



APPENDIX – I

**TRENDS IN LOGISTICS AND SUPPLY CHAIN INFORMATION SYSTEMS IN
THE GHANAIAN FOOD INDUSTRY: THE CASE OF UNILEVER GHANA
LIMITED**

By

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Guided By

(Name, Designation & Organization)

**A DISSERTATION REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE
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APPENDIX – II

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APPENDIX – III

A Declaration by the Guide

On Company Letter Head

Declaration by the Guide

This is to certify that Ms Lena Mateko Sackitey, a student of (MBA Logistic and Supply Chain Management), SAP ID 500068935 of UPES has successfully completed this dissertation report on “30/01/2020” under my supervision.

Further, I certify that the work is based on the investigation made, data collected and analyzed by her and it has not been submitted in any other University or Institution for award of any degree. In my opinion it is fully adequate, in scope and utility, as a dissertation towards partial fulfillment for the award of degree of MBA.

Signature:

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Date:

Place:



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LIST OF ABBREVIATIONS

ANN	Artificial neural network
APS	Advanced Planning and Scheduling
CPC	Cocoa Processing Company
EDE	Electronic data exchange
ERP	Enterprise Resource Planning
ICT	Information Communication Technology
IR	Internal rate
JIT	Just-In-Time
SC	Supply Chain
SCM	Supply Chain management
SCP	Supply Chain planning

EXECUTIVE SUMMARY/ ABSTRACT

An organizational supply chain is the one that utilizes functional areas such as inbound, outbound, transportation, warehousing and inventory control, sourcing, procurement and supply management. Most important embodiment is the information system so as to monitor all these activities. Since the emergence of supply chain management (SCM), it has experienced continual growth to become a prominent concept within managerial and logistic terrain. However, the deployment of SCM strategy and organizational performance in Ghanaian food industries have been missing. This, therefore, establishes the need for testing the trends of logistics and supply chain information systems in Ghana's food industry using Unilever Ghana Limited as a case study. The population of the study will consist of staff members working in the area of supply chain at the Unilever office. Purposive sampling technique was employed in this study. Therefore, the respondents were selected based on accessibility of information and the level of knowledge of supply chain activities and operations of Unilever. The primary data was gathered through field survey using self-administered questionnaires and the secondary data was collected from journals, books and online resources. The research was based on deductive approach as it involved the collection of quantitative data. This study adopted the cross-sectional approach because of time constraints of the project, but most importantly because of the nature of the study which could be very unstable as new technologies and changes are implemented in supply chain management. Descriptive analysis of the demographic data collected was carried out. Mean score ranking, Relative Importance Index (RII), and descriptive analysis were the analytical tools employed to achieve the specific objectives of the study.

The findings of the study were that supply chain management practices are positively related to supply chain responsiveness, customer relationship is positively related to competitive advantage, information sharing is positively related to supply chain responsiveness among others. With regards to the various findings enlisted above, the recommendations were that there should always be a logistic plan, and customer relationship is positively related to competitive advantage.

Keywords: Logistics, supply, information, Ghanaian, Unilever, information system, Unilever Ghana Limited

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Recent development of huge companies which have led to multimillion competitive advantages is the new supply-chain management techniques. Supply-chain management can simply be described as the integration of various activities to make available a product and create customer satisfaction. Activities deployed in supply chain management program include procurement, manufacturing, transportation and distribution. A successful supply-chain program can therefore be examined as the systematic incorporation of all these activities into a seamless process. This however will require an efficient coordinated management effort of the various departments required in the process including vendors, carriers, third party companies and an information system.

Supply chain (SC) can then be defined as the networking of individual entities, from the manufacturer, supplier to the consumer for an effective management of materials, money and information to meet a business requirement (Zigiari, 2000).

An organizational supply chain is the one that utilizes functional areas such as inbound, outbound, transportation, warehousing and inventory control, sourcing, procurement and supply management. Most important embodiment is the information system so as to monitor all these activities (Zigiari, 2000).

Logistic management, on the other hand, “is part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers’ requirements.”

Logistics and Operations can be a series of activities for developing an effective channel management (Srivastava, 2006). This includes the supply partner and equipment conversion of the goods, the supply requirements and the information exchange through the supply chain. Major logistics and SCM actions that require clients' needs are overall accessibility, integrity and cooperation, information sharing and technology usage, as well as informal methods and specialist experts. Use the effects associated with the evaluation of some executions in all channels of access. All these tasks affect the logistics and supply chain ability. As companies are strategically introduced to logistical and Swedish committees, they go to special service providers to prevent non-functional activities. At present, it is believed that SC should compete, not the company with its success determined by market. Therefore (SCM) becomes the reason for increasing competitive goals such as enhanced competitiveness, improved service to customers and profits. However, a performance measurement system is needed to properly assess the SC's performance. As per the Supply Chain performance, it serves as a measure of strategic importance not to only evaluate its benefits but must be regulated (Azevedo and Cruz-Machado, 2011, p. 7).

Additionally, the overall decline in profitability and increased volatility in farms has had a negative impact, not only on rural employment, but also the standard of living in these rural areas (Ploughden, 1996; Skinner et al., 1997; Pretty, 1998; Maff, 2000; PCFFF, 2002). For these reasons and beyond, the stability of the supply chain of agricultural products is of special interest to governments and policy makers, and most food supply chains partakers, especially outside the farm gate, have, through a combination of regulatory and market factors, attempted to analyze and improve the stability of the food. Therefore, it is important that the researcher empirically verifies employees' understanding of the identity of the logistics sector and supply chain information systems in Ghana's food industry with Unilever Ghana Ltd as an example.

1.2 Statement of the problem

Since the emergence of supply chain management (SCM), it has experienced continual growth to become a prominent concept within managerial and logistic terrain (Baharanchi, 2009). As per Heusler (2004), the emerging concepts surrounding supply chain management has led to the perception of complexity in the management concept. Over two decades of continuous research had failed to lead SCM to a converging common terminology (notwithstanding specific researches undertaken) to reducing the complexity of SCM by offering specific structures guiding the supply chain management (Kotzab 2001, Bechtel & Jayaram 1997 and Cooper et al 1997).

The introduction of SCM into various organizational settings have resulted in inter-organizational relationships geared towards business orientation to ensure the performance and competitiveness in all networks (Weber 2002, Skoett-Larson et al, 2005) through the reduction of cost, increasing profits and customer satisfaction (Kluyver and Pearce, 2006).

The additional benefit of SCM into manufacturing organizations is a long-term superior performance as a result of a full integration of the supply chain concept or strategy (cooper et al, 1997). A research done by Cohen and Roussel (2005) as quoted by Green Jr, Whitten and Imman (2008) indicates the importance of supply chain strategies to better serve ultimate customers and consumers which results in an enhancement of an individual supply chain members.

The food industry alone, employing over 100,000 citizens, has been able to reduce import quantity and also provides opportunities for the saving of foreign exchange. However, the deployment of SCM strategy and organizational performance in Ghanaian food industries have been missing. Additionally, the lack of adequate knowledge by managers of supply chain programs have also contributed to the non-existence of effective and efficient trends of SCM.

This, therefore, establishes the need for testing the trends of logistics and supply chain information systems in Ghana's food industry using Unilever Ghana Limited as a case study.

1.3 Aim and Objectives

1.3.1 Aim of the study

The aim of this study was to examine the trends in logistics and supply chain information systems in the Ghanaian food industry.

1.3.2 Objectives of the study

In a bid to achieve the aim, the following objectives were expressively set:

1. To evaluate the current trends in logistics and supply chain information systems within Unilever Ghana in terms of the key Performance indicator (KPI)
2. To assess the management of supply chain information system practices in Unilever Ghana Limited.
3. To investigate practices that will improve on supply chain inefficiencies at Unilever

1.4 Research Questions

1. What are the current trends in logistics and supply chain information systems within Unilever Ghana in terms of the key Performance indicator (KPI)?
2. How can supply chain information system practices be managed?
3. What are the practices that will improve on supply chain inefficiencies at Unilever?

1.5 Scope of the Research

The geographical scope of the study was greater Accra region

Contextually, the scope of this study is limited to Trends in Logistics and supply chain information systems in Unilever Ghana Limited. The geographical scope of the study was the Greater-Accra region of Ghana where the headquarters of Unilever Ghana Limited is located.

1.6 Methodology

For the purpose of this research, the study will focus on case study strategy. Robson (2002) defines case study as a strategy for doing research which involves an investigation of a particular existing fact within its real-life context using multiple sources of evidence. This method will give better understanding and provide true picture of the current trends in logistics and supply chain information systems and its impact on the performance of Unilever Ghana Limited. The study will adopt deductive research approach by combining both descriptive and explanatory methods to describe and explain the supply chain information systems within Unilever Ghana Limited.

The population of the study will consist of staff members working in the area of supply chain at the Unilever office (Procurement, Transport, Finance, Administration and Distributors and Marketing and Warehousing Division). The total populations in these divisions are approximately two hundred (200) staff members. Purposive sampling technique was employed in this study. Therefore, the respondents were selected based on accessibility of information and the level of knowledge of supply chain activities and operations of Unilever.

This study would use both primary and secondary sources of data. The primary data would be gathered through field survey using self-administered questionnaires and the secondary data will be collected from research papers, journals, books and online resources. The questionnaires would be both closed and open-ended including five-point Likert scale with responses ranging from 1 (strongly disagree) to 5 (strongly agree).

1.6.1 Data Analysis

For the data obtained from the research to become meaningful it has to be transformed into information for the purpose of decision making (Cooper & Schindler, 2003). The data was edited to correct possible errors and omissions that were likely to occur, to ensure consistency across

respondents. The data was then coded; to enable the respondents to be grouped into limited number of categories. The collected data was analyzed using quantitative measures. Averages mean score will be calculated for the Likert scale questions.

1.7 Significance of the study

This research is of much significance to the food industry since it is filling the existing gaps in the food industry such as inadequate information with respect to supply chain management. The research assesses the relationship between supply chain management strategies and company performance which can be applied by existing companies.

Information derived from this study is beneficial to yet-to-mature supply chain management economies or environments serving as a platform for development.

This study would serve to initiate an effective implementation of supply chain management strategies by providing sufficient and relevant information for planning and making successful decisions in marketing.

1.8 Limitation of the study

Like any other similar research conducted, this research faces unavoidable limitations. Since the supply chain management strategy of the company is peculiar to itself, it is difficult to generalize the findings of the study to other firms in the food industry in Ghana. Besides, the study assessed the trends in logistics and supply chain information system from the stand point of Unilever Ghana Limited and it did not involve other members of the supply chains (customers and suppliers) reaction or responses towards the company. In addition, the research is limited to Unilever Ghana Limited branches in the Greater-Accra Regional area. This is due to time and resource limitation. It is important to note that the findings of this study can only be used for comparative purposes not to generalize.

1.9 Organization of Report

The structure of this dissertation was divided into six (6) independent but unified chapters. Chapter one introduces the general topic and has the background, statement of problem, objectives, scope of study, limitations as well as organization of the study. Chapter two reviews the literature. In this part, relevant related previous study done by other researchers on this study was reviewed. The third chapter covered the research design, methodology and plan. In this part, the sources of data, sample size, methods of data collection, tools and techniques of analysis were explained. Chapter four (4) encompassed the empirical analysis of the data collected. In this chapter, the procedure for data gathering, analysis and processes through which the research tool were applied to obtain the answers to the research questions. Chapter five is dedicated to the interpretation of results: Thus, the chapter was devoted to the interpretation of the results obtained in chapter four. The final chapter is titled 'conclusion and scope for future work': this part of the study, wrapped up the entire research process by going over the research objectives, summary of findings, recommendations, limitations, and indicators for future research directions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the relevant literature on supply chain management and other aspects of the topic under study. Areas such as description of supply chain information systems, logistics, and dimensions of supply chain information systems are explored. The chapter therefore presents the empirical and theoretical bases of this study.

2.2 Supply Chain Management

Supply chain management is a network of facilities that uses logistics systems to produce raw materials, transform them into final products and transport them to final destination for consumption. Supply chain management covers procurement, manufacturing and distribution (HL Lee, C Billington - Interfaces, 1995). The basic objective of supply chain management is "to optimize the smallest possible performance". The goal is to connect all aspects in the supply chain management program in a way that maximizes productivity and brings maximum benefit to all stakeholders (Finch, 2006). The introduction of supply chain management in industries has experienced a steady increase since the 1980s. The many definitions and concepts proposed and discussed by various researchers give wide viewpoints on the perspectives of (A Sachan, S Datta Cousins et al., 2006).

Supply chain management in today's competitive state requires for intensive research and analysis to couple companies search in meeting forever rising customer expectations at a substantial cost. To achieve this goal a company is required to identify less competitive areas, locate unsatisfied customer needs, devise strategic plans and effectively implement for a positive change or results. In the beginning, manufacturers were the sole determiners of the pace behind supply chain management. Currently, customers rather call the shot as companies

work around the clock to meet growing demands. Some demands by customers include options, styles, functions, quick order fulfillment, and quick shipping.

Companies that utilize the supply chain management skill such as Dell, Wal-Mart, Samsung, Toyota, Lenovo, Gome and the others use a variety of performance management tools. Tracking and improving the performance of supply chains is becoming increasingly complex. Complex performance management systems include many management processes, such as measurement identification, target setting, planning, communication, monitoring, reporting and feedback.

Manufacturing quality that has acquired competitive advantage over the years has become generally the same, meeting the specific needs of customers is emerging as the next important opportunity for competitive advantage. Companies learning how to improve their supply chain will have new success stories in the global market. Supply chain management (SCM) is a specialist in logistics / transportation, administration management, material management, distribution, marketing, purchasing, information technology (IT). Ideally, SCM's philosophy includes each of these features for ultimately creating a comprehensive supply chain strategy to improve business performance. This document defines the concept, nature and development of SCM and shows that there is intense research worldwide in the important development of supply theory and practice.

2.3 Scope of Supply Chain Management

Gunasekaran and McGaughey (2003) expanded the scope of SCM beyond the management of materials, partnership, information technology to Total Quality Management areas such as management commitment, organizational structure, training and behavioral issues. Because the survival of an enterprise is dependent on the proper understanding of the integration process, is an important element of SCM. Mouritsen et al. (2003) suggested a fundamental hypothesis that "the greater the integration (wider scope) –the better the management of the chain" is not

necessarily true, but relies heavily on participating "environment". The authors proposed a set of management methods and tools to analyze successful SCM strategies. Research is not limited to hypothesis testing and data analysis, but uses advanced techniques such as simulation, artificial neural network, and fuzzy logic for SCM optimization and decision making. Koh and Tan (2006) show how Chiu and Lin (2004) disclosed how the concepts of collaborative agents and artificial neural networks (ANNs) can work together to enable collaborative supply chain planning (SCP). It is literature review that researchers have studied supply chain management from a structured point of view or observed the systematic nature of the interaction among participants in the supply chain. Many studies have examined SCM from various perspectives, but this document can deepen the understanding of SCM.

2.4 Resource Based View theory

Green et al. (2014) showed the relationship between supply chain management practice and performance improvement. Over the past two decades, the dimensions of the organization's performance and / or competitiveness are resource-(RBV). According to this theory, the competitiveness of all organizations is based on resources to master the competency being developed. B Sezen (2017) commented on improving integration and information exchange. Communication and relationship management is an essential element to improve the efficiency of the supply chain. These collaborative behaviors in the company quickly access necessary information and respond more quickly to needs than competitors. Many other studies that demonstrate jointly exchanging information among members of the supply chain have improved the competitiveness and efficiency of the supply chain.

Vaart and Pieter (2003) established an interdisciplinary approach by combining technical aspects and relationship aspects in system dynamics and collaboration fields, providing excellent order entry capabilities. Gunasekaran and Ngai (2005) show that electronic commerce, product quality and service have a direct influence on customer purchasing

behavior. Balakrishnan and Cheng (2005) reviewed and updated a spreadsheet-based methodology that provides improved solutions in multiple product situations and complex environments with bottlenecks. Nagarajan and Sobic (2004) reviewed quantitative discounts in a deterministic environment as an arbitration mechanism and literature dealing with an adjustment model of buyer suppliers that categorized several models. Based on the conceptualization of SCM, existing literature was investigated to determine the extent to which these basic elements exist in the SCM's academic research so far. Burgess et al. (2006) reviewed 100 articles randomly selected from the 614 articles available in the ABI / Inform database in the 19th period (1985-2003). These samples are targeted to the manufacturing and consumer goods industries, and the research papers surveyed included a more narrowly defined operational management approach to supply chain management. They categorized (1) descriptive features of SCM, (2) definition problems, (3) theoretical concerns and (4) methodological research questions. They discovered that SCM is recently a relatively young field where researchers' interest has increased exponentially.

In contrast to Burgess et al. (2006) the importance of this study surveyed 588 articles over 188 years instead of sampling 100 articles from 614 pools over five years. This did not only provide a thorough review, but also provides a greater basis for tracing the maturity of the SCM sector. It also highlights the importance and robustness of this study and helps to assess the differences in literature and project trends. Finally, Burgess and others include the work of books, manuscripts and meetings, but this study focuses only on published articles from peer review journals SCM.

Carter and Ellram (2003) investigated an article in the Journal of Supply Chain Management for 35 years after its launch from 1965 to 1999. Its aim was to provide a greater understanding of the evolution of purchase and supply research. The first 35 years of the Supply Chain Journal and provides guidelines and requirements for future supply management research. They

observed that almost 90% of the articles of the journal under study consisted of normative literature, methodological revisions and exploratory studies. They also thought that the use of hypothesis testing increased significantly during the last decade (1989-1999), but as the supply management sector continues to mature, the use of hypothesis testing and scientific methods is encouraged.

Carter and Ellram (2003) recommended an additional review of the literature that led to the introduction of the theoretical framework for supply management and the use of more sophisticated research modeling techniques such as MANOVA / discriminant analysis and statistical inference techniques. They categorized articles based on the modification of the categories used in the ISM and proposed 32 categories for a clear and unambiguous classification this category has been tested as innovative and has been used in the review of further research by several researchers. The author concluded that the management of purchases and supplies has matured as a scientific discipline. It is interesting that the authors have systematically used the terms "procurement management" and "supply", which speak volumes of the development phase of "Supply Chain Management"

2.5 History of Supply Chain Management

2.5.1 The Early Years

In the 1940s and 1950s, the use of mechanization (such as pallets and pallets) to improve the handling of labor-intensive materials and to maximize the use of space design. The notion of "unit price" has become widespread and the use of pallets has become widespread. In the mid-1950s, this concept was extended to transport management through the development of shipping containers, as well as ships, trains and trucks to transport containers. This was a prerequisite for the further globalization of the supply chain. Although the terms "storage" and "material handling" have been used to describe many of these efforts, this work can be considered as a basic application of industrial engineering, not the discipline itself.

In the 1960s, there was a clear trend to transfer the time-dependent freight transport to trucks rather than railways. For this reason, it was necessary to jointly examine the storage, logistics and transport of goods that have emerged under the logistics label. The National Logistics Management Committee was established in 1963 to attract the attention of industry in this field and soon became the dominant organization in this field. Academic research and education have followed this trend to meet the growing needs of the industry in this area. This area gained more recognition in industry and academia through the majority of the fundamental paradigm shift that occurred with computers in the 1960s and 1970s. By the 1960s, virtually all transactions and records were stored manually. The computerization of these data has led to an excellent opportunity for innovation in logistics planning, from chaotic warehouse storage to stock optimization and truck transport. Technology, particularly operational research technology, has been close to reality, and can only be examined through a theoretical model. However, many themes of research difficult to solve remain in the transition from theory to practice. From the late 1970s to the early 1980s, the Production Distribution Research Center, the Materials Management Research Center, the Computer Optimization Center of the Georgia Institute of Technology was founded. Each of these centers has focused on different aspects of what this new computer technology has made possible. History of Supply Chain Management: Logistics Celebrates the Era. In the 1980s, in the history of supply chain management, it was the beginning of a sudden change in logistics. With the advent of personal computers in the early 1980s, access to planners has been greatly improved and a new graphical environment for planning has been achieved. This has resulted in an avalanche of new technologies that have resulted in significant improvements in logistics planning and implementation techniques such as flexible spreadsheets and scheduled interfaces. The Production Distribution Research Center was the first innovative leader to combine the card interface and supply chain design and distribution plan optimization models. The Materials Management Research Center has

demonstrated leadership in the development of new control technologies for the automation of material handling. The Center for Computational Optimization has developed a new algorithm for large-scale optimization that solves the planning problems of airlines that have been difficult to manipulate so far. Many of the methodologies developed in these centers have quickly begun to find their way into commercial technology. Perhaps the most important trend for logistics in the 1980s was that it began to have a great awareness in the industry as being very expensive, very important and very complicated. The company's executives realized the logistics as an area that has greatly improved profitability when there is a willingness to invest in qualified experts and new technologies. In 1985, the National Logistics Management Council changed its name to the Logistics Management Board (CLM). The reason for the renaming was to reflect the evolving discipline, including integration of products, services, entrants, exits, and reverse flows of information.

2.5.2 Logistics comes of Age

The logistics boom was further accelerated in the 1990s with the advent of the ERP (Enterprise Resource Planning) system. These systems were partly motivated by the desire to consolidate multiple databases that are partly in almost all through the success of the material demand planning system developed in the 1970s and 1980s. There is little concern that there is a possibility that a fatal error may occur in an existing system because 2000 cannot be controlled. Despite serious problems in the installation and operation of the ERP system, in 2000, most major companies introduced ERP systems. As a result of this ERP system change, the availability and accuracy of data has been significantly improved. The new ERP software has greatly improved the recognition of better planning and the need for integration between logistics components. As a result, the new generation emerged "APS (Advanced Planning and Scheduling)" software.

2.5.3 Globalization and Supply Chain

Diffusion of the word "supply chain" is due to globalization of the manufacturing industry since the mid-1990s, especially the growth in the manufacturing industry in China. US imports from China increased from around \$ 45 billion a year in 1995 to over \$ 28 billion a year in 2006. Due to the importance of globalization, the need for a logistic strategy to manage the network is increasingly complex devices that contain more units in several countries with diversified control. The term supply chain management tends to be used as a term referring to strategic problems or logistics that refer to tactical or operational issues. The increasing relevance of this supply chain's management and strategy was reflected in Logistics Management and its name was changed to Supply Chain Management Professional Council in 2005. Logistics is part of a supply chain process that plans, implements and controls efficient and efficient distribution and storage of goods, services and related information between origin and origin. Supply Chain Management is to systematically and strategically coordinate traditional business functions and tactics through these business functions through specific companies and supply chains, Long-term performance can be improved. Look at it all, he said.

2.5.4 Future Supply Chain and Logistics

Since the 1980s computer technology has made remarkable advances, and it is in front of the ability to use the right technology in the supply and logistics area. Given that the scope of Internet usage today was large, Microsoft Internet Explorer 1.0 was unlikely to be released in 1995. The communication function fundamentally changed the way in which communication and sharing of information were thought to be. The supply chain and logistics plan, however, is still mainly based on a distribution model from a personal computer. University research will undoubtedly enable a new generation of supply chains and logistics planning techniques based on centralized planning and decentralized cooperation. These technological advances give great value to traditional supply chains and logistics areas such as storage, logistics, and

transportation and production logistics. However, there are many non-traditional supply chains, such as healthcare logistics and humanitarian logistics, which can benefit from the value of traditional supply chains and concepts and technologies already proven in them.

2.6 Evolution of Supply Chain Management (SCM)

In the 1950s and 1960s, most manufacturers had little flexibility in products and processes and focused on mass production to minimize the unit price of production as a major selling strategy. In the 1970s, PRP (Physical Requirements Planning) was developed and the administrator recognized the impact of the WIP inventory on the price of production, quality, and product development and delivery time. The intense global competition of the 1980s forced the global organization to offer low cost, high quality and high reliability products while increasing design flexibility DM Anderson - 2014. Manufacturers have improved efficiency and production cycle using JIT (Just-In-Time) and other management programs. The evolution of SCM continued in the 1990s when the organization developed best practices in commercial resource management for strategic suppliers and logistics functions. Many manufacturers and dealers have adopted the SCM concept to improve the efficiency and effectiveness of the entire supply chain IT Adebayo et al., (2012).

2.7 The era of Supply Chain Management

Below are the elaboration of the various era of supply chain management:

2.7.1 Creation Era

The term supply chain was initially led by an American industrial consultant in the early 1980s. However, the concept of the management supply chain was much more important than at the beginning of the 20th century, especially when assembly line has been established

2.7.2 Integration Era

This era of supply chain management research was highlighted by the development of the electronic data exchange (EDE) system of the 1960s and developed during the 1990s with the introduction of Enterprise Resource Planning (ERP) FR Jacobs et al., (2007).

2.7.3 Globalization Era

This era is characterized by the globalization of organizations' supply chain management in order to increase competitive advantage, create value and reduce costs through global sourcing. M Kotabe et al., (2018).

2.7.4 Specialization Era

2.7.4.1 Phase 1- Outsourced Manufacturing & Distribution

In the 1990s, the industry began to focus on "core competencies" and adopted a specialized model. Companies had eliminated vertical integration, sold non-core businesses and entrusted these functions to other companies M Pellicelli, (2018).

2.7.4.2 Phase 2 - Supply Chain Management as a Service

Supply chain expertise began in the 1980s, following the expiry of the transport, storage and deployment of inactive carriers, transport and distribution in terms of planning, cooperation, and implementation and performance management

2.8 Supply Chain Management 2.0 (SCM 2.0)

Web 2.0 is defined as a trend towards the use of the World Wide Web to enhance creativity, information sharing and cooperative relationships among users O Serrat, (2017).

2.9 MTS Evaluation Methodology

Numerous methods and techniques have been proposed over the years for the SCM evaluation. Conventional methods focus on well-known financial indicators such as yield / return, net present value (NPV), internal rate of return (IRR) and repayment period. These methods are

ideal for measuring the value of a single SCM application. Unfortunately, evaluation methods that rely on financial measures are not appropriate for next-generation SCM applications. These complex supply chains typically try to provide a wide range of benefits, including essentially intangible benefits L Joseph, (2017) If the relationship and the conditions of the effect are not properly reflected in BSC, we will not translate the vision and strategy of the company. The relationship between these causes and power can include more than 4 perspectives of the BSC framework. For example, the flexibility of a service system to meet the specific needs of customers (internal business perspective) is more likely to meet customer expectations (customer perspective). The expectations of higher-level clients enable companies to provide more innovative products and services (learning and growth prospects). This will increase market share and profitability (economic outlook).

There is no doubt about the importance of communication in the supply chain, information technologies (especially the various Internet applications) can reduce considerably. Cost, strategic planning and use of information from this process is important. The information must be easily accessible to all companies in the supply chain, and the business process must be configured to make full use of this information.

The main goals of SCM success can be the ultimate level of service, customer satisfaction and the competitiveness and profitability of the supply chain as a whole. However, since it is difficult to measure or use as a guide to improving monitoring, operating methods and measurement indicators have been developed.

At a more operational level, key performance indicators are total costs, quality, and delivery times in the supply chain. A review of performance indicators has shown that customer cost and responsibility prevail as the most frequently reported measure. Cai et al. On the other hand, it proposes a framework that uses a system approach to improve KPI's iterative implementation

in the context of the supply chain. The proposed study quantitatively analyzes the reciprocal relationship between the CPI set. It can determine the costs involved in implementing the CPI and propose improvement strategies for decision-makers in the supply-chain. In this regard, research has been given to an effective approach to manage the supply chain efficiency in a dynamic environment. Performance indicators solve the problem of communication through a systematic approach, while some of the previous studies address this problem. Frameworks and methods enable companies to systematically improve the performance of the entire supply chain, manage complex CPI relationships and improve the CPI determination process. From a standpoint, one can take a general look at the complex relationship between the CPI, where the reason table becomes too complicated because of the large amount of KPIs. The structure and methodology provide at least three important theoretical contributions to solving problems with CPI skills and provide a good insight into future work. The following: Firstly, the proposed structure provides a good implementation plan that transforms the complex problem solution into a more rapid and quantitative exercise.

PCTM (Cost Transformation) analysis is a new extension of the existing analytical methods for its structure (such as the transformation matrix (WTM) derived from the DSM model); Third, the MCT Framework Program and the Analysis Method can be used as a modeling tool to analyze the problems associated with link enhancement. The study recognizes that MCPD should not be considered as a direct solution, but as auxiliary information for decision-making. As different experts may have different opinions on critical indicators and on various possible solutions; any expert or manager may have their own MCTM. There are no default answers that can be accepted (and implemented) unanimously. Kai then states that the final decision-making process remains with the leaders.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In order to simplify a research work and present it in a systematic and logical way so as to address the research objectives and questions, the use of suitable research design and methodology is paramount (Marczyk *et al.*, 2005). The focus of this chapter therefore, resides on discussing the research methodology used in conducting this study.

3.2 Research Methodology

Schwardt (2007) defined methodology as a theory of how an investigation is carried out in a study. This chapter therefore presents the methodological steps that have been adopted to find answers to the research questions in this study. The sources of data, methods of data collection, the population, sampling techniques, sample size, tools and techniques of analysis, instrument used, analysis plan, measures taken for validity and reliability, and limitations was discussed under this chapter.

3.3 Research Approach

Research approach has to do with the procedures and action plans adopted for a research from one stage (general assumption) up to the interpretation of data (Creswell, 2013). Kwofie (2015) is of the view that the research approach provides an avenue to propose a general view of the research problem while providing answers to the research questions. Research approach consists of two key areas, deductive and inductive approach. Easterby-Smith *et al.* (2008) formulated three main reasons which will influence a researcher to choose a particular approach. Firstly, the research design to be used will caused one researcher to choose one approach over the other. Secondly, the research strategies also influence the decision and finally, knowledge in the different research conducts.

3.3.1 Deductive Approach

The research is based on deductive approach as it involves the collection of quantitative data for measurement so as to confirm variables identified from concepts based on the philosophical position. This approach studies existing theories or ideas about a subject through identification and testing through observation to confirm the theory (Ofori-kuragu, 2013). This means the research starts with the identification of already existing relevant theories and a scientific study is conducted to test the theories.

The research is however employed to test specific propositions (Ofori-Kuragu,2013). Also, Kwofie (2015), explains that deductive approach is used to test patterns identified from observation in order to ascertain the actual occurrence of the patterns from general to specific. This approach usually implies the use of quantitative methods for observations and data collection and analysis.

3.4 Research Strategies

The research strategy plays a very prominent information role in all paradigms (Pathirage et al., 2005). Guba and Lincoln (1994) is of the assertion that research strategy mainly involves two key areas (quantitative and qualitative approaches). Notwithstanding, Baiden (2006) expressed that research strategy consists of three distinct areas rather, which are quantitative, qualitative and triangulation. The decision to use any of these three broad areas depends on a number of factors such as the purpose of the study, the research questions and the type and ease of getting the needed information (Naoum, 2012).

3.4.1 Qualitative

Denzin and Lincoln (2003) explained that the qualitative research involves a naturalistic approach, understanding the subject matter; looking at interpreting or making sense of issues, by considering the meaning which people attach to them. Qualitative research can be viewed as a form of social interaction in which the researchers learns and converses with the subject

being studied (Jean, 1992). Alternatively, Crotty (1998) explicated further that the qualitative research is a research process which involves forming meaning of reality.

Creswell (2003) opined that this research approach consists of different knowledge claims, several methods for collecting data and diverse enquiry initiatives could be employed. Sources of data for a qualitative research includes case studies, interviews, questionnaires, documents, researcher's impressions and responses (Bryman, 2004). Sprinthall et al. (1991) had previously through their studies enumerated some sources of data as one that could be obtained from observations, interviews, documents and opinions. In addition, this type of research approach enables us to identify patterns in the data collected, and reporting such findings in the respondents' own words (Denzin and Lincoln, 1994).

3.4.2 Quantitative

Quantitative research approach is the approach that enables in the investigation of quantitative properties and their relationships systematically (Wadsworth, 1997). Creswell (1994) opined that the quantitative research approach considers past actions, words, or records with a statistical significance, and measures the findings of these observations. Wadsworth (1997) in an effort to explaining the quantitative research approach simply said that this approach would enable you to know how many, to what extent or how much of the parts is found in the data analysis and counting. The objective of this approach is simple; how do we employ mathematical models, theories and hypothesis concerning a natural phenomenon (Sarantakos, 2005). Sources of data collection are mostly concerned with the employment of questionnaires, surveys, and experiments and using mathematical tools in analysing them (Hittleman and Simon, 1997). Quantitative research approach uses variables on a subject and by adopting some tools like correlation; descriptive statistics (mean, standard deviations, frequencies etc.); regression etc. to express the differences between the various variables.

3.4.3 Mixed or Triangulated

The mixed method or triangulated approach is a mixture or the use of both quantitative and qualitative approaches to undertake an observation for generalization of phenomenon on the assumption that there is an increased understanding of such phenomenon through the collection and analysis of copious data (Creswell, 2013). In following the philosophical view of pragmatism, the mixed method approach enables the collection of data either simultaneously, or sequentially commencing with a survey of generalization and later with an interview for the detailed view from respondents (Creswell, 2009). The mixed approach has also been used as a tool for coming out with diverse context often with an emphasis on the purpose of bringing different acumen rather than the simplicity of the qualitative and quantitative approach (Agbodjah, 2008). Irrespective of the benefit of combining both approaches, the mixed approach has been tagged as an expensive and time-consuming approach.

3.5 Research Design

The research styles fall under any of the three main research strategies proposed by Baiden (2006). Thus, it could either be experiment or surveys (quantitative); case study, action research, grounded theory, ethnography etc. (qualitative); or convergent, transformative, explanatory or exploratory sequential etc. (mixed method).

3.5.1 Experiment

As a research style, experiments are used mostly in the scientific or natural researches sciences and some forms of psychological social researches, so as to establish causality between two variables through the exploratory and explanatory mode to answer the how and why research questions (Saunders et al., 2009). With the aim at developing theories, the experiment research style is used in data collection through observing problems known as hypothesis under a controlled environment with a high sense of reliability and trustworthy of findings (Bryman, 2004; Baiden, 2006). In experiment research, we mostly look for treatment for a phenomenon

which is expected to be one variable, by keeping the control factors for the other variables and measuring the outcome of both variables. While experiments undertaken in the natural sciences are mostly done in a controlled laboratory, those in the social sciences are conducted in the fields (Owusu-Manu et al., 2012).

3.5.2 Survey

Surveys are used as tools for the collection of large number of quantitative data for exploratory and descriptive research through the use of standardized questionnaires (Saunders et al., 2009) and structured interviews with the aim of generalising from sample to population using statistical analysis (Creswell, 2009). In congruence to the deductive methodology, surveys are adopted for answering the who, what, how many and by how much research questions. In studies with the need for a high degree of validity and reliability, the survey research style is adopted (Kwofie, 2015).

3.5.3 Case Study

Case studies are for empirical or exploratory investigations where the researcher has to do an in-depth analysis. It is mostly employed within a context of existence, and its purpose is for gaining rich understanding of such existence (Baiden, 2006; Saunders et al., 2009). In choosing case studies, one must be of the idealist mindset of ontological position, Interpretivism through the epistemological paradigm and a value driven stance of the axiological perspective; case studies could either be single, multiple, embedded or holistic (Pathirage et al., 2005) in providing insight into the phenomenon (Fisher and Purcal, 2010); it should be done through the collection of several data over a time period (Creswell, 2009). Yin (2003) opinionated that case studies are forms of empirical enquiry in which one looks into a contemporary phenomenon within its real-life context, especially where the boundaries between the phenomenon and context are not very overt.

3.6 The Research Strategy and Design Used

The research strategy and style employed for this study were the use of case study and survey questionnaires (quantitative approach). Thus, focusing on a single appropriate setting for this study (Accra). Yin (2010) is of the view that case studies should be employed when the study is relatively new, and there exist unclear boundaries relating to the scope of the study, as well as the need to obtain an in-depth, holistic and rich view on phenomenon. Hence, Yin's statement supports the choice of research strategy for this study; which is contemporary, and requires in-depth investigation.

3.7 Research Scope

Geographical the study was centered at Accra the capital of Ghana. The conceptual scope is Unilever Ghana Limited which is a Ghana-based company founded on July 14, 1992 with a merger of UAC Ghana Ltd and Lever Brothers Ghana Limited. It is engaged in the manufacturing of fast-moving consumer goods. The company's segments include foods, home care and personal care. The foods division includes spreads, tea, savory, oils, and health and wellness. The home care division comprises the laundry and household care categories. The personal care division includes the skin cleansing and oral categories. The company also has subsidiaries. Some of them are United Africa Trust Limited, which is engaged in investment management; Swanzy Real Estate, which is engaged in real estate development, and Unilever Ghana Investments Limited, which is a holding company. The ultimate parent company is Unilever PLC.

Unilever makes and sells products under more than 400 brand names worldwide. An estimated two billion people use them on any given day. Some of its food brands are Blue Band, Lipton, Geisha Mackerel, Royco, and Annapurna. The home brands comprises of Omo, Sunlight, Key Soap. The personal care brands consist of Close Up and Lux, Geisha soap, Pepsodent, Sunsilk,

Lifebuoy, Rexona, Vaseline, Fair and lovely, among others. It is the largest producer and retailer of consumer goods in Ghana.

3.8 Time Horizons

Every project is time-bound. Thus, it must be done or completed within a certain time limit. In research, we have two main time horizons; the longitudinal and the cross-sectional time framework for project completion (Saunders et al., 2007; Bryman, 2012). However, Saunders et al. (2007) stated emphatically that the research approach or methodology adopted for a particular study does not influence or determines the time horizon which the study must adopt.

3.8.1 Longitudinal

The longitudinal time frame looks at obtaining data repeatedly over a period of time. This is mostly adopted when one needs to study a particular changing variable to enable the researcher to get the actual results and changing patterns and how such would affect the study (Goddard and Melville, 2004). Mostly for change and development type of studies, and it promotes the establishment of controls over variables being studied.

3.8.2 Cross-sectional

The cross-sectional time horizon is sometimes called the snapshot time framework. This is mostly employed when the study is already established, and what is left is for the research to collect data a particular point in time (Flick, 2015). It is mostly done when one needs to collect data to easily prove or debunk a theory already existing, identified or formulated through the literature review. It is one time (not recurring at several points in time) and done and completed within a specific time frame.

3.8.3 The Time Horizon Position of this Study

The time horizon adopted for this study is the cross-sectional timing which enables the researcher to focus on the current situation on grounds. The opposite to this approach is the

longitudinal timing, which promotes repeated cycles of data collection, testing, surveys and analyses. This study adopted the cross-sectional approach because of time constraints of the project, but most importantly because of the nature of the study which could be very unstable as new technologies and changes are implemented supply chain management.

3.9 Unit of Analysis

To enable the researcher to easily identify or come up with the best data collection method or a good representation of the population (best-fit sample size), the researcher must firstly identify the unit of analysis (Sekram, 2003). Sekram (2003) stated that unit of analysis are grouped into five main types: individual, dyads, groups, organisation and culture. Considering the purpose of this study, the organisation unit of analysis was chosen. Notwithstanding, it must be reiterated that primary data were obtained from individuals in these organisations who are staff and representatives of the organisations considered for the study.

Speer (2002) is of the view that, the unit of analysis chosen by the research is also affected by the environment in which the researcher operates (artificial environment (laboratories); or natural environment (field surveys)). This study adopted the field survey or we can say it was influenced by the natural environment.

3.10 Data Collection Methods

After going through the research approach, research strategies, research choices and time horizons, and making decisions on which option to use for the study and reasons for choosing one over the other; the next step was to identify the techniques and procedures which would be used to collect data. The data collection methods adopted for a study is very important as it influences the attainment of the research objectives and purpose of the study. Tongoco (2007) was highly concerned about the fact that in data collection no amount of analysis (no matter how careful it is done) can make up for a poor data which does not reflect the population intents. Hence, collection of data must be taken very seriously with all aptness.

3.10.1 Sources of Data

Data sources are mainly either primary or secondary. This study resorted to the use of primary data by adopting the quantitative research approach which mostly employs the use of survey questionnaires as the data collection tool. Secondary information for this study was obtained from undertaking an in-depth desk literature review. The variables obtained were strategically compounded into close-ended questionnaires which were distributed to the target population to solicit their matchless expertise in meeting the objectives of this study.

3.10.2 Questionnaires Development

In adopting quantitative research approach, most researcher tends to favour the use of survey questionnaires as their data collection tool (Sarantakos, 2005). Survey questionnaires, mostly used in social sciences researchers are adopted in collecting all sorts of data (Creswell, 2005). Questionnaires are mostly in two forms: either open-ended or close-ended questionnaires (Sarantakos, 2005). The questionnaires were formed in such a way that they help in answering the research objectives of this study (Oppenheim, 1996). A good questionnaire would be unique, and contribute to generating several kinds of information from the respondents (Gall et al., 2003). It should be clear, concise, precise, and straight to the point; not requiring further enquiry or deliberations in case of a close-ended type.

Reviewing literature on questionnaire formation, it became overt that questionnaires should be presented on an A4 sheet (preferably white) and it should not exceed eight or nine pages (Oppenheim, 2000; Fellows and Liu, 2003; Naoum, 2012). The presentation of questionnaires generally has an effect on the quality of responses the researcher is deemed to receive from the survey (Wahab, 1996). Hence, one must try to be clear as possible and use words or jargon which the average respondent can relate (Fowler and Floyd, 1995).

Piloting of the questionnaires were undertaken before the main survey. Yin (2009) is of the view that pre-testing your questionnaires is very necessary, and could help in obtaining real value facts with inputs from experts about how easy and familiar they could be with your questions. Lietz (2010) said that pre-testing of questionnaires is very pertinent in obtaining reliable and valid data, it also creates room for correction of any ambiguity in the questions asked.

3.11 Population

Naoum (2012) is of the view that the population of the study consists of all the various individuals or groups which falls under the study and can, or are supposed to give, or needs to be assessed to help in achieving the purpose of the study. The population of the study encompasses several workers of Unilever Ghana limited.

3.12 Sampling Technique and Sample Size

After identifying the population and sample frame of the study, the next step is to determine how the population would be targeted and the sample size which will be used to represent the entire population (so as to obtain an accurate assessment of the whole population). This next stage of research methodology is presented in the sub-sections below. The population of the study is 530 employees.

3.12.1 Sampling Techniques

In research, collection of data from the entire population appears as costly and time wasting. Therefore, several measures have been formulated to enable us to target a part of the population in a careful but impressive manner which will still represent characteristics of the entire population. Saunders et al. (2009) defines these approaches as the sampling technique. Sampling techniques have been grouped into two main broad areas, namely: the probability sampling technique and the non-probability sampling techniques.

3.12.2 Purposive Sampling Technique (Sampling technique used for this study)

Purposive sampling technique relies on the judgement of the researcher in selecting the group, class or organization which is to be studied. Hence, it can be referred to as the selective, subjective or judgmental sampling technique (Saunders et al., 2009). This study adopted purposive sampling technique because of the nature of the study.

3.13 Data Processing and Analysis

Data analysis is mainly done to see whether the data is able to provide answers to the research question set out in achieving the purpose of the study (Saunders et al., 2009). Kwofie (2015) opined that this process generally refers to how data are organized, examined, categorized, tabulated, interpreted and tested. There are several ways in which data is tested statistically. The decision to use one method over the other depends on the type of analysis, accuracy of work and the kind of information which the researcher want to get from the primary data. The various methods are also influenced by the research design, data distribution and type of variable. Mostly, normally distributed data uses the parametric tests while the non-normally distributed data adopts the non-parametric tests (Saunders et al., 2009). The next sections below provide information on the several tools which was used in analysing the primary data which obtained from the survey.

3.13.1 Entering and Organisation of Data

In order to obtain quality data which would be a good snapshot of the entire population, Yin (2003) is of the viewed that data obtained from surveys should be sorted and organised. After sorting out the questionnaires and making sure that there were no incomplete questionnaires or taking note of missing values, the data were strategically coded and entered into the Statistical Package for Social Sciences (SPSS). After successfully inputting the data into SPSS, the data was analysed by using descriptive statistics for the demographic questions, mean sore ranking, and Relative Importance Index.

3.14 Internal and External Validity

Validity simply means, achieving what the study intends to attain. Proposed by Kelley (1927), validity is used in evaluating the importance of a research study or the procedures used. Generally, we have two main types of validity; internal and external validity. Internal validity considers how the dependent variable(s) is/are well explained by the independent variable(s). Hence, there should be no confounding variables between the independent variables in enabling the correct prediction of the dependent variables (Gay and Airasian, 2000). Internal validity is affected by eight main threats as proposed by Campbell and Stanley (1963). These variables are history, testing, selection preconception, experimental mortality, statistical regression, development (maturing or improving from one state to the other), instrumentation and research reactivity (ibid).

External validity on the other hand looks at how the research can be generalised to reflect the entire population. Hence, one could ask, does the same thing happens in variant settings other than this one? Smith and Glass (1987) also came out with some threats to external validity which includes; validity affecting the population of the study; ecological validity, and external validity of operations. By recapitulation, one must note that a study with internal validity, does not automatically confirms that the study will also have an external validity (Onwuegbuzie, 2000).

In assessing the validity of a test McLeod (2013) suggested two main methods of measurement which are content-related validity and criterion-related validity.

3.15 Ethical Issues

Ethics is an ancient Greek word which was used to differentiate between good and bad morals. Hence, it can be dubbed as the branch of philosophy which deals with the phenomenon of right and wrong in decision making (Johnstone, 2015).

Ethical issues are very important in research now, because ethical standards eschew falsification of data and promotes the formulation of real value facts and truth in promoting knowledge (Riddell and Burgess, 1989). Ethical issues also provide good grounds for collaborative research because it spills out the rules and duties of each member, and it enables the easy formation of co-authorship, copyright guidelines and confidentiality of each member (Dich et al., 2013). Moreover, in order to increase the integrity of research, ethical issues are harnessed in that regards and also for increasing confidence of the public in research. Examples of ethical issues considered in research includes but not limited to the following:

Beneficence – Thus, the study must be of immense benefit to the world or the scientific domain without having any harm whatsoever on the population of the study or the world (Beauchamp and Childres, 2001).

Informed Consent – this is when the respondent without any reservations whatsoever gives his/her consent to conduct the study or provide information to the questions being asked in the data collection tool (Armiger, 1997).

Respect for confidentiality and anonymity – the type of research method adopted would mostly influence the choice between anonymity and confidentiality. However, if the researcher is unable to provide anonymity (in case of a qualitative research), then at least the confidentiality of the respondent should be kept (Levine, 1976).

Respect for privacy – Levine (1976) opined that privacy is when an individual decides when to share, distribute, discuss or withheld his/her private information from others. When the researcher shares the private information of a respondent without informed consent, there is a breach of privacy (Kelman, 1977).

3.16 Limitations of the Study

The method used in selecting the participants did not permit all the study population to be part of the study. The single data gathering tool (questionnaire) was inadequate to solicit all the relevant information.

CHAPTER FOUR

ANALYSIS OF DATA

4.1 Introduction

This chapter of the study was strictly dedicated to analysis of the data gathered via questionnaire administration. It thus presented an overview of data collection and analysis, presentation and descriptive analysis of the demographic data collected. This chapter also contained thorough description of the rest of the research tools which include mean score ranking and relative importance index (RII) employed to achieve the specific objectives of the study presented using pie charts and tables.

4.2 Outline of Data Collection and Analysis

The questionnaires were directed at fifty (50) professionals at Unilever Ghana limited, who are involved in the management of the company's day to day activities however only forty (40) of them responded, indicating a response rate of about 80%. With the given response rate, the data is considered reliable enough for analysis to be conducted on. This chapter is made up of four (4) subdivisions which have been created to realize the aim and objectives of the study as follows:

Part A: Demographic Data

Part B: Current trends in logistics and supply chain information system within Unilever Ghana

Part C: Assess the management of supply chain information system practices

Part D: Investigate the effects of supply chain information systems strategy on organizational performance

4.3 Part A: Demographic Data

The demographic characteristics of respondents that were considered in this study included the gender of the respondents, their educational levels as well as their years of experience at

Unilever Ghana limited. According to Creswell (2009), the importance of the respondents' profile in a data gathering survey is to confirm the reliability and validity of the findings. This is to enable conclusions to be drawn for generalization purposes. Another importance is to engender credibility and confidence in data gathered.

4.3.1 Gender of Respondents

It was established, as shown in the Fig. 4.1 below, that 27 of the respondents were male, making up 68% of the total, with the other 13 being female and making up 32% of the total number of respondents.

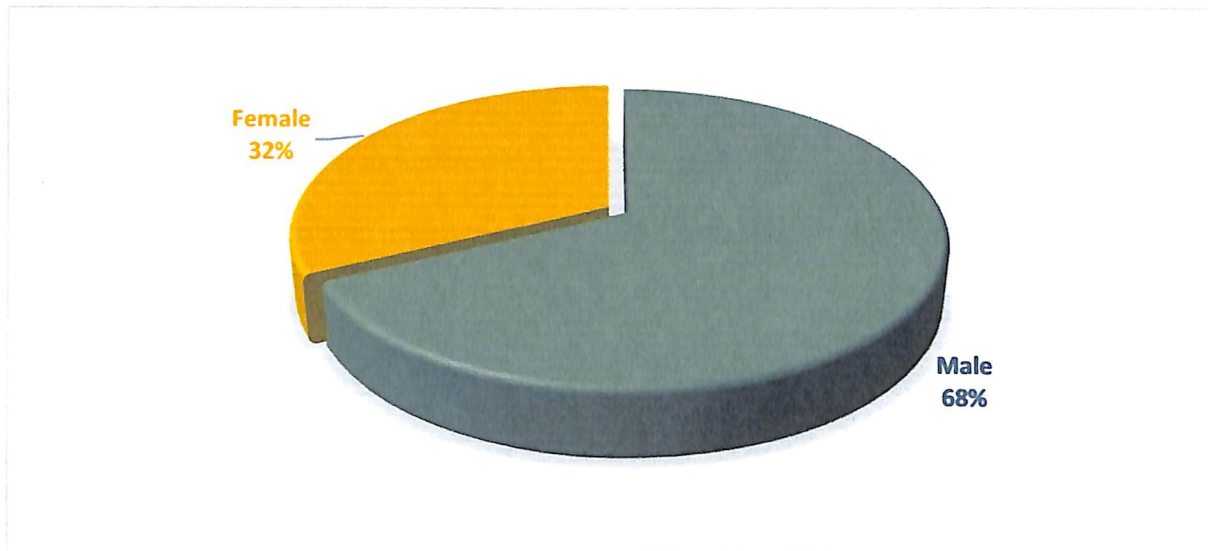


Figure 4.1 Gender of respondents

Source: Author's fieldwork (2019)

4.3.2 Educational Levels of Respondents

It was also ascertained that 23 of the respondents, making up 58% of the total number of respondents had their highest level of education being a bachelor's degrees, while the remaining 17, making up 42% of the total, had their highest level of education to be postgraduate degrees (Figure 4.2).

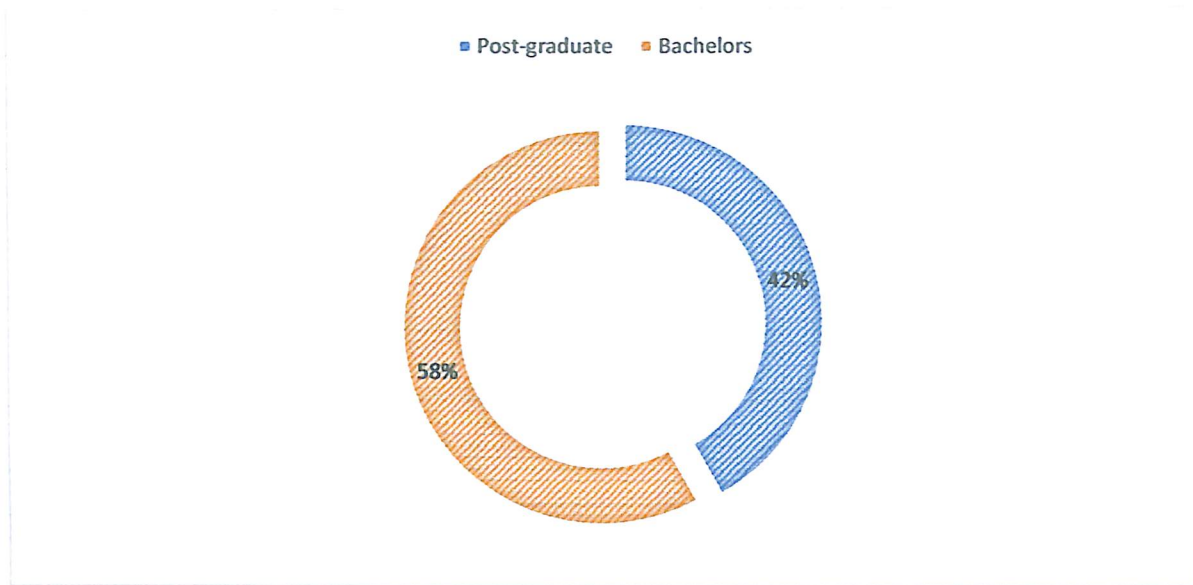


Figure 4.2 Educational levels of respondents

Source: Author's fieldwork (2019)

4.3.3 Years of Experience at Unilever

When it came to the work experience of the respondents, as shown in Table 4.1, it was found out that 16 respondents, indicating 40%, had worked at Unilever Ghana limited for 16 years and above, 13 respondents indicating 32.5%, had 11-15 years of work experience and 11 respondents, indicating 27.5% had 6-10 years of work experience.

Table 4.1 Years of experience at Unilever

Years of Experience	Frequency	Percentage
6-10 years	11	27.5
11-15 years	13	32.5
16 years and above	16	40
Total	40	100.0

Source: Author's Fieldwork (2019)

4.4 Part B: To evaluate the current trends in logistics and supply chain information systems within Unilever Ghana in terms of the key Performance Indicator (KPI)

A Key Performance Indicator (KPI) is a measurable value that demonstrates how effectively and efficiently a company is achieving its key business objectives. The respondents were given a number of KPIs and asked to indicate the extent to which they agreed that said KPIs were being met by their firm. The results are displayed in Table 4.3 below.

Table 4.2 Mean Score Ranking of KPIs

No	KPIs	Mean	Std. Deviation	Ranking
1	Responsiveness	4.71	0.461	1 st
2	Cost of production and distribution	4.70	0.460	2 nd
3	Return on Investment	4.61	0.558	3 rd
4	Customer satisfaction	4.32	0.541	4 th
5	Volume and delivery flexibility	3.74	0.514	7 th
6	Shelf life	4.06	0.250	6 th
7	Product safety and health	3.61	0.715	8 th
8	Environmental sustainability	4.13	0.341	5 th

Source: Author's Fieldwork (2019)

4.5 Assess the Management of Supply Chain Information System Practices

In line with the second objective of the study, which was to assess the management of supply chain information system practices at Unilever Ghana limited, respondents' opinions were

sought concerning who was in charge of managing the company's supply chain information system.

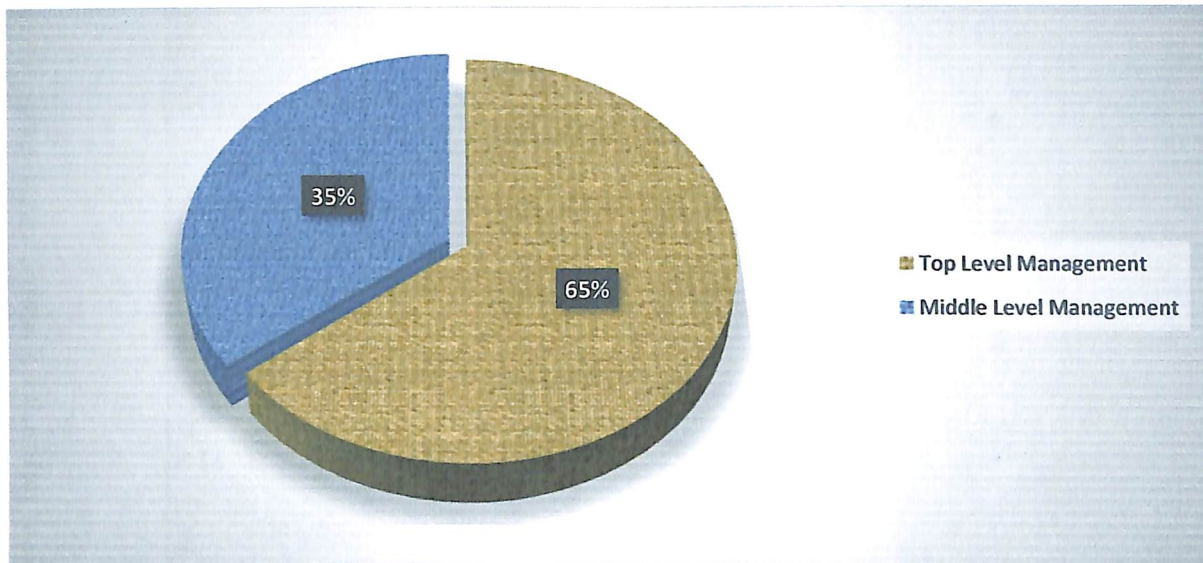


Figure 4.3 Management of the Unilever Supply Chain

Source: Author's fieldwork (2019)

4.6 To Investigate the Practices that will Improve on Supply Chain Inefficiencies at Unilever

In tandem with the last objective of the study which was to investigate the practices that will improve on supply chain inefficiencies at Unilever Ghana Limited, the respondents were given a list of supply chain practices and were made to indicate the level to which they agreed or disagreed with the statement regarding the practices that will improve on supply chain information systems in their organisation. Their responses were analyzed using the Relative Importance Index (RII) to help rank the effects according to their significance. Table 4.3 represents the results obtained from the analysis.

Table 4.3 Relative Importance Index (RII) for investigate the practices that will improve on supply chain inefficiencies at Unilever

SUPPLY CHAIN MANAGEMENT PRACTICES OF UNILEVER											
NO.	PRACTICES	Frequency of rank					TOTAL	ΣW	MEAN	RII	RANKING
		1	2	3	4	5					
1	Supply chain management practices are positively related to supply chain responsiveness	0	0	0	15	25	40	143	4.61	0.92	1 st
2	Strategic supplier partnership is positively related to supply chain responsiveness	0	0	0	27	13	40	134	4.32	0.86	6 th
3	Customer relationship is positively related to supply chain responsiveness	0	0	0	27	13	40	134	4.32	0.86	4 th
4	Information sharing is positively related to supply chain responsiveness	0	0	0	26	14	40	135	4.35	0.87	3 rd
5	Supply chain management practices are positively related to competitive advantage	4	12	0	24	0	40	103	3.32	0.66	8 th
6	Strategic supplier partnership is positively related to competitive advantage	0	0	0	27	13	40	134	4.32	0.86	4 th
7	Customer relationship is positively related to competitive advantage	1	0	1	14	24	40	138	4.45	0.89	2 nd
8	Information sharing is positively related to competitive advantage	0	0	12	15	13	40	125	4.03	0.81	7 th

Source: Author's Fieldwork (2019)

CHAPTER FIVE

INTERPRETATION OF RESULTS

5.1 Introduction

This chapter is dedicated to the interpretation of the data analyzed with the research tools employed in the previous chapter. The interpretation of these results has been compared with the assumptions made prior to the execution of this empirical research.

5.2 Respondents' Profile Analysis

To be able to have an in-depth knowledge of the data obtained, descriptive statistics aided in the analysis of the respondents' profile. This was done by way of frequency distribution and percentages and presented in pie charts and tables. The purpose of this was to aid provide background information on the respondents and to assess their expertise so as to lend credence to the responses and whole findings of the research.

The part of the questionnaire that related to respondents' profile had three questions which enquired on the gender of respondents, the educational level of the respondents and finally the working experience of the respondents.

5.2.1 Gender of Respondents

It was established, as shown in Fig. 4.1 in chapter four (4), that 27 of the respondents were male, making up 68% of the total, with the other 13 being female and making up 32% of the total number of respondents. This is to say that Unilever Ghana Limited is a male dominated. Hence, the findings of this study are more of the views of the male sex than that of the female sex.

5.2.2 Educational Levels of Respondents

The questionnaire for this study was written in English language which is the official language in Ghana. Therefore, the educational level of the respondents was essential to be sure that the respondents understood the questions and responded appropriately to each question. It was

ascertained that 23 of the respondents, making up 58% of the total number of respondents had their highest level of education being a bachelor's degree, while the remaining 17, making up 42% of the total, had their highest level of education to be postgraduate degree as shown in figure 4.2 in chapter four of this study. Hence, there is no doubt with regards to the respondent's ability to read and interpret the questionnaire since they have all obtained higher level of formal education.

5.2.3 Years of working experience with Unilever

According to Hallowell and Gambatese (2009), assessing the profile of the respondents especially the years of experience in profession is highly seen as important indicators in knowing the expertise of respondents. This section enquired from the respondents their years of working experience as presented in table 4.1 in chapter four (4). It was found that 16 respondents indicating 40% had worked at Unilever Ghana limited for 16 years and above, 13 respondents indicating 32.5% had 11-15 years of work experience and 11 respondents representing 27.5% had 6-10 years of work experience. In conventional work practice and relying on the practical perception of employment practice in Ghana, having at least six years of working experience qualifies a worker for the position of senior management. In addition, possessing at least ten years of working experience makes a worker suitable for the position of senior management. Inferring from this, it can be deduced that the respondents for this study have adequate working experience in the industry and are considered responsive in this survey.

5.3 Part B: To Evaluate the Current Trends in Logistics and Supply Chain Information Systems within Unilever Ghana in Terms of the Key Performance Indicator (KPI)

In this part of the chapter, the goal is to evaluate the current trends in logistics and supply chain information systems within Unilever Ghana in terms of the key Performance Indicator (KPI). From the analysis in chapter four (4), Responsiveness was ranked first place with mean scores

of 4.71 and standard deviations of 0.461. This means that Unilever Ghana Limited is able to react quickly to any unexpected changes in market or customer demand.

Cost of production and distribution was ranked as second (2nd) with a mean score of 4.70 and a standard deviation of 0.460. This means that Unilever Ghana Limited is able to produce their products at a minimal cost to the company as well as the environment and is able to efficiently distribute their products in Ghana true effective information system.

Return on investment was ranked the third position with mean score of 4.61 and standard deviation of 0.558 this was possible due to the company's ability to reduce its production costs.

Customer satisfaction was also ranked in the fourth position as indicated in table 4.2 in chapter four with mean score of 4.32 and standard deviation of 0.541 which is an indication that Unilever is able to meet the needs of their customers in Ghana

'Volume and delivery flexibility' and 'Product safety and health' was ranked 7th and 8th respectively, with the former having a mean score of 3.741 and a standard deviation of 0.514 while the latter had a mean score of 3.61 and a standard deviation of 0.715. This goes to show that the respondents thought that for their supply chain to be more efficient and effective, the firm needs to put measures in place to ensure that they are able to produce enough for delivery while ensuring the safety of their products.

5.4 Assessment of the Management of Supply Chain Information System Practices at Unilever Ghana

From figure 4.3 above in chapter four (4) indicated that 26 respondents representing 65% of the total number of respondents thought that the Top-Level Management of the company was in charge of its supply chain management, while the other 14 respondents representing 35% are of the opinion that the company's supply chain was managed by Middle Level Management. That to suggest that critical decisions regarding the supply chain management of Unilever Ghana is greatly influenced by the top-level management of the company.

5.5 Practices that will improve on Supply Chain Inefficiencies at Unilever Ghana

From Table 4.3 above, it is evident that 'Supply chain management practices are positively related to supply chain responsiveness', 'Customer relationship is positively related to competitive advantage' and 'Information sharing is positively related to supply chain responsiveness' are the practices that are being implemented successfully at Unilever. These practices reflected the highest RIIs of 0.92, 0.89 and 0.87 respectively. Nevertheless, to ensure an effective and efficient supply chain management, Unilever needs to consider implementing measures that will ensure that the following practices which recorded the least RIIs are improved on: 'Information sharing is positively related to competitive advantage' which had an RII of 0.81 and 'Supply chain management practices are positively related to competitive advantage', which had the lowest RII of 0.66.

CHAPTER SIX

CONCLUSION AND SCOPE FOR FUTURE WORK

6.1 Introduction

This research which was on investigating trends in logistics and supply chain information systems in the Ghanaian food industry: the case of Unilever Ghana limited was divided into six independent but interwoven chapters. Chapter one was introduction. Chapter two was the literature review. Chapter three looked at research design, methodology and the plan adopted for the research. It detailed out the methodological steps that was considered to answer the research questions and guiding principles for the conduct of the study. It therefore looked at population, sample size, sampling technique, research design, sources of data, data gathering techniques. Chapter four was the analysis of the responses articulated by the respondents via questionnaire administration. In this chapter, the analysis of the data gathered and processed through the research tools employed in chapter three. Chapter five was dedicated to the interpretation of results derived from the analysis carried out in the previous chapter. The final chapter captured the conclusion and scope for future work in this area of this study.

6.2 Summary of Findings

In light of the data analysis conducted in the fourth (4th) chapter of this study, these were the findings that were obtained:

6.2.1 Attainment of Research Objectives

The aim of this study is to examine practices that will improve on Supply Chain Inefficiencies at Unilever Ghana Limited that will help improve the Ghanaian food industry. In a bid to accomplish the above stated aim, three specific objectives were outlined.

6.2.1.1 To Evaluate the Current Trends in Logistics and Supply Chain Information Systems within Unilever Ghana in Terms of the Key Performance Indicator (KPI)

With background information from literature review conducted, eight factors were identified as the Key Performance Indicators (KPI) in logistics and supply chain information systems within Unilever Ghana. Respondents were asked to rate these variables on a five-point Likert scale ranging from 1 (strongly) to 5 (strongly agree). Mean score ranking was used to rank these factors. From the findings, responsiveness, cost of production and distribution, return on investment, and customer satisfaction were the most significant Key Performance Indicators (KPI).

6.2.1.2 Assessment of the Management of Supply Chain Information System Practices

In line with the second objective of the study, which was to assess the management of supply chain information system practices at Unilever Ghana limited, descriptive analysis was employed and the findings are that critical decisions regarding the supply chain management of Unilever Ghana is greatly influenced by the top-level management of the company.

6.2.1.3 To Investigate the Practices that will Improve on Supply Chain Inefficiencies at Unilever

Utilizing relevant knowledge from the literature review, eight practices were identified as the potential practices that will help improve supply chain inefficiencies at Unilever. These variables were put in a questionnaire for the respondents to rank their importance using a Likert scale. Relative Importance Index (RII) for investigate the practices that will improve on supply chain inefficiencies at Unilever. Supply chain management practices are positively related to supply chain responsiveness. Supply chain management practices are positively related to supply chain responsiveness, customer relationship is positively related to competitive advantage, information sharing is positively related to supply chain responsiveness, customer relationship is positively related to supply chain responsiveness, strategic supplier partnership

is positively related to competitive were the practices with high chance of improving on supply chain inefficiencies at Unilever Ghana Limited.

6.3 Conclusion

It can generally be agreed that Unilever Ghana Limited just as any other company in Ghana is not operating at its maximum capacity. Hence, the recommendations below would go a long way to improve on the company's fortunes in the country if strictly adhered to.

6.4 Recommendations

With regards to the various findings enlisted in above from the analysis of the study, below are the recommendation for considering:

- **Logistics plan-** Well planned agricultural products logistics brings about an increase in the value-added to agricultural products, it saves distribution costs, it improves circulation efficiency while reducing unnecessary losses, and helps to avoid market risks (Wang, 2012). It is therefore suggested that organizations should put various plans in place to review and improve its logistics issues.
- **Customer relationship is positively related to competitive advantage -** It allows an organization to manage all its correspondence with its existing patrons as well as plan for its prospective customers. It encompasses the use of technology to organize, automate, and synchronize sales, marketing, customer service, and technical support. Its objective is to produce value for the consumer as well as the organization over an extended time period (Kumar, 2013). Consumers whose needs are being met with goods and services of high quality are very unlikely to switch to other competitors for their requirements.

6.5 Scope for Future Research

- Further studies should be conducted into investigating the effects of supply chain information systems strategy on Unilever Ghana Limited performance in the Ghanaian market.
- Future research should also be devoted to analyzing both the external and internal factors that affect the effective and efficient operation of Unilever Ghana Limited so as to adapt to the changing economic drifts of the country.
- Multiple Case Study: A single case study was adopted in this study; hence further studies could consider using multiple case studies in assessing the trends in logistics and supply chain information systems in the Ghanaian food industry so as to guarantee the generalizability of the results.

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X. Appendix



QUESTIONNAIRE

CENTRE FOR CONTINUING EDUCATION

UNIVERSITY OF PETROLEUM & ENERGY STUDIES, DEHRADUN

**TOPIC: TREADS IN LOGISTICS AND SUPPLY CHAIN INFORMATION
SYSTEMS IN THE GHANAIAN FOOD INDUSTRY: THE CASE OF UNILEVER
GHANA LIMITED**

Dear Respondent

I am a master's student of University of Petroleum & Energy Studies, Dehradun, researching on the topic "Treads in logistics and supply chain information systems in the Ghanaian food industry: Case Study of Unilever Ghana Ltd."

The success of this study greatly depends on your kind feedback from this questionnaire. I would therefore be grateful if you could spare me some few minutes to respond to this questionnaire.

This exercise is purposely for academic reasons and all information will be treated with strict confidentiality.

Thank you

SECTION A: DEMOGRAPHIC BACKGROUND OF RESPONDENT

1. Which of the following is your gender?

Male

Female

2. What is your highest educational level?

HND

First degree

Masters

PhD

3. How long have you been working in the construction industry?

Below 5 years

5-10 years

11-15 years

16-20 years

21-25 years

26 years above

SECTION B: KEY PERFORMANCE INDICATOR (KPI) IN LOGISTICS AND SUPPLY CHAIN INFORMATION SYSTEMS

A Key Performance Indicator (KPI) is a measurable value that demonstrates how effectively a company is achieving its key business objectives.

Kindly indicate the extent to which you agree that the following KPIs are being achieved in your firm.

Scale: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

KPIs	1	2	3	4	5
1. Responsiveness					
2. Cost of production and distribution					
3. Return on Investment					
4. Customer satisfaction					
5. Volume and delivery flexibility					
6. Shelf life					
7. Product safety and health					
8. Environmental sustainability					

SECTION C: MANAGEMENT STRATEGY IN LOGISTICS AND SUPPLY CHAIN INFORMATION SYSTEMS

Kindly indicate the extent to which you agree with these statements regarding the supply chain management practices of your company.

Scale: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

STATEMENTS	1	2	3	4	5
1. Our company evaluates the performance of its Supply Chain regularly					
2. Our company has an efficient and effective supply chain management process					
3. Our customers are satisfied with the Supply Chain Performance of our company.					
4. Our suppliers are satisfied with our firm's Supply Chain Performance					
5. Our company has a good supply chain relationship with its customers					
6. Our company has a good supply chain relationship with its suppliers					
7. Our company is pursuing the best Supply Chain Management Practices.					
8. Logistics issues affect the performance of the supply chain of our company.					

**SECTION D. PRACTICES THAT WILL IMPROVE ON SUPPLY CHAIN
INEFFICIENCIES AT UNILEVER**

Strategic supplier partnership		1	2	3	4	5
1	our suppliers support us to development of our products, services, or processes and provide technical support					
2	We consider quality as our number one criterion in selecting suppliers					
3	We have long-term relationship with suppliers					
Customer relationship		1	2	3	4	5
4	We frequently interact with customers to set reliability, responsiveness, and other standards for us.					
5	We frequently determine future customers expectations					
6	We frequently measure and evaluate customer satisfaction.					
7	We periodically evaluation the importance of our relationship with our customers.					
Information technology		1	2	3	4	5
8	Our it facilitates acquisition and processing of supply chain knowledge.					
9	Our information technology throughout the supply chain is up-to-date					
10	In our company information exchange with suppliers through it					
11	The it system throughout the supply chain are adequate					
Information sharing		1	2	3	4	5
12	We and our trading partners exchange information that helps establishment of business planning					
13	Our trading partners share business knowledge of core business processes with us					
14	Our trading partners share proprietary information with us					
15	We and our trading partners keep each other informed about events or changes that may affect the other partners					
Supply chain integration		1	2	3	4	5

16	Our company has capability to control sales/distribution network					
17	We establish more frequent contact with supply chain members					
18	We try enhance integration in new product development					
19	Lack of knowledge in supply chain management by chain members					

THE END

THANK YOU FOR YOUR PARTICIPATION