportation functions are coordinated within organizations (Lee & Billington, 1992). However, for the purpose of research, the researcher has identified four activities as part of the supply chain process which includes planning, sourcing, Deliver and information sharing.

2.3.2.1 Planning:

The first step in the supply chain process is to Plan. At this stage, an organization has to focus mainly on developing a strategic plan that aimed at addressing the needs and aspirations of its customers at all cost, time and yield maximum profit. Sadler & Hines (2002), carried out an investigation on a team of managers from different companies in a supply chain network and how they can help to formulate strategic plans for operating the whole chain that will benefit each company and the entire supply chain network as a whole. Huan et al. (2004), introduced the supply chain operations reference (SCOR) model, analyzed its strengths and weakness, and discussed how it can best be used to assist managers in the strategic decision-making process.

Many researchers have proven that supply chain management success is largely dependent on the design and timeliness of the planning process associated with it. Planning in the context of a supply chain is the process of drawing a road map of work to define all the processes and activities of the chain and their timelines and schedules (Kurien & Qureshi, 2011; Quesada et al., 2012). According to Ngai et al. (2004), the plan involves what to do, who does it, when and how? It defines the roles and actions of each stakeholder in the network and establishes policies and strategies for evaluating and controlling success (Ngai et al., 2004; Kurien & Qureshi, 2011). Success in the supply chain is strongly linked to planning because it forms the basis of whatever is done and achieved. But since planning is the backbone activities of any organization and is done by people, there is a believe that it cannot impact much on supply chain management success if the people with

appropriate technology working in the company are not fully committed with the required support from key stakeholders.

Planning involves a whole set of activities ranging from collaborative forecasting, demand planning and demand management, capacity planning (i.e resources, rough-cut off capacity, capacity requirement, capacity control, capacity management) and Aggregate Production Planning which involves (Level, chase and Hybrid/ mixed strategies,). All these activities if properly utilized in the supply chain process will serve as the bases for supply chain improvement and hence performance

2.3.2.2 Sourcing

After the planning process, the next stage of the supply chain process is for the organization to develop a sourcing strategy to establish a strong relationship with key suppliers for the required production or service delivery process. The sourcing process will be looked at the organization's ability to identify a reliable supplier with agreed terms of various methods set aside such as pricing, delivery, payment processes and also create a provision to continue improving the relationship. According to Fynes & Foss (2005), outsourcing is the sub-hiring of activities, services or product parts that do not core to the company business, usually aiming at cost reduction, quality improvement and delivery struggle especially if both organizations in supply relationship brings to an end the existing relationships. (Lysons & Gillingham, 2003), states that outsourcing is the strategic use of resources to perform activities traditionally handled by internal staff and their resources. It is a management strategy by which an organization outsources major non-core functions to specialized and efficient service providers to help the organizations perform best where it is best capable.

2.3.2.3 Delivery:

The Delivery processes describe the activities associated with the creation, maintenance, and fulfillment of customer orders. The Deliver process symbolizes the receipt, validation and creation of customer orders, scheduling order delivery, pick, pack and shipment and invoicing the customer. The delivery process in supply chain is increasingly becoming an important internal service function of any firm and has been recognized by many practitioners as a strategic tool in achieving competitive advantage. Logistics system in supply chain creates cross-functional operations where companies can develop distribution channels through decentralized service distribution centers. Innovative companies already use wireless product identification with great benefits in specific functional areas, e.g. manufacturing and warehousing.

Smith (2005), suggested that such technologies with the appropriate IT infrastructure could help major distributors, manufacturers; to deal with complex and global supply chains. Radio- frequency identification (RFID) is currently used in many industries in transportation, distribution, manufacturing, processing and security. All these required an automated, wireless-readable sensory-based identification method, and network, that offers more functionality and is significantly “smarter” than the well-known bar code or the unified product code. Karkkainen & Holstrom (2002), analyzed the opportunities of wireless product identification technology in transforming supply chain management processes whilst Johnson & Anderson (2000), suggested both the repositioning of final manufacturing into the distribution channel and the move towards customization-on-order are related to the implementation of postponed manufacturing

2.3.2.4 Information sharing

According to Singh et al., (2010), Sharing Information between buyers and suppliers has resulted in the growth of virtual SCs. In SC practices, information is the main driver rather than the actual physical flow of goods. The accuracy and

reliability of the information outcome influence the efforts that are undertaken and hence resulted in performance improvements. Sharing information on retail inventory levels should reduce the demand distortion experienced upstream at the manufacturer level. Such information sharing leads to lower excess inventory and overstocking, fewer stock-outs, and theoretically reduced holding costs for both the manufacturer and the retailer.

To better respond to retailer order patterns and better forecast future demand, the organizations must invest in information infrastructure and dedicate staff to the initiatives to ensure precise and reliable information transfer. The lack of information sharing between stages of the SC magnifies the bullwhip effect. (Gaudreault et al.2009), have observed the impact of information sharing to improve the SC performance. Managing information in an inter-organizational context has become critical and the emergence of the internet and the range of related e-business technologies have created new opportunities and threats (Moller, 2005). According to (Saxena & Wadhwa,2009), knowledge management is a key enabler for seamless SC. Information quality includes aspects such as the accuracy, timeliness, adequacy, and credibility of information exchanged.

2.3.3 Supply Chain Performance

Organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals. The short-term objectives of SCM for goods purchasing is primarily to increase productivity and reduce inventory and cycle time, while long-term objectives are to increase market share and profits for all members of the supply chain (Li et al., 2006). Meanwhile, SCM in services are focused upon customer responsiveness, performance, and reliability modified from (Glynn et al., 2003) in order to obtain the same organizational objectives Much has been written about performance and how it is to be measured but up-to-date no coordinated decision has been reached on the topic. What is

generally believe and agreed upon is that performance must be measured both financial and operational (non-financial).

The most effective relationships exist where supply chain partners have been made aware of what performance standards they are being held accountable for Stuart & Mccutcheon, (2000). Selecting performance measures is intended to make sure companies accomplish the specific (collaborative) goals that they set. These characteristics incorporate the primary requirements that organizations need to continually address, evaluate and benchmark them against when desiring to constantly improve supply chain performance. The supply chain performance measures that an organization sets for itself and others should be specific, measurable and evaluated at regular intervals, and whatever measures are selected should be enforced (Tummala et al., 2006).

Supply chain companies have realized the importance of financial and non-financial performance measures (Fantazy et al., 2009). An effective performance measurement system ought to cover all aspects of performance that are relevant for the existence of an organization and the means by which it achieves success and growth Kaplan & Norton, 1996; Hillman & Keim, (2001). This means that any performance measurement system ought to include more than just financial measures. This point is well established as many authors contend that any credible model of performance measurement must have more than one criterion (O'Regan & Ghobadian, 2004).

This view associates earlier literature concerning organizational performance. (Gupta & Somers,1996), state that financial performance has been most widely used to determine the organizational health of a firm. Typical indicators include return on investment, return on sales and return on equity. A broader conceptualization of business performance includes an emphasis on indicators of operational performance (i.e. non-financial) in addition to financial indicators. According to (Venkatraman & Ramanujam,1987) “the inclusion of performance indicators takes us beyond the black-box approach that seems to

characterize the exclusive use of financial indicators and focuses on those key operational success factors that might lead to financial performance.” In this study, the researcher will use both financial performance measurement and non-financial performance measurement. Four dimensions of non-financial performance will be used such as flexibility (FLEX); Responsiveness (RESP) reliability (REL)and Agility (AGIL)

2.3.3.1 Flexibility

Fiksel (2006), defines flexibility as a major system characteristic that contributes to resilience. (Helaakoski et al., 2007) refers to flexibility to agility and adaptability to a given situation. In other words, flexibility is the ability of a system to easily accept a changing circumstance or environment. Sánchez & Pérez (2005), Flexibility may be defined as the ability to change or react with little penalty in time, effort, cost or performance whereas according to (Slack, 1983; Upton,1995) as cited by Stevenson & Spring, (2007) refers the term to have a generic principles underpin all literature on flexibility. In the manufacturing literature, flexibility is typically defined as a range, mobility and uniformity of various states a system can adapt, the ability to move from making one product to making another and the ability to perform comparably well when making any product within a specified range.

2.3.3.2 Responsiveness

According to Holweg, (2005), cited by (Al-hawajreh & Attiany, 2014), refers to Supply Chain Responsiveness as the ability of timeliness and the degree to which the supply chain can change in customer demand. In order words, Responsiveness in the supply chain is the coordination of production, inventories, location, transportation and distribution activities involves among the key participants in the supply network to achieve the best mix of responsiveness and efficiency for the market being served. They extend, modify the components of

flexibility and agility to develop the construct of supply chain responsiveness which includes operating system responsiveness, logistic process responsiveness and supplier network responsiveness. Operation system responsiveness is the ability of a firm's system to address changes in customer demand. It includes both manufacturing and service operation, Logistics process responsiveness is defined as the ability of a firm's outbound transportation, distribution, and warehousing system to address changes in customer demand. Supplier network responsiveness is the ability of the firm's major suppliers to address changes in the firm's demand. A key to responsiveness is the presence of responsive and flexibility partners upstream and downstream of the firm

The Responsiveness attribute describes the speed at which tasks are performed. Responsiveness is a customer-focused attribute that can address the repeated speed of doing business. The SCOR key performance indicators for Responsiveness metrics are Order fulfillment CycleTime. Vendor Managed Inventory (VMI), Continuous Replenishment Programs (CRP), Collaborative Planning, Forecasting and Replenishment (CPFR), production and distribution plans based on accurate data availability and the reliability of the information sharing process coordinated among the supply chain network players has a direct impact on responsiveness.

2.3.3.3 Reliability

Supply chain reliability means the degree to which the supply chain network yields a consistent performance with respect to customers attaining the maximum satisfaction towards the service delivery process. Reliability is a customer-focused attribute that seeks to address the ability to perform tasks as required. It also focuses on the predictability of the outcome of an event or process. The SCOR key performance indicator (level-1 metric) of reliability is Perfect Order Fulfillment with typical metrics such as On-time, the right quantity, the right quality.

According to Thomas (2002), as cited by Kittichai., et.al,(2004), introduces the engineering reliability theory to the study of supply chain management and define supply chain reliability as the probability of the meeting mission requirement to provide the required supplies to the critical transfer points within the system. In other words, to obtain a high rate of efficiency and effectiveness in supply chain management, supply chain must have high reliability as a guarantee measure to attract the overall competitiveness of the supply chain performance. In implementing an effective and efficient operational supply chain management strategy, reliability as a supply chain performance indicator is very pivotal in enhancing productivity, cut down cost, guarantee customer deliveries at right time, right place, right quality and at the right quantity through frequent collaboration. To match production and consumption, reliability enables supply chain players to minimize inventory and financial costs to deliver the product to its right destination.

2.3.3.4 Agility

Agility is primarily concerned with responsiveness and the ability of an organization to match demand and supply in disturbance and unpredictable markets(Christopher, 2014). Agility is a demand-driven rather than forecast-driven process. In situations where demand is volatile and the customer requirement for variability is high, an agile organization with wide capability has to embrace a strategy with good organizational structures and processes (logistics, sourcing, etc.). An organization should have in mind certain attributes that have the ability and speed to respond to changes by external influences. These external influences include such as Non-forecastable increases or decreases in demand, suppliers or partners going out of business, natural disasters, acts of (cyber) terrorism, availability of financial resources (the economy), labor issues.

2.3 Empirical review of Literature

Supply Chain Management is regarded as one of the most influential developments in business management and it has gained significance for improving organizational performance (Lambert & Cooper, 2000). In practice, supply chain management is regarded as a successful business concept and a good practice to link all stakeholders and ensure cost-effective and timely movement of materials and information from the inception of a product or service to its final consumption (Giannakis & Croom, 2004). Academicians and practitioners agree that SCM practices can have a great positive impact on the firm's performance (Shin, 2000). It has been claimed that with product life cycles shortening and technologies becoming increasingly imitable effective SC can be a big source of competitive advantage for firms, where a competitive advantage may be sought from practices which include outsourcing and supplier collaborations (Lysons & Farrington, 2006)

SCM practices are a set of activities undertaken by organizations to ensure the effective management performance of their supply chain. (Donlon, 2007), describes the latest evolution of SCM practices which include; partnership, sourcing, information technology flow and the globalization of SC activities. Tan et al identified six aspects of SCM practices through factor analysis; SC integration, information sharing, customer focus and use of Just in Time (JIT) capabilities. (Min & Mentzer, 2004) identified the concept of SC as including the mission and vision, information sharing, risk and award sharing, cooperation, process integration and long-term relationship and agreed supply chain leadership. Thus, the above literature portrays SCM practices from different perspectives with a common goal of improving organizational performances.

One of the deficiencies of existing research in SCM is Inconsistency in understanding sustainability. Carter & Rogers (2008), have demonstrated the inconsistency of defining sustainability in a wide scope of organizational, operational and supply chain management literature. According to their findings, a substantial body of SCM literature is restricted to specific environmental issues as green product development, logistics, waste treatment, human rights etc. and

therefore provides a narrow perspective on what SCM represents. Different environmental issues are addressed in a standalone fashion without consideration of the potential interrelationships” between environmental, social and economic issues (Carter & Rogers, 2008). Seuring & Müller (2008), have also highlighted that research in SCM “is still dominated by green/environmental issues with a clear deficit in supply chain management and purchasing literature on the amalgamation of all three dimensions of sustainable development”. Social issues and sustainability as an integration of economic, environmental and social concerns are still rarely addressed. Interestingly, the integration of three aspects of sustainability in academic literature has generally occurred since 2002 (Seuring & Müller, 2008),

Practices of SCM will not only make an impact on the overall performance of the organization but also on the competitive advantage of the organization. These practices are supposed to improve the organization’s competitive advantage using the price/cost, the quality, the delivery dependability, the time to market, and product innovation. Prior studies had identified that some of the components of SCM practices i.e. Strategic partnership with the supplier have a major impact on various forms of competitive advantage (i.e. cost). For example, the strategic partnership with the supplier will help in improving the supplier performance, and will help to reduce the time to the market (Ragatz et al, 1997) and will also result in the responsiveness and satisfaction of the customer (Power et al., 2001) Technology sharing will help to high level of integration of supply chain (Easton et al., 1998), by enable the organizations for the dependable delivery, also for introducing new product in market quickly. Sharing of information and the quality of information contributes positively towards the satisfaction of the customers (Spekman et al., 1998) and quality of partnership (Lee, & Kim, 1999)

2.4 Research gap

Both theoretical and empirical literature gave a comparative review of the major activities that have been undertaken to address the effects of SCM practices on the performance of organizations. However, past studies and theoretical issues

has not fully addressed the major SC practices and this indicates that both the empirical and the theoretical literature are of little assistance towards providing an effective solution to embracing an effective performance of SC in the communication sector. Application of effective SC practices that increase performances of telecommunication organizations remains a core critical issue that should be dealt with by proper appropriate recommendations on the challenges facing the implementations of SCM practices. While the present assessment has contributed to the understanding of these practices but further analysis in some areas is required to ensure the capacity needs for SCM is addressed appropriately.

Current methodologies for analyzing supply chain practices are inconsistent and not fully comprehensive and unified especially when it comes to understanding the complexities of SCM and organization performance in the service sector (Carter & Rogers, 2008). Understanding the relationship between supply chain relationships and SC performance that are applicable in manufacturing sector may not be enough to generalized to services (Field & Meile, 2008). Many studies have not fully addressed key areas that show the linkages between different supply chain management dimensions and the linkages between the fundamental dimensions of supply chain and Supply chain performance. Research has also shown that there are existing gaps in understanding the relationship between supply chain performance measures and organizational performance measures (Blowfield & Dolan, 2010). Based on the literature review of both theoretical and conceptual framework, a proposition is derived. In conclusion, the description of possible findings and implications of the study for managers is a consideration this study seeks to address. Finally, an integration of best SC practices and collaboration between key SC players will enhance the organization's ability to meet desired goals.

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CHAPTER 3

RESEARCH METHODOLOGY

This chapter dealt with the research design, target population, sample size and sampling technique, research instruments, sources of data, data collection procedure, pilot testing of the research instrument, reliability and validity, flow chart of research method and data analysis (descriptive statistics, reliability analysis and correlation).

3.1 Research design

The formidable task in defining the research problem is the research design. 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 Kothari, (2004:p31) The study seeks to investigate and provide a framework on the impact of supply chain practices on the performance of firms and to a larger extent examine the characteristics of the variables (Plan, Source, Deliver, Information sharing, Flexibility, Responsiveness, Reliability and Agility).The study is designed into qualitative and quantitative in nature. Qualitative because it involves the description in many words on the impact of supply chain practices. Equally so, some aspect of the study is quantitative. This is because quantitative analysis involving measurement of achievements made and mathematical calculations of input is used. Effort is also made to construct graphs which are quantitative but ordinal in nature to describe some aspect of the objectives of the study. To further understand the relationship between the variables of the study, an outline of the methodology is used in data analysis and discussions are made. Also, a proposed research model has been designed and can be seen below in Figure 3.1.

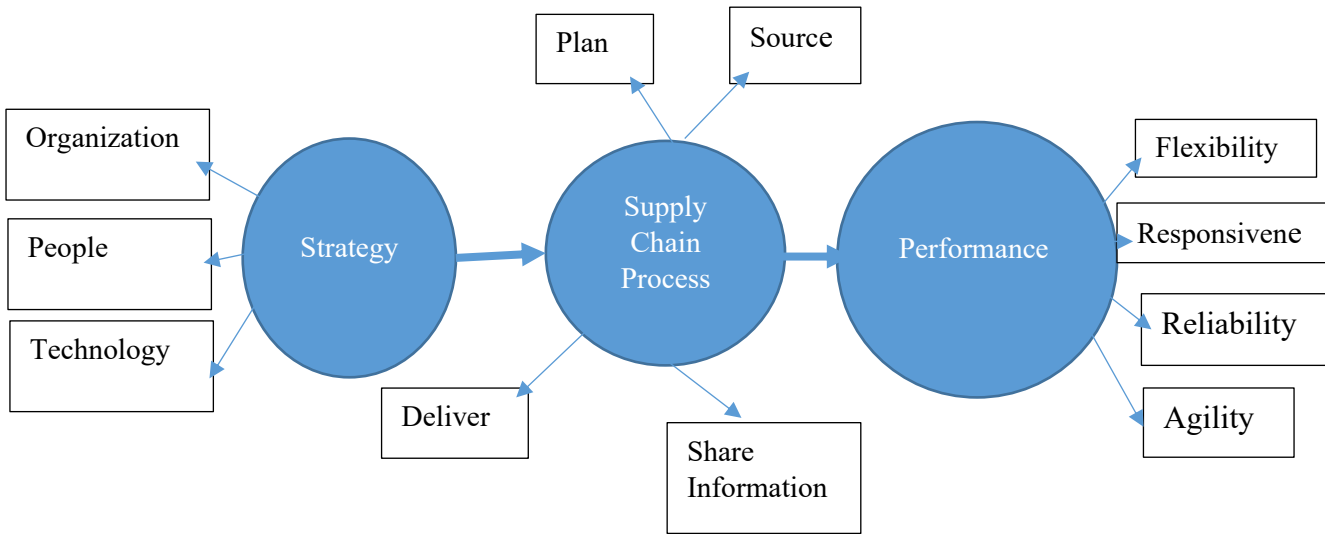


Figure 3. 1 Expanded Model View

Figure 3.1 above represents the framework of the study to show the relationship among supply chain strategy (SCS), supply chain process (SCP), and performance (PERF) in the service supply chain. The framework is designed into two (2) broad categories (enablers and performance) but each of these categories has various indicators constituting the variables to be investigated. For a better understanding of the relationship between the variables under investigation, the researcher decided to code the following variables and indicators for supply chain strategy (SCS), supply chain process (SCP) and performance (PERF). Supply chain strategy includes organization (ORG), people (PPL) and technology (TECH). The supply chain process (SCP) includes planning (PLAN), sourcing as (SOUR); deliver (DEL), and information sharing as (INFS), For performance indicators includes flexibility as (FLEX). Responsiveness as (RESP), Reliability as (REL), Agility as (AGIL).

3.2 Target Population

A target population is a population of interest identified by the researcher to investigate a specific issues whose findings is used to generalized the whole population. Best &Kahn,(2006), define target population as a population consisting of a specific group of subjects to whom the researcher plans to generalize their

findings. The population of the study includes all directors, managers, procurement officers, supervisors, warehouse officers of sierratel. According to sources from the human resources department, sierratel has seventeen (17) branches which comprise of eleven (11) in the capital city and six (6) in the provinces with a total population of 350 staff across the board. Since the respondents under investigation are not homogenous in nature, the use of stratified random sampling is adopted to sample key personnel who may have a direct impact on the subject matter and therefore, the number of respondents is reduced from 184 to 57.

Table 3. 1 Research Population

Respondents	Population
Directors	4
Managers	9
Branch managers	17
Supervisors	17
Procurement Officers	4
Warehouse Officers	6
Total	57

Source: (*Sierratel- Human Resource Register-2019*)

3.3 Sample and Sampling Technique

Kombo & Tromp (2006) define sampling procedure as a process of selecting a number of individuals or objects from a population such that the selected group is representative of the characteristics found in the entire group. This study utilizes a key staff of sierratel as specific to a generalization of a larger sample size of the percentage of the total population. A sample size of thirty-four (34) respondents is drawn from the sample frame using simple stratified random sampling to promote the needs for efficiency and representativeness. No fixed percent of the target population is used as a representative sample to determine the size of an adequate

sample of this study as this is justified by Best & Kahn (2006). It may depend on the nature of the population of interest or the data to be collected.

Table 3. 2 **Sample size**

Respondents	Target Population	Sample Size of Target Pop.)	Percentage of sample size
Directors	4	4	11.8
Managers	9	5	14.7
Branch managers	17	5	14.7
Procurement Officers	4	4	11.8
Supervisors	17	12	35.3
Warehouse Officers	6	4	11.8
Total	57	34	100

Source: Author 2019

3.4 Research Instrument

The instrument used in this research includes, an interview guide/personal interview, questionnaire and observation guide which is designed in an open and closed-ended with variables identified from the research objective is administered to the respondents. To ensure convenient comparison and analysis of the variables under investigation, the use of statistical tools such as tabulation and the transformation of the absolute data value into percentages is also adopted. The tables showing the data values of the variables of SCS, SCP and Performance respectively. (Organization, People and Technology), (Plan, Source, Deliver and Information sharing) (Flexibility, Responsiveness, Reliability and Agility) is analyzed by constructing charts as the case may be to elucidate the trends of the variables over the year of study.

Finally, the observation guide is a two dimensioned chart where units or attributes to be observed are correlated in the form of a scale. The use of an interview is justified by the fact that a high percentage of the respondents are not familiar with SCMP to respond to the items in the questionnaires whilst at the same

time rephrasing the questions to avoid ambiguity. Observation is used so that the Guinea pig effect is minimized. That is the effect of the respondent being aware of the fact he/she is being studied. Observation tends to produce more reliable results. To further trace the trends and patterns of the data on the impact of supply chain management practices, charts were also adopted to examine the magnitude of the SCMP and its impact on performance.

3.5 Sources of data

This study makes use of both primary and secondary data obtained from various sources including the research and statistical unit of the institution. Equally so, lecture notes, published work such as past dissertations/thesis, textbooks, journals are other sources of data for this research.

3.6 Data collection procedure

A questionnaire is administered using google form and WhatsApp platform method. In order to ensure an effective data collection process, the questionnaire was designed in an open and closed-ended question in order to enable the respondent to answer the questions independently. To avoid missing out very important details from the interview, the researcher also made phone calls to asked questions or pose the statement and then recorded the responses by means of note-taking. The questionnaires were distributed for a period of one month. The questionnaires were presented into blocks thereby indicating the objectives variables been investigated. The respondents were asked to mark on a Likert scale of 1 to 5, about their perception regarding the aspects related to the supply chain practices of the company which formed the basic constructs to supply chain practices and organizational performance. The scale is labeled with Strongly Agree [5], Agree [4] Neither [3], Disagree [2] and Strongly disagree [1]. Finally, email was first sent to Directors and other line managers managing and controlling various departments of their organization at an earlier period explaining the aims and objectives of the study and inviting/requesting their participation. Similar mails and phone calls was done repeatedly before the final issuing out of the questionnaires to the required targeted as well as reminding them to respond to the survey.

3.7 Pilot testing of the research instrument

A pre-testing of the research instrument was conducted prior to the main study on a group of respondents. Mugenda and Mugenda,(2003), as cited in Mwangangi et. al, (2017) stated that a sample size of 1- 10% of the sample frame is a suitable frame to engage in a pilot testing. Three (3) respondents were selected and used for the pilot testing in order to determine the suitability, appropriateness, and clarity of the questionnaire in addressing the variables under investigation whilst at the same time determine the reliability of the instrument. The respondents participated in the pilot test were not considered again as a target in the final completion of the main study. Questions drawn initially by the researcher but were not properly understood by the respondents, an adjustment was made with the help of my supervisor who is an expert in the field of operations and supply chain engineering by rephrasing those questions to avoid ambiguity with the aim of making them clearer to the respondents thereby helping to improve the questionnaire. The results of the pilot testing yielded an internal consistency and stability of a Cronbach's alpha of 0.976 as shown in Table 4.5 at 5% confidence level before finally the questionnaires were sent to the target respondents via electronic using google form and WhatsApp site platform.

3.8 Reliability and Validity of the Study

The reliability of a research instrument tool depends on four factors. Consistent, stable, predictable and accurate. In other words, reliability may refer to a measure of the degree to which research instruments yield consistent results. The greater the degree of consistency and stability in an instrument, the greater its reliability. According to Babbie,(2011,p159), states that "In conventional usage, validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration". In research methodology, measurement procedures consider validity as the ability of an instrument to measure what it is designed to measure. In other words, validity is the extent to which differences found with a measuring instrument reflect true differences among those

being tested but the question arises how can one determine validity without direct confirming knowledge. Mugenda & Mugenda (2003) as applied to Mwangangi (2017) hold that, the accuracy of data to be collected largely depends on the data collection instruments in terms of validity and reliability. Reliability and Validity achieved by having objective questions included in the questionnaire. This will be achieved by pre-testing the instrument to be used to identify and change any ambiguous, awkward or offensive questions and technique. A reliability test using Cronbach Alpha of 5% significant level will be use in the study to show how best the variables are suitably for the questionnaire.

3.9 Flow Chart of Research Methods

The research methods described in the previous sections can generally be summarized in Figure 3.2 to show the various stages involve in the research process and how these processes are carried out. The flow chart starts by identifying the research problem, setting the objectives of the study, data description (qualitative and quantitative), sources of data, data collection procedures and finally data would be analyzed by means of descriptive statistics by which a conclusion is reached.

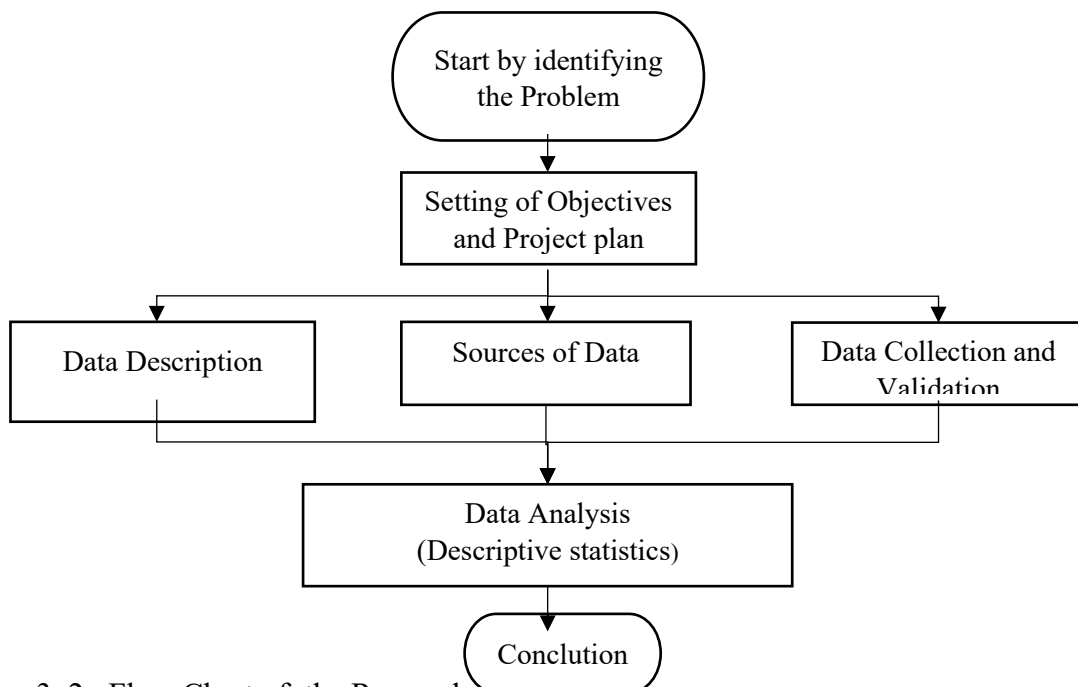


Figure 3. 2 Flow Chart of the Research

3.10 Data analysis and presentations

Sekaran, (2000: p118) asserts that there are three objectives in data analysis; getting a feel for the data, testing the goodness of the data, and Hypotheses testing to answering the research question, Establishing the goodness of data lends credibility to all subsequent analysis and findings because it measures the reliability and the validity of the measures to be used in the study. Thus, the study used the Statistical Package for Social Sciences (SPSS) version 23, Minitab and MatLab version 17 as a means to analyze the data collected. Three techniques of data analysis test were used in the study such as descriptive statistics, reliability and correlation analysis is used. The study also integrates both qualitative and quantitative techniques to analysis data. To ensure efficiency and accuracy of the research, the data would be presented diagrammatically by means of Pie charts, Histograms, graphs and tables.

3.11.1 Descriptive Statistics

Descriptive statistics involves the transformation of raw data into information to describe a set of factors in a situation. Descriptive statistics are commonly used to provide analysis for data transcription errors and distribution patterns, to provide a description of the basic demographic characteristics of the sample obtained from the survey. Descriptive statistics such as measures of central tendency and dispersion was used. The frequency distribution of various subcategories of data was calculated into percentage to show the level of opinion made by different respondents. For example, analyses on how many respondents agree or disagree on the variables investigated. etc. Besides frequency tests, the normality test was also done. Normality test is an assessment of the normality of data and also a prerequisite for many statistical tests as normal data is an underlying assumption in parametric testing. There are two main methods of assessing normality - graphically and numerically. The results tell us if Sig. value of the

Shapiro-Wilk Test is greater than 0.05 then the data is normal. If it is below 0.05 then the data significantly deviate from a normal distribution.

3.11.2 Reliability Analysis

Reliability analysis is used for testing both consistency and stability. Consistency indicates how well the items measuring a concept hang together as a set. Cronbach's Alpha determines the internal consistency or average correlation of items in a survey instrument to gauge its reliability (Cronbach, 1951). Therefore, Cronbach's Alpha (α) was used to test how well the items in a set are positively correlated to one another. According to Sekaran, (2000), Cronbach's Alpha is a reliability coefficient that indicates how well the items in a set are positively correlated to one another. He added that the closer the Cronbach's Alpha to 1, the higher the internal consistency but for the purpose of this study, Cronbach Alpha coefficient of 0.5 and above are accepted. Sekaran (2003) as cited in Oyewobi et al,(2012), further claims that a study is only reliable when another researcher using the same procedure and studying the same phenomenon arrives at similar conclusions.

3.11.3 Correlation Analysis

A Pearson correlation is used to show the direction, strength and significance of the bivariate relationships of the variables used in the study. The (r) between 1.0 which indicates a positive relationship and (r) -1 indicate a negative correlation.

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CHAPTER 4

DATA PRESENTATION AND ANALYSIS

This chapter dealt with presentation, discussions, and analysis of data obtained from research in relation to assessing the impact of supply chain management practices in enhancing organizational performance with emphasis placed on the Sierra Leone Telecommunication Company Limited. Data were collected from 34 staff of the organization at different managerial levels ranging from directors, managers, procurement officers, supervisors and warehouse officers. The rationale of this research is to assess the current supply chain practices with empirical evidence and to verify the impact it has on organizational performance. The research used descriptive statistics and correlation analysis to examine the impact of supply chain practices on the performance of the company being reviewed. In other to compare results, the findings presented in this study follow the research of Fantazy et al (2009).

4.1 Response Rate

A total of 96 questionnaires were issued to the Sierra Leone Telecommunication Company (Sierratel) in Freetown, Sierra Leone and all the questionnaires were returned and data collected is used in this research. A hundred percent (100%) response rate was received from the respondents. This was a result of the frequent and persistent follow up calls and emails sent to them as a way of reminding them to respond to the research instrument. Part one of the questionnaire dealt with the demographics which contain basic data such as educational status and attainment, job designation, working experience and the number of employees working in the company under-investigated.

Table 4. 1 Response rate from the respondents

Response Rate of Respondents		
Designation	Count	Percent
Directors	4	11.8
Managers	5	14.7
Branch Managers	5	14.7
Procurement officer	4	11.8
Supervisor	12	35.3
Warehouse officer	4	11.8
Total	34	100

As shown in Table 4.2.1, it is evident that all the respondents participated fully with one hundred percent responses which indicate that the employees are interested and willing to give some of their time to respond to the issues highlighted in the research.

4.2 Demographic

The demographic information considered in the was job designation, work experience and educational attainment.

4.3.1 Job Designation

Employees were requested to indicate their title or positions they held in the respective company in order to match those the researcher specifically identified as target.

What is your job designation

34 responses

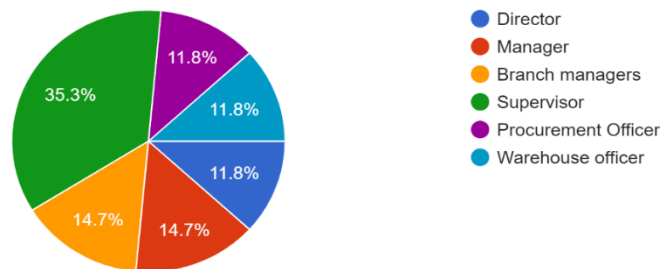


Figure 4. 1 Job designation of respondents

From the data shown from Table 4.1 as well as Figure 4. 1 above, indications shows that (4) 11.8% of the respondents were directors, (5) 14.7% manager, branch managers (5)14.7%, procurement officers (4) 11.8%, supervisors (12) 35.3% and 4 warehouse officers (11.8%), This means that supervisors had the highest number of respondents who participated in the research process followed by 5 managers, 5 branch managers, 4 directors, 4 procurement officers and 4 warehouse officers respectively.

4.3.2 Work Experience

The respondents were asked to indicate the length of time they had worked in the company with different options given, ranging from less than a year to fifteen years and above. This is shown in Table 4.2 below.

Table 4. 2 Working Experience of Personnel

Years	Count	Percent
Less than a year	1	2.9
2 to 5 years	13	38.2
5 to 15 years	16	47.1
Above 15 years	4	11.8
Total	34	

Working Experience

34 responses

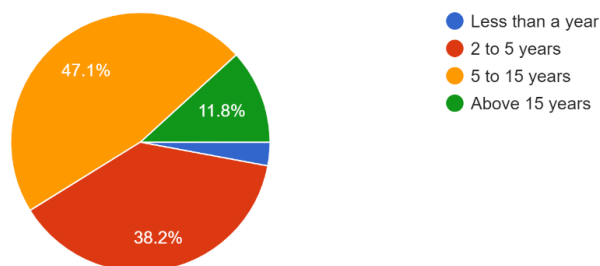


Figure 4. 2 Working Experience of Respondents

The average working experience of the respondents was 8.5 years (47.1%) which represents 16 personnel who have worked in the organization for five (5) to fifteen years. The study also shows that 13 personnel has worked for 2 – 5 years (38.2%) whilst 4 personnel has worked for more than 15 years (11.8%) and 1 personnel has only worked for less than a year (2.9%) respectively.

4.3.3 Educational Attainment

The respondents were asked to indicate their educational attainment as at the period under investigation and the findings is shown below in Table 4.3

Table 4. 3 Educational Attainment of Personnel

Educational Attainment	Count	Percent
Diploma/Certificate	5	14.7
Degree	14	41.2
Master degree	14	41.2
PhD	1	2.9
Others	0	0.0
Total	34	

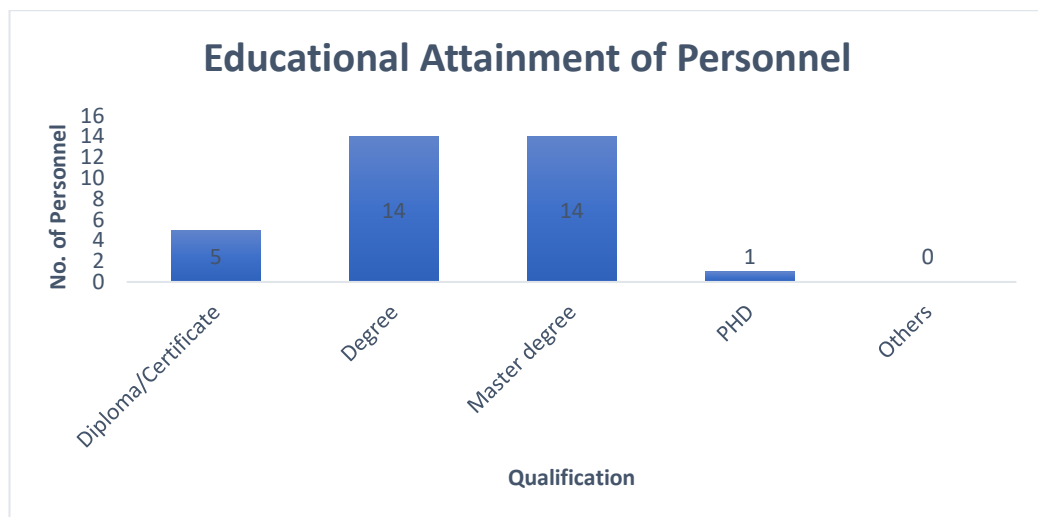


Figure 4. 3 Educational attainment of Personnel.

The research shows that, out of the 34 personnel interviewed, only 5 have diplomas, 14 degrees while 14 have a master’s degree and 1 has a Ph.D. degree respectively. This means that the institutions employed a considerable number of highly educated people to execute their business operational activities.

4.3 Validity and Reliability Analyses

4.4.1 Construct Validity

Construct validity measures the extent to which the items in the scale are affective for measuring the theoretical construct (Carmines and Zeller, 1979; Churchill, 1987). To perform a measurement of construct validity requires that the researcher not only determine that each item measures the construct it was intended for but also to validate that the items do not measure any other factor. Combining tests of “convergent” and “discriminant” validity ensure that this is accomplished

4.4.2 Scale Reliability (Cronbach’s alpha)

Testing for both internal consistency and stability of the research variables, a reliability test was conducted for each variable to measure how well the items hang together as a set. Eight- seven (87) items was loaded using a Cronbach’s alpha of 0.05 for each item as indicated below in Table 4.4

Table 4. 4 Scale Reliability

Construct	Variable	Number of Items Loading	Cronbach’s alpha
STRATEGY	Org	6	0.807
	People	7	0.834
	Technology	8	0.842
	Plan	7	0.834
PROCESS	Source	7	0.821
	Deliver	7	0.842
	Information Sharing	7	0.810
	Flexibility	6	0.801
PERFORMANCE	Responsiveness	8	0.890
	Reliability	5	0.882
	Agility	5	0.886
IMPACT	Impact of SC	14	0.942
Total		87	

The results of the reliability analysis summarized in Table (4.4) above show the scale reliability of the Cronbach alpha measure at different levels. The first column represents the main construct of the research framework while the second column shows the variables of each construct. The third and final columns represent items loading(questions) with their corresponding Cronbach alpha values. Eighty-seven (87) questions were drawn from twelve (12) variables for this research and all the scores for the questions meet the widely accepted rule of the thumb of 0.70 recommended by Nunnally (1978). However, out of the four main constructs, the impact of supply chain has the highest score of 0.942 followed by performance (Responsiveness) with a score of 0.890. Both process (deliver) and strategy (Technology) score the same values of alpha 0.842 respectively. Although this research focused on the practices of a supply chain in the service industry, the results (alpha values) exceeded the 0.70 expectation suggested by Nunnally, 1978) indicating that the questionnaires were designed appropriate and the respondents understood the contents. The reliability of each of these indicators used in this research is more than 0.70 which clearly shows that the result is reliable, stable and consistent.

4.4.3 Composite Reliability

The composite reliability accepted value used in this research is the same as the one the researcher sets for Cronbach’s alpha of 0.70. The table below shows the reliability statistics of the constructs under the investigation.

Table 4. 5 Reliability statistics

Cronbach's Alpha	N of Items
.976	87

A Cronbach alpha of 0.05 as a diagnostic measure to test the reliability of this research is used to assesses the consistency of the whole-scale considering the fact that it is the most widely used measure. According to (George & Mallery, 2003), consider a common accepted rule for describing and evaluating internal consistency

using Cronbach's Alpha as follows: $\alpha \geq 0.9$: Excellent ; $0.9 > \alpha \geq 0.8$: Good ; $0.8 > \alpha \geq 0.7$: Acceptable ; $0.7 > \alpha \geq 0.6$: Questionable; $0.6 > \alpha \geq 0.5$: Poor ; $0.5 < \alpha$. Meanwhile, eighty-seven (87) items were drawn from the sample and all the items yield a result of **0.976** which exceeds the accepted alpha value of **0.70** suggested by (Nunnally, 1987) and the result is taken to be as reliable.

4.5 Supply Chain Practices

This section sought to discuss the various constructs of the research framework highlighted in the previous chapter and also to assess the impact of supply chain practices of the organization under investigation. The results of the findings are shown below in various tables followed by discussion and analyses. Descriptive statistics is used to analyze the data received from the respondents and to describe which supply chain practices has an impact on the organization's performance

4.5.1 Supply Chain Strategy

The research uses three paradigms as a strategy to assessed supply chain practices and to a large extent how these practices can impact the performance of firms in Sierra Leone with special emphasis placed on the organization under review. The paradigm used in this study includes organization, people and technology. The mean and standard deviation is the main descriptive statistical measures used in analyzing the three paradigms identify as the supply chain strategy of this research.

Table 4. 6 Supply Chain Strategy

	N	Range	Min	Max	Sum	Mean	Std. Dev.	Vari.
ORGANISATION	34	3.80	1.20	5.00	136.90	4.0265	.70681	.500
PEOPLE	34	2.70	2.30	5.00	132.90	3.9088	.67211	.452
TECHNOLOGY	34	2.70	2.30	5.00	132.50	3.8971	.54688	.299
Valid N (listwise)	34							



Figure 4. 4 Supply chain strategies

From the data presented in Table 4.6 above, it shows that organization as a supply chain strategy score the highest mean and standard deviation of (4.0265) and (0.70681) respectively, followed by people and technology whose mean and standard deviation are (3.9088; 0.67211) and (3.8971; 0.54688). 34% (12) of the respondents of the company (Sierratel) strongly agree that the company assign responsibilities to employees with set targets as well as the organization has a well-defined policies that is periodically reviewed for better improvement whilst at the same time 33% (11) respondents agree that employees are not involved in some decision making process and the company do not have sophisticated IT systems for their operations. Meanwhile, 34% (12) employees agree that the company has a focus and visionary leadership as well as a centralized and decentralized work policy but disagree with the fact that the company has a shorter span of control or command structure. Also, 66% of the respondents disagree that the organization invests heavily in IT infrastructure and their IT system enables cross-enterprise connectivity. They also failed to agree that, the organization provides training capacity for their employees and the right people are assigned in the right positions as shown in the appendix 2A1,2A2,2A3

4.5.2 Supply Chain Processes:

The goal of the researcher was to assess the impact of the different supply chain processes involved in the normal operation of the company. Four constructs were used by the researcher as a reference model to assess the various supply chain processes (Plan, Source, Deliver and Information sharing). The mean and standard deviation were the main factors used by the researcher to analyze the results of the different processes involved in the supply chain practices of the company. A mean of 4 and above shows to a large extent that the respondents agree or strongly agree while a mean less than 2 indicates strongly disagree or disagree and a mean of 3 shows that the employees are neutral in their opinion. The findings of this study are presented in Tables 4.7 and Figure 4.5 below.

Table 4. 7 Supply chain Process

	N	Range	Min.	Max.	Sum	Mean	Std. Dev.	Var.
PLAN	34	2.30	2.70	5.00	138.40	4.0706	.57342	.329
SOURCE	34	2.10	2.90	5.00	140.60	4.1353	.48548	.236
DELIVER	34	2.40	2.30	4.70	129.60	3.8118	.59583	.355
INFORMATION SHARING	34	2.00	3.00	5.00	137.40	4.0412	.47934	.230
Valid N (listwise)	34							

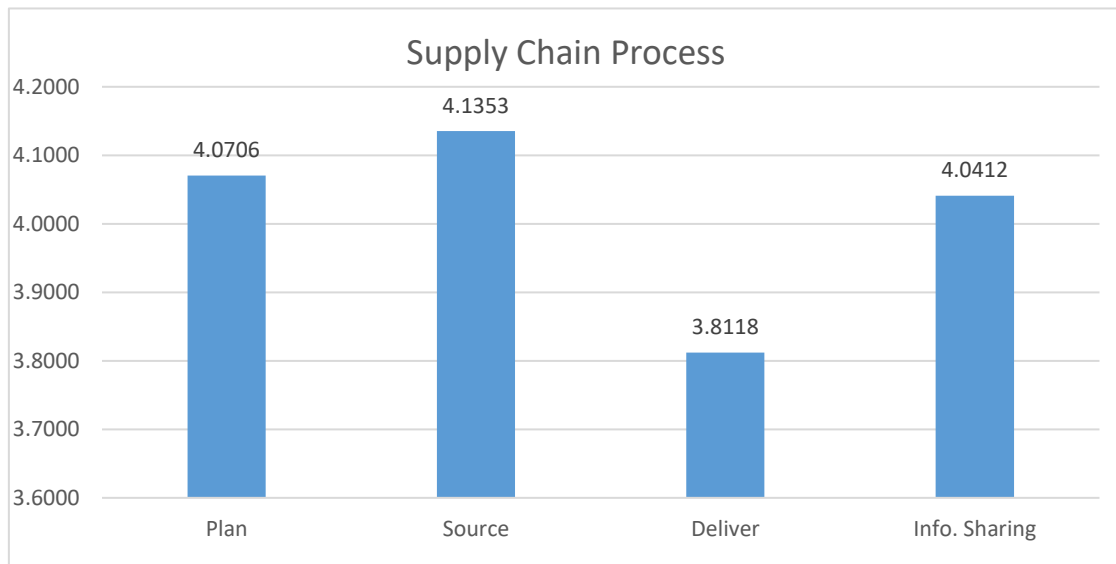


Figure 4. 5 Supply chain processes

From the results presented in Table 4.7 and Figure 4.5 above, it clearly shown that the sourcing policy adopted by the company has the highest mean score and standard deviation of (4.1353) and (0.48548) respectively interns of its supply chain processes as compared to plan(4.0706; 0.57342) information sharing(4.0412; 0.47934) and deliver(3.8118; 0.59583). According to appendix 2B, the respondents agree that the company have good relationship with their suppliers(4.4412), an inventory plan of our supplier(4.2059); regularly update their suppliers with their performance records (4.1176); supplier has high level of reliability (4.0882); maintain alternative sources of supply (4.0882) and manage supply risk systematically(4.0882). Also, the planning process adopted by the company yield a mean of (4.0706) and a standard deviation of (0.57342) This means that the company have a strategic plan which has a timeline for implementation, do a collaborative planning with suppliers, plan for capacity requirement; establish and communicate a supply chain plan cycle time and finally, periodical reviewed of the strategic plan for improvement. With regards to the information sharing process adopted by the company, it has a mean and standard deviation scores of (4.0412) and (0.47934) respectively. This indicates that the respondents agreed with the view that, the company inform their suppliers in advance of any changing needs or events that may affect their relationship (4.1765), share information or knowledge of core business processes for success (4.0882). Meanwhile, the mean score of the delivery process (3.8118) that was practiced by the company fall below the average mean of 4 which means that the respondents disagreed with most of the questions asked about the delivery processes of the company. For instance, they disagreed that the company's distribution centers are closer to the customers (3.5588) delivery schedules are shorter than competitors (3.6765); make provisions for potential delivery disruptions such as breakdowns and natural disaster (3.7647) and finally the company's delivering lead time increase supply chain process (3.8529).

From the findings carried out in the research, it can be concluded that source, plan and information sharing are key processes in supply chain management practices which is partly in line or agreement with the literature.

4.5.3 Supply chain Performance

The researcher used non-financial performance measurements to assess the performance of the company. Four dimensions of non-financial performance indicators were used. flexibility, responsiveness, reliability and agility to sound respondents' opinions regarding their perception of the performance of their organization. Table 4.8 below shows the performance indicators of these research.

Table 4. 8 Supply Chain Non- Financial Performance

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Var.
FLEXIBILITY	34	2.20	2.80	5.00	136.10	4.0029	.61026	.372
RESPONSIVENESS	34	2.30	2.50	4.80	133.30	3.9206	.66596	.444
RELIABILITY	34	3.60	1.40	5.00	135.60	3.9882	.73020	.533
AGILITY	34	3.20	1.60	4.80	126.00	3.7059	.73069	.534
Valid N (listwise)	34							

From the researcher's findings, there is an empirical evidence showing that flexibility scored the highest mean of (4.0028) and standard deviation of (0.372) which indicates that, respondents agreed with the fact that flexibility has a direct effect on the performance of the company. Most of the respondents interviewed express their opinion that the company has the ability to change planned delivery schedules (4.2059) as well as quickly adapt to changes in demand in the market (4.0294) as shown in appendix 2C. Meanwhile, the company's responsiveness practices have a mean and standard deviation of 3.9206 and 0.66596 respectively. Meaning that the company could not respond to customers' request promptly (3.8824); response time is not always available on a 24 hours bases (3.7647); customers complaints are not handled with the attention needed (3.9412). Both

reliability and agility also showed a mean and standard deviation of (3.9882; 0.73020) and 3.7059; 0.73069) respectively.

4.5.4 Summary of Supply Chain Practices

In this section, study sought to give an overall summary of the findings made from the different supply chain practices adopted and implemented by the company for the period under reviewed. Some of these practices mentioned in both Table 4.9 and Figure 4.6 includes: Strategy, Process and performance

Table 4. 9 Summary of Supply Chain Practices

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Var.
STRATEGY	34	2.70	2.20	4.90	133.90	3.9441	.53315	.284
PROCESS	34	1.60	2.90	4.50	136.70	4.0147	.42411	.180
PERFORMANCE	34	2.50	2.30	4.80	133.10	3.9044	.62140	.386
Valid N (listwise)	34							

Source: Research Data 2019

Summary of Supply Chain Practices

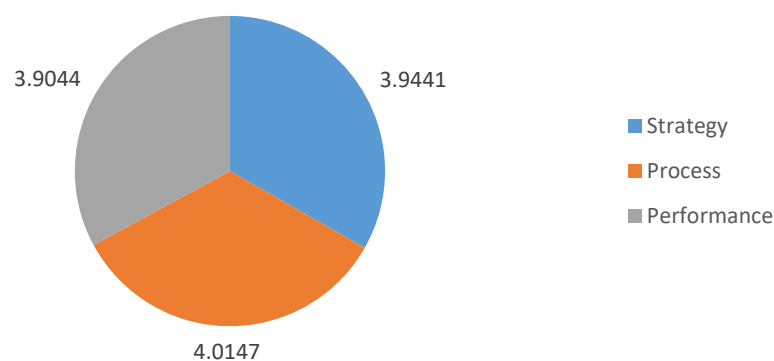


Figure 4. 6 Summary of supply chain practices.

Table 4.9 and Figure 4.5 show a summary of analysis into the investigation of the different supply chain practices adopted and implemented by the company for the period under review. Statistical data collected from the research clearly

indicates that the company is only able to achieve an average mean of (4.0206) for its supply chain processes while the mean scores for strategy(3.9382) and performance (3.9147) practices fall below average, meaning that the two practices did not contribute much impact on the adoption and implementation of supply chain practices of the company. Finally, it can be concluded that the higher/ stronger the company's supply chain practices rating the greater/better the company's overall performance and improvement it will be. This is inconsistent with the studies done by (Fawcett et al., 2007) and (Pujawan, 2008)

4.5.5 Impact of Supply Chain Practices

The aim of this research was to assess the current supply chain practices adopted and implemented by the company and to large extent the impact made towards organizational performance. Fourteen questions were asked to the respondents as indicated in appendix one (1) part(V) to assess the impact of the current practices. The results from the findings is shown below in Table 4.10

Table 4. 10 Impact of Supply Chain Practices

	N	Min	Max	Mean	Std. Deviation	Variance
IMPACT	34	2	5	3.90	.600	.360
Valid N (listwise)	34					

Based on the researcher's finding and the data presented in Table 4.10 above, it is statistically clear that the supply chain practices adopted and implemented by the company has an impact with a mean and standard deviation of (3.90) and(0.600) respectively which means that most of the employees interviewed do not totally agree that the practice has much impact on the company's performance. From appendix 2B, most of the respondents agreed that the " Organization" strategy employed has helped to improve performance (4.1471); the "People" employed to execute business functions also helped to improve the company's performance (4.0882) whilst they disagreed that the company's delivery services is relatively poor(3.7353),low investment in IT infrastructure(3.9412), the company's flexibility

strategy to adaptation to changes in demand and supply in the market is also low (3.7647), low responsiveness to customers request as compared to competitors (3.7647), insufficient information sharing process (3.9118).

4.6 Correlation

A Pearson correlation was carried out to examined the relationships between strategy, processes and performance of the organization at 5% significant level. A complete list of the correlation matrix is presented in Table 4.11 and scatter plot in Figure 4.7 The findings shown in the table below explain much more of the variables in the research to indicate the effect of the relationship either positive, negative or moderate.

Table 4. 11 Correlation between Strategy, Process and Performance

		SUPPLY CHAIN STRATEGY	SUPPLY CHAIN PROCESS	SUPPLY CHAIN PERFORMANCE
SUPPLY CHAIN STRATEGY	Pearson Correlation	1	.653**	.653**
	Sig. (2-tailed)		.000	.000
	N	34	34	34
SUPPLY CHAIN PROCESS	Pearson Correlation	.653**	1	.834**
	Sig. (2-tailed)	.000		.000
	N	34	34	34
SUPPLY CHAIN PERFORMANCE	Pearson Correlation	.653**	.834**	1
	Sig. (2-tailed)	.000	.000	
	N	34	34	34

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

According to Table 4.11, the strategy shows a positive relationship with process and performance. The path coefficient of the strategy was 0.00 and is statistically significant ($p < 0.05$) A correlation of 0.653 is moderately a positive correlation with process and performance, .and that there is evidence to say that this correlation exists in the population. Also, there is a strong direct relationship between process and performance (0.834) and statistically significant ($p < 0.05$).

there is enough evidence to justify that, there is a positive relationship exist between process and performance and the effect for a process ($r= 0.834$) indicated that the level of process accounted for a large portion of (83.4%) of the variability in strategy. The stronger the relationship between process and performance as expected and suggests that the company’s supply chain practices should think of adopting and integrating supply chain processes alongside supply chain performance for continuous improvement. However, information sharing was more strongly negatively related to technology. The coefficient of information sharing was (0.285) and statistically not significant ($p > 0.05$).

4.7 Management Response and Rating of Supply Chain Practices

Based upon a review of the qualitative interviews done earlier as a main source of information, the researcher further conducted a supplementary interviews to ten staff of the company through phone calls and emails about their perception on which supply chain practices they considered more highly important, moderate, low or poor for the current management practices as well as the gains achieved and the challenges the company is faced. Phone interviews were chosen primarily for clarification on areas where the respondents cannot understand the content to avoid ambiguity in the research process. Replies received was recorded and organized in the form of note taken

Table 4. 12 Respondents Interviewed

Job Designation
Directors
Managers
Procurement Officers
Warehouse Officer

Source: Research Data 2019

From the feedback received from the directors and the other staff, they believe that strategy in the content of this research is the main architect that any company has

been considered very important for its to survive and compete competitively. The director interviewed said:

“The strategy provides the directions the company wants to achieve its short, medium to long term strategic objectives. The organizational structure, the people and technology are very important for the company’s performance. The leadership, vision, mission, personnel and the required technology can be a good strategy of any company to gained competitiveness”

They highlighted some of the gains the company has achieved as well as the challenges the company is currently faced with its supply chain practices. The director further pointed out clearly that:

“The cost involves in investing in sophisticated IT infrastructure could be too high for the company’s current financial position as well as providing the necessary training capacity for our IT staff, and recruit experts in the supply chain for the company. We are challenged with modern technology which leads us to command low market share despite our monopoly in landline but management is working on replacing the absolute IT equipment to meet the current technology that would be more effective and efficient to improved performance whilst at the same time searching for supply chain expertise”.

A similar view which all the other respondents agreed upon. This is evidence from the findings shown in appendix 2B that, out of the ten (10) respondents interviewed, five (5) 50% of them rate strategy as the most important practices that management should consider and put more emphasis on training capacity and IT investment. Also, managers agreed on the fact that some supply chain processes have to be improved and continue to maintain those areas that are above average for better improvement. For instance, they agreed that some areas like planning, sourcing and the information sharing process are making some significant gains but more effort is needed to improve on the delivery services of the company. According to the procurement manager, he said:

“The company have well-defined sourcing policy which is periodically reviewed to match current practices. We have an inventory plan of our suppliers

which we regularly updated on their performance to maintain a high level of reliability and to manage systemic risk”

Information sharing is also very critical for the functionality of the company. Most of the time customers often feel that they are not adequately informed about the poor network connections during the raining seasons and they felt dissatisfied with the breakdown of the communication system. Without sharing the information, it could be very difficult for the customers to understand the real problem causing the network especially when there is a heavy downpour of rains. One marketing manager said:

“Telling customers everything about the poor services that occurred during the raining seasons could lead to loss of trust and confidence with our customers and would eventually damage our relationship. We sympathized and apologized to them by sending SMS text messages for the poor network. It requires sophisticated IT equipment and expertise to resolve certain issues like early warning systems to monitor and advert adverse weather conditions that would lead to disruption in network connections”. Management sometimes suffers damage due to loss of sale as a result of the hostile weather condition and we sometimes do offer free services to our customers to compensate them for the breakdown of network connections”

All the respondents agreed with the fact that the performance indicators mentioned in this research could not meet the goals of the company. The company’s ability to adapt to changes in the market and their response time to customer's complaints is still a challenge to management due to inadequately trained personnel and sophisticated IT systems to handle complex issues. The company lacks the technology to monitor and detect early warning signs of failure or disruption and also the strategy to mitigate volatile situations. Finally, in a conclusive statement made by the director stated that:

“Management is currently developing a five-year strategic plan that would handle all the challenges highlighted to improved and sustained areas were some gains have been made”.

4.8 Conclusion

From the above analysis that, the supply chain process as one of the practices among the others is almost in its right direction. More effort is needed from the company to address the other challenges the company faced with regards to their strategy and performance practices to enhanced continuous improvement and for the benefit of the company as a whole.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter brings the entire research work to an end and also provides a summary of the findings, conclusion and recommendations to the management of the company, supply chain practitioners and future academic researchers.

5.1 Summary of Findings

The aim of this research was to assess supply chain practices and how these practices are perceived to impact the performance of firms in Sierra Leone especially the Sierra Leone Telecommunication Company Limited (Sierratel). From the analysis, the researcher found that some of the practices had created some impact on the performance of the company with an accepted mean average from the respondents for source (4.01353); Plan (4.0706), Information sharing (4.0412) respectively. The research also revealed that the company only achieved an average mean of 4.0206 for its supply chain processes while the mean for strategy (3.9382) and performance (3.9147) practices fall below average which shows that the two factors did not make much impact on the current supply chain practices of the company. The researcher is able to establish the fact that, the company's supply chain strategy is not fully accepted according to the opinions of the respondents. The strategy of the company showed a mean score of (3.09382) which means that the company did not invest heavily in IT infrastructure and lacks sophisticated IT systems for its operations. The company also failed to provide training capacity for its employees and did not assign the right people in the right positions. Finally, there is enough evidence to substantiate the fact that, a strong direct relationship exist between the supply process and supply chain performance (0.834) and is statistically significant at a 95% confidence interval.

5.2 Conclusion

Based on the extensive studies carried-out in assessing the impact of supply chain practice, the researcher concluded his findings according to the design of the research framework and the following conclusions were reached.

From the research carried -out, it can be concluded that the company's supply chain strategy is below average to fully achieve its strategic objectives. This is due to the company failed to invest heavily in its IT infrastructure. The technology used by the company is not sophisticated to meet the current trend of the market as compared to their competitors making business operations more difficult for employees to do their work easily. There is inadequate training capacity for personnel to handle the required technology efficiently. Also, the lack of experts in the supply chain leads the management of not assigning the right people in their rightful position.

From the findings, the results showed that the supply chain process scored the highest mean and standard deviation than the company's strategy and performance. This is as a result of three out of the four indicators (plan, source and information sharing) has a mean of four (4) and above as compared to strategy and performance with only one indicator above four each. The company's sourcing policy adopted is in place to meet the current supply chain practices, as well as the good relationship with suppliers, maintain a high level of reliability.

The performance indicator became the least among the supply chain practices of the company. The analysis of the result showed that only flexibility had an impact on the performance of the company. The company's responsiveness practices are below average meaning that, the company could not respond to customers' requests promptly and response time is not always available on a twenty-four (24) hours bases. Also, customer complaints are not handled with the attention needed. The reliability and agility also shown a mean that is below average respectively This means that management have to take the necessary measures in addressing those areas leading to low performance.

5.3 Recommendations

Research of this nature would have not to be completed without providing meaningful and sincere recommendations or suggestions. It is in this vein that this piece of work is accompanied by the following recommendations which the researcher wishes to make known to senior management of the company, other organizations, policymakers, readers and future academic researchers wanting to undertake a similar venture.

1. To survive in a keen competitive environment, firms have to design a clear and comprehensive strategy that will embrace supply chain best practices in an effective and efficient manner. This is so because the strategy of the company shows the direction or path the business is going in terms of efficiency and responsiveness.
2. The company should invest heavily in IT infrastructure thereby installing sophisticated systems that will enable cross-enterprise connectivity and to avoid the problem of poor network connectivity nationwide.
3. Training programs have to be developed and implemented more frequently to enhance staff capacity that would handle the sophisticated systems installed for effective performance and continuous improvement.
4. The company should also have the willingness to share vital information or knowledge of core business processes with its strategic supply chain partners to enhanced efficiency and responsiveness.
5. Firms' performance has to be measured to meet and adjust to the rapid changes happening in the market, and faster response to customer's requests accurately maintained records and the ability to handle the external threat that may affect the company to strive and gain competitiveness.
6. Finally, to ensure sustainability and continuous improvement of performance, all three levels of management should collaborate through a closed-loop system to ensure continuous improvement and sustainability

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APPENDICES

APPENDIX 1: QUESTIONNAIRE

TO WHOM IT MAY CONCERN

Dear Sir/Madam

The sample questionnaire is designed and administered by Hassan Andrew Fornah pursuing a Master's degree in Operations and Supply Chain Engineering in the Department of Industrial and Systems Engineering at Institute Teknologi Sepuluh Nopember, Surabaya- Indonesia.

Hassan is presently undertaking academic research on the topic, “Assessing Supply Chain Management Practices and How they are Perceived to Impact Performances of firms in Sierra Leone a case study of Sierra Leone Telecommunication Company limited (*SIERRATEL*)

This study is expected to enhance our understanding of the impact of organizational performance with respect to Supply chain practices. Kindly support this study by completing the questionnaire attached. I believe by virtue of your experience and occupational status, your contribution (s) would immensely help in accomplishing this research.

Please be assured that the information you provide for this academic work would be held in confidence. Your identity will not appear in the final analysis and presentation which will contain any aggregate data.

Please, if you have any questions, queries or further information you would like to know or provide about the exercise, contact me via email hassanfofie@gmail.com or WhatsApp’s +62-812-5234-1125

I thank you very much for your anticipated cooperation and kind assistance.

Yours Faithfully,

Hassan Andrew. Fornah

Part I: Demographic information

Please tick where appropriate

Name (optional).....

What is your educational status?

- A). Never been to school,
- b). Primary
- c) Secondary
- d). Tertiary\college, Tech\voc.
- e)
- Others.....

Educational Attainment (What is your highest level of education?)

- Diploma []
- Degree []
- Master degree []
- PHD []
- Others.....

Organizational Name and Department.....

1. What is your job designation?
 - a). Director,
 - b) Manager,
 - c). Branch managers,
 - d) Supervisor
 - e) Procurement Officer
 - g). others (specify),
2. Working Experience (Please Tick as appropriate)
 - Less than a year []
 - 2 to 5 years []
 - 5 to 15 years []
 - Above 15 years []
3. How many employees are there in your Company (Tick the relevant area)

Micro	<10	
Small	10-49	
Medium	50-249	
Large	>250	

PART II: Assessment of Supply Chain Strategy

Section A: Organization						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No	Statement	1	2	3	4	5
1	Our company has well-defined policies and regulations					
2	Our company has a focus and visionary leadership					
3	We have a shorter span of a control command structure					
4	Our company introduce new policies and review existing ones for organizational improvement					
5	We assign responsibilities to employees with set targets					
6	We have a centralized and decentralized work policy					
Section B: People						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No.	Statement	1	2	3	4	5
1	We employ the right people for the job					
2	We provide training capacity for our employees					
3	The right people are assigned in the right position					
4	Our employees work as a team to achieve organizational goals.					
5	Our employees involved in some decision-making process					
6	Our employees always towards achieving the strategic objectives of the company.					

7	We have performance records of all our employees					
Section C. Technology						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No.	Statement	1	2	3	4	5
1	Our organization adopt and integrate IT into our business process					
2	Our organization provides training for employees on new technologies					
3	We provide training for employees on the maintenance and repairs of our IT system					
4	Our organization invest heavily in IT infrastructure					
5	Our organization moves with the current technological trends					
6	Our IT system enables cross enterprise connectivity					
7	We use integrated IT systems to optimize our business operations					
8	We have sophisticated IT systems for our operations					

PART III: Assessment of Supply Chain Process

Section A: Planning						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No	Statement	1	2	3	4	5

1	Our company has a strategic plan for operations and documentation processes.					
2	Our strategic plan has a timeline for implementation.					
3	Our strategic plan is reviewed periodically for improvement					
4	We do collaborative planning with our suppliers					
5	Our company have a collaborative forecasting and demand management plan					
6	We plan for our supply chain capacity requirement					
7	We establish and communicate a supply chain plan cycle time (i.e, Long term, annual, monthly, weekly and daily).					

Section B: Source						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No	Question	1	2	3	4	5
1	Our company has an inventory plan for our suppliers or partners.					
2	Our supplier has a high level of reliability					
3	We maintain alternative sources of supply					
4	We have a good relationship with our suppliers					
5	We manage our supply risk systematically					
6	We develop suppliers for better capability					
7	We regularly update our suppliers with their performance records					

Section C: Deliver.						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No	Statement	1	2	3	4	5
1	We have delivery schedules for our operations					
2	Our delivery schedules are shorter than our competitors					
3	We deliver services to our customers at a specified time/date					
4	Our delivery centers are closer to our customers.					
5	Our delivering lead time increase our supply chain process					
6	We make provisions for potential delivery disruptions such as breakdowns and natural disasters.					
7	We always review our delivery schedules for future improvement					
Section D: Information Sharing						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No	Statement	1	2	3	4	5
1	We share business information with our key suppliers					
2	We share information with our partners for business success					
3	Our key suppliers share knowledge of core business processes with us					
4	We share our aggregate planning process with our suppliers.					
5	We share information on collaborative planning process.					

6	We inform our suppliers in advance of any changing needs/events					
7	We inform our key suppliers about events or changes that may affect our relationship					

PART IV: Performance

1: Flexibility						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No	Question	1	2	3	4	5
1	We manage time and cost to changes in new technology					
2	Our company has the ability to change planned or assumed delivery dates					
3	Our company can quickly adapt to changes in demand in the market.					
4	Our company can switch from one supplier to another with reasonable cost and time					
5	We manage our relationship well with our suppliers and customers in changing environment					
6	Our company can use a different mode of delivery services					
2: Responsiveness						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No	Question	1	2	3	4	5
1	We respond to our customer's request promptly					

2	Our response time is always available on a 24 hours bases.					
3	Our response time is shorter as compared to our competitors					
4	We inform our customers exactly when services will be performed/available					
5	We respond to our customers' complaints with the attention needed.					
6	We always try to resolve customer's complaints very quickly					
7	We periodically asses and review our response rate					
8	We respond to a wide range of quantity demanded					
3: Reliability						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No.	Question	1	2	3	4	5
1	We keep all our records accurately					
2	We provide services to our customers exactly on time					
3	Our services are always available and reliable					
4	We are dependable in our service					
5	Our customers trust our products and services we offer to them.					
4: Agility						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
	Questions	1	2	3	4	5

1	We can respond quickly to regular changes in demand and supply					
2	We have a strategy to embrace and respond to external influences.					
3	Our response time is shorter as compared to our competitors.					
4	We have the technology to monitor and detect early warning signs of failure or disruption					
5	Our staff are always available to respond to volatile situations					

PART V: Assessing Impact of Supply Chain Practices

Please indicate how your supply chain practices improved your organizational performance over the years						
For each of the questions below, please tick the response that best describe how you feel about the statement Where 1= Strongly Disagree, 2= Disagree- 3= Neither agree nor disagree, 4= Agree and 5= Strongly Agree						
No	Statement	1	2	3	4	5
1	Organization: The strategy our company employed has helped us to improve our performance					
2	People: The staff we employ to execute our business functions to improve our performance					
3	Technology: Our investment in IT infrastructure improved our performance					
4	Plan: Our collaborative and capacity management planning process improved our company's performance.					
5	Source: Our sourcing strategy we use to select our suppliers also improved our company's performance					

6	Deliver: we improved our performance because we our delivery schedules are well managed.					
7	Information Sharing: Our information sharing to both internal and external supply chain players strengthen our coordination, collaboration and company's performance					
8	Flexibility: Our company's adaptation to changes in demand and supply in the market helps us to improve our performance					
9	Responsiveness: Our response time to our customers improved our company's performance than our competitors					
10	Reliability: Our accuracy in records keeping at all times improved our company's performance.					
11	Agility: The strategy we embraced to respond to external influence improved our company's performance					
12	Our supply chain management practices have enabled us to gain a superior competitive advantage over our competitors					
13	Our supply chain practices have reduced our costs significantly					
14	Our service level has increased to meet customer's needs/expectations					

APPENDIX 2: DATA ANALYSES

APPENDIX 2A- DESCRIPTIVE STATISTICS ON SUPPLY CHAIN

STRATEGY

ORGANIZATION

	N	Range	Min.	Max.	Mean	Std. Deviation	Variance
Our company has a well-defined policies and regulations	34	4.00	1.00	5.00	4.1765	1.05803	1.119
Our company has a focus and visionary leadership	34	4.00	1.00	5.00	4.0294	1.02942	1.060
We have shorter span of control command structure	34	4.00	1.00	5.00	3.4412	1.21084	1.466
Our company introduce new polices and review existing ones for organizational improvement	34	4.00	1.00	5.00	4.0882	.90009	.810
We assign responsibilities to employees with set targets	34	4.00	1.00	5.00	4.4412	.78591	.618
We have centralized and decentralized work policy	34	3.00	2.00	5.00	4.0000	.95346	.909
Valid N (listwise)	34						

ORGANIZATION			
	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	12	35%	35%
Agree	16	48%	83%
Neither	2	6%	89%
Disagree	3	7%	96%
Strongly Disagree	1	4%	100%
Total	34	100%	

PEOPLE

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Variance
We employ the right people for the job.	34	4.00	1.00	5.00	136.00	4.0000	.95346	.909
We provide training capacity for our employees	34	3.00	2.00	5.00	133.00	3.9118	.86577	.750
The right people are assigned in the right position	34	4.00	1.00	5.00	122.00	3.5882	1.13131	1.280
Our employees work as a team to achieve organizational goals.	34	3.00	2.00	5.00	140.00	4.1176	.84440	.713
Our employees involve in some decision-making process	34	3.00	2.00	5.00	118.00	3.4706	1.23669	1.529
Our employees always worked towards achieving the strategic objectives of the company.	34	3.00	2.00	5.00	143.00	4.2059	.64099	.411
We have performance records of all our employees	34	3.00	2.00	5.00	140.00	4.1176	.80772	.652
Valid N (listwise)	34							

PEOPLE			
	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	10	28%	28%
Agree	17	49%	77%
Neither	3	10%	87%
Disagree	4	12%	99%
Strongly Disagree	0	1%	100%
Total	34	100%	

TECHNOLOGY

	N	Range	Min.	Max.	Sum	Mean	Std. Deviation	Variance
Our organization adopt and integrate IT into our business process	34	3.00	2.00	5.00	142.00	4.1765	.75761	.574
Our organization provides training for employees on new technologies	34	3.00	2.00	5.00	140.00	4.1176	.59108	.349
We provide training for employees on maintenance and repairs of our IT system	34	3.00	2.00	5.00	132.00	3.8824	.80772	.652
Our organization invest heavily on IT infrastructure	34	3.00	2.00	5.00	130.00	3.8235	.99911	.998
Our organization moves with the current technological trends	34	3.00	2.00	5.00	140.00	4.1176	.64030	.410
Our IT system enables cross enterprise connectivity	34	3.00	2.00	5.00	126.00	3.7059	.71898	.517
We use integrated IT systems to optimize our business operations	34	3.00	2.00	5.00	129.00	3.7941	.72944	.532
We have sophisticated IT systems for our operations	34	3.00	2.00	5.00	119.00	3.5000	1.05169	1.106
Valid N (listwise)	34							

TECHNOLOGY			
	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	6	19%	19%
Agree	21	61%	80%
Neither	3	10%	90%
Disagree	3	10%	100%
Strongly Disagree	0	0%	100%
Total	34	100%	

APPENDIX 2B- DESCRIPTIVE STATISTICS ON SUPPLY CHAIN

PROCESS

PLAN

	N	Range	Min	Max.	Sum	Mean	Std. Deviation	Var.
Our company has a strategic plan for operations and documentation processes.	34	3.00	2.00	5.00	140.00	4.1176	.68599	.471
Our strategic plan has a timeline for implementation.	34	3.00	2.00	5.00	143.00	4.2059	.80827	.653
Our strategic plan is reviewed periodically for improvement	34	3.00	2.00	5.00	144.00	4.2353	.78079	.610
We do a collaborative planning with our suppliers	34	3.00	2.00	5.00	141.00	4.1471	.74396	.553
Our company have a collaborative forecasting and demand management plan	34	4.00	1.00	5.00	128.00	3.7647	1.07475	1.155
We plan for our supply chain capacity requirement	34	3.00	2.00	5.00	136.00	4.0000	.69631	.485
We establish and communicate a supply chain plan cycle time (i.e, Long term, annual, monthly, weekly and daily).	34	3.00	2.00	5.00	137.00	4.0294	.75820	.575
Valid N (listwise)	34							

PLAN			
	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	10	29%	29%
Agree	19	56%	85%
Neither	3	9%	94%
Disagree	2	6%	100%
Strongly Disagree	0	0%	100%
Total	34	100%	

SOURCE

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Var.
Our company has an inventory plan of our supplier or partners.	34	3.00	2.00	5.00	143.00	4.2059	.68664	.471
Our supplier has high level of reliability	34	3.00	2.00	5.00	139.00	4.0882	.83003	.689
We maintain alternative sources of supply	34	3.00	2.00	5.00	139.00	4.0882	.75348	.568
We have good relationship with our suppliers	34	3.00	2.00	5.00	151.00	4.4412	.66017	.436
We manage our supply risk systematically	34	2.00	3.00	5.00	139.00	4.0882	.51450	.265
We develop suppliers for better capability	34	3.00	2.00	5.00	133.00	3.9118	.57036	.325
We regularly update our suppliers with their performance records	34	3.00	2.00	5.00	140.00	4.1176	.80772	.652
Valid N (listwise)	34							

SOURCE			
	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	10	29%	29%
Agree	20	60%	89%
Neither	3	8%	96%
Disagree	1	4%	100%
Strongly Disagree	0	0%	100%
Total	34	100%	

DELIVER

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Var
We have delivery schedules for our operations	34	3.00	2.00	5.00	135.00	3.9706	.62694	.393
Our delivery schedules are shorter than our competitors	34	3.00	2.00	5.00	125.00	3.6765	.91189	.832
We deliver services to our customers at a specified time/date	34	3.00	2.00	5.00	136.00	4.0000	.85280	.727
Our delivery centers are closer to our customers.	34	4.00	1.00	5.00	121.00	3.5588	.95952	.921
Our delivering lead time increase our supply chain process	34	3.00	2.00	5.00	131.00	3.8529	.70205	.493
We make provisions for potential delivery disruptions such as breakdowns and natural disaster.	34	4.00	1.00	5.00	128.00	3.7647	.81868	.670
We always review our delivery schedules for future improvement	34	4.00	1.00	5.00	133.00	3.9118	.90009	.810
Valid N (listwise)	34							

DELIVER	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	5	15%	15%
Agree	22	64%	79%
Neither	4	11%	90%
Disagree	3	9%	99%
Strongly Disagree	0	1%	100%
Total	34	100%	

INFORMATION SHARING

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Var.
We share business information with our key suppliers	34	2.00	3.00	5.00	138.00	4.0588	.54723	.299
We share information with our partners for business success	34	3.00	2.00	5.00	137.00	4.0294	.62694	.393
Our key suppliers share knowledge of core business processes with us	34	3.00	2.00	5.00	139.00	4.0882	.86577	.750
We share our aggregate planning process with our suppliers.	34	3.00	2.00	5.00	133.00	3.9118	.75348	.568
We share information on collaborative planning process.	34	3.00	2.00	5.00	132.00	3.8824	.68599	.471
We inform our suppliers in advance of any changing needs/events	34	2.00	3.00	5.00	142.00	4.1765	.57580	.332
We inform our key suppliers about events or changes that may affect our relationship	34	3.00	2.00	5.00	141.00	4.1471	.70205	.493
Valid N (listwise)	34							

INFORMATION SHARING			
	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	8	22%	22%
Agree	21	63%	85%
Neither	4	11%	97%
Disagree	1	3%	100%
Strongly Disagree	0	0%	100%
Total	34	100%	

**APPENDIX 2C- DESCRIPTIVE STATISTICS ON SUPPLY CHAIN
PERFORMANCE**

FLEXIBILITY

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Var.
We manage time and cost to changes in new technology	34	4.00	1.00	5.00	135.00	3.9706	1.05845	1.120
Our company has the ability to change planned or assumed delivery dates	34	2.00	3.00	5.00	143.00	4.2059	.64099	.411
Our company can quickly adapt to changes in demand in the market.	34	3.00	2.00	5.00	137.00	4.0294	.67354	.454
Our company can switch from one supplier to another with reasonable cost and time	34	3.00	2.00	5.00	135.00	3.9706	.86988	.757
We manage our relationship well with our suppliers and customers in changing environment	34	3.00	2.00	5.00	135.00	3.9706	.83431	.696
Our company can use different mode of delivery services	34	3.00	2.00	5.00	131.00	3.8529	.95766	.917
Valid N (listwise)	34							

FLEXIBILITY			
	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	9	26%	26%
Agree	19	56%	82%
Neither	3	9%	92%
Disagree	3	8%	100%
Strongly Disagree	0	0%	100%
Total	34	100%	

RESPONSIVENESS

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Var.
We respond to our customer's request promptly	34	3.00	2.00	5.00	132.00	3.8824	1.06642	1.137
Our response time is always available on a 24 hours bases.	34	3.00	2.00	5.00	128.00	3.7647	1.04617	1.094
Our response time is shorter as compare to our competitors	34	4.00	1.00	5.00	128.00	3.7647	1.04617	1.094
We inform our customers exactly when services will be performed/available	34	3.00	2.00	5.00	138.00	4.0588	.73613	.542
We respond to our customers complaints with the attention needed.	34	3.00	2.00	5.00	134.00	3.9412	.88561	.784
We always try to resolve customer's complaints very quickly	34	3.00	2.00	5.00	137.00	4.0294	.71712	.514
We periodically asses and review our response rate	34	3.00	2.00	5.00	134.00	3.9412	.64860	.421
We respond to wide range of quantity demanded	34	3.00	2.00	5.00	133.00	3.9118	.75348	.568
Valid N (listwise)	34							

RESPONSIVENESS			
TOTAL	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	8	22%	22%
Agree	20	57%	80%
Neither	3	10%	89%
Disagree	4	10%	100%
Strongly Disagree	0	0%	100%
Total	34	100%	

RELIABILITY

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Var.
We keep all our records accurately	34	4.00	1.00	5.00	137.00	4.0294	.96876	.939
We provide services to our customers exactly on time	34	3.00	2.00	5.00	135.00	3.9706	.96876	.939
Our services are always available and reliable	34	4.00	1.00	5.00	134.00	3.9412	.88561	.784
We are dependable in our service	34	3.00	2.00	5.00	134.00	3.9412	.73613	.542
Our customers trust our products and services we offer to them.	34	4.00	1.00	5.00	138.00	4.0588	.85071	.724
Valid N (listwise)	34							

RELIABILITY			
	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	9	27%	27%
Agree	18	54%	81%
Neither	4	12%	93%
Disagree	2	5%	98%
Strongly Disagree	1	2%	100%
Total	34	100%	

AGILITY

	N	Range	Min	Max	Sum	Mean	Std. Deviation	Var.
We can respond quickly to regular changes in demand and supply.	34	4.00	1.00	5.00	129.00	3.7941	.80827	.653
We have a strategy to embrace and respond to external influences.	34	4.00	1.00	5.00	130.00	3.8235	.86936	.756
Our response time is shorter as compare to our competitors.	34	3.00	2.00	5.00	125.00	3.6765	.97610	.953
We have the technology to monitor and detect early warning signs of failure or disruption	34	4.00	1.00	5.00	115.00	3.3824	1.01548	1.031
Our staff are always available to respond to volatile situations	34	4.00	1.00	5.00	131.00	3.8529	.70205	.493
Valid N (listwise)	34							

AGILITY			
	NO. RESPONDENT	PERCENT VAILD	CUM. %
Strongly Agree	4	12%	12%
Agree	21	62%	74%
Neither	5	14%	88%
Disagree	3	10%	98%
Strongly Disagree	1	2%	100%
Total	34	100%	

Management Response and Rating (Level of Significant of the Variables)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid STRATEGY	5	50.0	50.0	50.0
PROCESS	3	30.0	30.0	80.0
PERFORMANCE	2	20.0	20.0	100.0
Total	10	100.0	100.0	

APPENDIX 2D- CORRELATION

Correlations between Supply Chain Strategy and Supply Chain Process

		ORG	PEOPLE	TECH	PLAN	SOURCE	DELIVER	INFORM SHARING
ORG	Pearson Correlation	1	.655**	.276	.662**	.682**	.555**	.291
	Sig. (2-tailed)		.000	.114	.000	.000	.001	.095
	N	34	34	34	34	34	34	34
PEOPLE	Pearson Correlation	.655**	1	.517**	.608**	.606**	.406*	.136
	Sig. (2-tailed)	.000		.002	.000	.000	.017	.443
	N	34	34	34	34	34	34	34
TECH	Pearson Correlation	.276	.517**	1	.513**	.333	.272	-.200
	Sig. (2-tailed)	.114	.002		.002	.055	.120	.258
	N	34	34	34	34	34	34	34
PLAN	Pearson Correlation	.662**	.608**	.513**	1	.782**	.602**	.231
	Sig. (2-tailed)	.000	.000	.002		.000	.000	.190
	N	34	34	34	34	34	34	34
SOURCE	Pearson Correlation	.682**	.606**	.333	.782**	1	.739**	.344*
	Sig. (2-tailed)	.000	.000	.055	.000		.000	.046
	N	34	34	34	34	34	34	34
DELIVER	Pearson Correlation	.555**	.406*	.272	.602**	.739**	1	.432*
	Sig. (2-tailed)	.001	.017	.120	.000	.000		.011
	N	34	34	34	34	34	34	34
INFORM. SHARING	Pearson Correlation	.291	.136	-.200	.231	.344*	.432*	1
	Sig. (2-tailed)	.095	.443	.258	.190	.046	.011	
	N	34	34	34	34	34	34	34

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

* . Correlation is significant at the 0.05 level (2-tailed).

**Correlation Between Supply Chain Strategy, Supply Chain Process and
Supply Chain Performance**

		ORG	PPL	TECH	PLAN	SOUR	DEL	INFS	FLEX	RESP	REL	AGIL
ORG	Pearson Correlation	1	.663**	.286	.666**	.669**	.557**	.285	.566**	.495**	.453**	.566**
	Sig. (2-tailed)		.000	.101	.000	.000	.001	.102	.000	.003	.007	.000
	N	34	34	34	34	34	34	34	34	34	34	34
PPL	Pearson Correlation	.663**	1	.527**	.605**	.595**	.395*	.134	.324	.589**	.466**	.558**
	Sig. (2-tailed)	.000		.001	.000	.000	.021	.451	.062	.000	.005	.001
	N	34	34	34	34	34	34	34	34	34	34	34
TECH	Pearson Correlation	.286	.527**	1	.499**	.330	.270	-.194	.321	.469**	.405*	.477**
	Sig. (2-tailed)	.101	.001		.003	.057	.123	.271	.065	.005	.018	.004

		ORG	PPL	TECH	PLAN	SOUR	DEL	INFS	FLEX	RESP	REL	AGIL
	N	34	34	34	34	34	34	34	34	34	34	34
PLAN	Pearson Correlation	.666**	.605**	.499**	1	.778**	.595**	.232	.681**	.691**	.594**	.731**
	Sig. (2-tailed)	.000	.000	.003		.000	.000	.187	.000	.000	.000	.000
	N	34	34	34	34	34	34	34	34	34	34	34
SOUR	Pearson Correlation	.669**	.595**	.330	.778**	1	.750**	.365*	.689**	.693**	.609**	.714**
	Sig. (2-tailed)	.000	.000	.057	.000		.000	.034	.000	.000	.000	.000
	N	34	34	34	34	34	34	34	34	34	34	34
DEL	Pearson Correlation	.557**	.395*	.270	.595**	.750**	1	.425*	.648**	.733**	.771**	.793**
	Sig. (2-tailed)	.000	.021	.123	.000	.000		.012	.000	.000	.000	.000

		ORG	PPL	TECH	PLAN	SOUR	DEL	INFS	FLEX	RESP	REL	AGIL
	N	34	34	34	34	34	34	34	34	34	34	34
INFS	Pearson Correlation	.285	.134	-.194	.232	.365*	.425*	1	.362*	.375*	.271	.322
	Sig. (2-tailed)	.102	.451	.271	.187	.034	.012		.036	.029	.120	.063
	N	34	34	34	34	34	34	34	34	34	34	34
FLEX	Pearson Correlation	.566**	.324	.321	.681**	.689**	.648**	.362*	1	.724**	.665**	.651**
	Sig. (2-tailed)	.000	.062	.065	.000	.000	.000	.036		.000	.000	.000
	N	34	34	34	34	34	34	34	34	34	34	34
RESP	Pearson Correlation	.495**	.589**	.469**	.691**	.693**	.733**	.375*	.724**	1	.866**	.831**
	Sig. (2-tailed)	.003	.000	.005	.000	.000	.000	.029	.000		.000	.000

		ORG	PPL	TECH	PLAN	SOUR	DEL	INFS	FLEX	RESP	REL	AGIL
	N	34	34	34	34	34	34	34	34	34	34	34
REL	Pearson Correlation	.453**	.466**	.405*	.594**	.609**	.771**	.271	.665**	.866**	1	.854**
	Sig. (2-tailed)	.007	.005	.018	.000	.000	.000	.120	.000	.000		.000
	N	34	34	34	34	34	34	34	34	34	34	34
AGIL	Pearson Correlation	.566**	.558**	.477**	.731**	.714**	.793**	.322	.651**	.831**	.854**	1
	Sig. (2-tailed)	.000	.001	.004	.000	.000	.000	.063	.000	.000	.000	
	N	34	34	34	34	34	34	34	34	34	34	34

BIOGRAPHY



The author is a Sierra Leonean and a former student of the Institute of Public Administration and Management (IPAM), a constituent college of the University of Sierra Leone. He graduated with a Bachelor of Science degree with honors in Financial Services in 2010. During his studentship at the institute, he was an obedient, honest, hardworking and kind gentleman who always avail himself for academic rigors. He is a dedicated person that shows great initiatives, brilliant, assiduous, self- confident, focused minded, full of humility and respect for personality regardless of sex, age, nationality, color and religion.

Over the past 10 years, he has worked for both public and private institutions. Since 2010 to-date, he has served as the Finance and admin officer for the Safer Future Youths Development Project, a local non-governmental organization based in Freetown, an implementing partner for UNICEF-Sierra Leon and other international organizations like the World Health Organization (WHO)etc in complementing government's efforts in key intervention areas like Health, Education and Energy. In his early private life as a student, he has also served in many capacities as a youth chairman and secretary-general in his community. He has engaged in many volunteering services/activities in his community thereby providing tutorials to his compatriots in high schools and colleges.

While on his study program in Indonesia, he had completed several online non-credit courses Offered through Coursera, an online learning platform authorized and recognized by many universities across the world which includes Data Collection: Online, Telephone, and Face-to-Face by the University of Michigan, Framework for Data Collection and Analysis- University of Mary Land, etc. He has also presented an academic paper on an International Conference on Business, Accounting, Supply Chain, and Logistics (ICBASL 2019) organized by the faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia from November 21-22,2019. He can be reached via hassanfofie@gmail.com, haforina@saferfuture.org