KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

THE IMPACT OF LOGISTICS OPERATIONS ON ORGANIZATIONAL PERFORMANCE IN THE OIL INDUSTRY: A CASE STUDY OF ENI GHANA EXPLORATION AND PRODUCTION LTD

BY

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DECLARATION

I hereby declare that this submission is my own work towards the MSc. Logistics and Supply Chain Management and that, to the best of my knowledge, it contains no material previously published by another person, nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

I dedicate this thesis to my wife, Mrs. Afia Baafra Banno-Bosompem, and four children, Nana Kwadwo Banno, Akwasi Acheampong- Banno, Yaw Barima- Banno and Kwaku Wiredu-Banno

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ABSTRACT

Logistics plays a significant role in the profitability of an organization. A vast variety of previous studies have been applied extensively in the supply chain area to examine how logistics as a firm resource can affect a firm's performance. Most of these studies focused on capabilities that are well-recognized and supply chain imperatives. Hence, the study aimed at evaluating the logistics operations of Eni Ghana Exploration and Production Limited. Based on the aim, three objectives were set which were to evaluate the logistics operations practices in place at Eni Ghana Exploration and Production Limited, to examine the logistics operation challenges faced by Eni Ghana Exploration and Production Limited and to evaluate the impact of logistics operations on organizational performance in Eni Ghana Exploration and Production Limited. A structured questionnaire was designed and distributed to 69 Eni Ghana Exploration and Production Limited Takoradi Logistics. A total of 66 were retrieved and analysed using both descriptive and inferential statistics namely mean scores, standard deviation, one-sample t-test and multiple regression analysis. The findings of the study were that ENI Ghana adequately implemented the logistics operations practices. This was mostly in the form of comparing incoming shipments with requirements of the purchase order, conducting a needs assessment of consumers and inspecting all purchased products. Additionally, it was shown that the implementation of logistics operations in ENI faced numerous challenges with the critical ones being the hidden cost associated with logistics operations, resistance to change and information exchange barrier. Finally, the study showed that logistics operations practices have a significant impact on organizational performance. Based on the outcome of the study, it was recommended that logistics-related firms endeavour to improve the effectiveness of their logistics operations through training to boost their organizational performance. Also, management must invest in the use of ICT to facilitate information sharing in an effective and efficient manner.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

The commercialization of oil in Ghana has opened the door for the oil industry and cargo operations within the industry (Goedhals-Gerber, 2016). One of the companies in the oil industry is Eni Ghana Exploration and Production Ltd. This study, therefore, explores the logistics operation of Eni Ghana Ltd with the view of improving the operations of the company. The study is guided by five chapters, and this chapter focused on the introduction, which entails the background, the statement of the problem, the purpose of the study, specific research objectives, the research questions, the significance of the study, scope of the study, limitations, and definitions of key terms and organization of the study.

1.1 Background of the Study

The development of logistics and Supply Chain Management (SCM) may be traced back to "physical distribution management" in the 1970s when there was no coordination between the many activities of a company, and each was devoted to achieving its own objective (Abudu & Sai, 2020). In the 1980s, this myopic approach gave way to "integrated logistics management," which advocated for the integration of multiple operations to accomplish a system-wide goal (Odoom, Kyeremeh, Afram, and Tawiah, 2020). SCM broadens this reach by bringing suppliers and consumers together and managing the flow of goods, passengers, and information (Saruchera, 2020).

Stank et al. (2005), acknowledged the importance of logistics in the management of supply chain. Logistics management can be described as an aspect of Supply Chain Management that deals with the efficient planning and implementation of forward and reverse flow and storage of goods and services from the point of origin to consumption in other to satisfy the needs of the consumer (The Council of Supply Chain Management Professionals, 2007). It is beneficial

to incorporate all the logistics processes of partners of the supply chain in other to meet customer needs (Lin 2006). However, Rodrigues et al. (2005), indicated that, logistics implementation is regarded as a major cost centre within international trade. This assertion has been supported by numerous other studies and statistics from different countries. For instance, firms within the US spend on an average $554 billion on freight transportation, $332 billion on warehousing, storage, and inventory and $400billion to manage the entire logistics process (Stock and Lambert, 2001). The shear quantum of expenditure on logistics has a critical effect on GDP, inflation, interest rates and other aspects of the economy. This has led to the increased interest of logistics management in the field of academia and practice. Additionally, Stock and Lambert (2001) indicated that, the recognition of the significance of logistics management in firms can also be attributed to advances in technology, growth in profit and opportunities presented by E-commerce.

With operations in the upstream (exploration and production), midstream, and downstream sectors, Ghana is a rising star in the oil and gas business. Ghana took action to establish a successful oil and gas regime after commercial quantities of oil and gas were discovered there in 2007. As a result, the Petroleum Commission was established in 2011 to oversee the upstream sector after the Jubilee field began to produce commercially in 2010. Ghana currently produces 126,000 barrels of oil per day (bopd), however there is potential for future growth (Petroleum Commission, 2021). Consequently, there are many firms that are operating within the upstream sector. These include Kosmos Energy Ghana, Saida Oil and and Gas Ghana Company Limited, Ebony Oil & Gas Limited, Bayfield Oil Services, Eni Ghana Exploration and Production Limited, Springfield Group, Prime Meridian Docks Ghana Limited, Star Oil Company Limited, Ghana National Gas Company Ltd, Association of Oil Marketing Companies, Hydrocol Ltd, Tullow Ghana Limited, Platon Gas Oil (CIPS, 2013). These oil and gas companies receive cargo operation services from companies like Bethel Logistics

Company, Miracle Logistics Company, Halbey Logistics Company, Global Cargo and Commodities Limited, FedEx Ghana, APK Ghana Limited, OMA Ghana Limited, Achievers Logistics Ghana, BAJ Freight & Logistics Limited (BAJ), Freight Masters Shipping Agency Limited, and Modern World Logistics Limited. Ghana Ports and Harbours Authority coordinates all inbound and outbound offshore marine cargo operations between these logistics service providers and the oil-producing companies (CIPS, 2013).

However, the emphasis of this research is on Eni Ghana Exploration and Production Limited, a business that engages in the exploration, production, refining, and marketing of oil and gas, and invests in local development initiatives (ENI, 2018). Eni Ghana has been present in Ghana since 2009 and currently accounts for a gross production of approximately 80,000 barrels of oil per day. The company operates the Offshore Cape Three Points (OCTP) permit, and the offshore exploration license Cape Three Points Block 4 (Anderson, Fine, and Parker, 2020), making it one of the biggest logistics and cargo service receivers and a provider in the oil and gas industry of Ghana; hence it's choice for this study.

Logistics within Eni Ghana Exploration and Production Ltd face a number of difficulties in their operations. Ghana's inadequate logistics network, for example, reduces the country's investment attraction (Enu-Kwesi, Quarshie, and Mensah, 2015). The operational environment for these firms is difficult due to the poor quality of roads and frequent power outages and the high risks associated with the lifting and transporting of heavy-duty equipment from onshore facilities to offshore facilities (Fordham and Robinson, 2018). Long bureaucracies and generally costly trade processes, especially for imports, make goods transportation less efficient, contributing to high operational costs for these companies (Atanga, 2018). Despite Ghana's large hydrocarbon resources, the country's substantial dependence on imports for fuel and capital goods puts considerable cost pressures on logistics businesses (Anderson, Fine, & Parker, 2020).

Given these highlighted challenges and the keen competition in the logistics industry, frequent assessment of the logistics operations of a company, like Eni Ghana Ltd is inevitable. It is against this background that this study engages in assessment of Eni Ghana's logistics operations to help improve its efficiency.

1.2 Problem Statement

The number of logistics service providers in Ghana is increasing due to the exploration, production, and commercialization of oil and gas and the stable micro and macroeconomic business environment in Ghana (Biney and Boakye, 2021). This has led to keen competition in the logistics industry (Biney and Boakye, 2021). Ghana has in existence multimodal resources like seaports, waterways, railways, and roads but there are poor inter-linkages to gains comprehensive benefits from its existence. The transportation systems in Ghana is dominated by roads which possesses numerous inefficiencies like greenhouse gas emissions, traffics, accidents and high cost of maintenance (Okyere et al., 2019).

Logistics plays a significant role in the profitability of a firm. Extant literature has explored the implementation of logistics management as a resource in the improvement of firm's performance. However, a significant number of these studies focused on well-known supply chain capabilities (Cho et al., 2008; Lai et al., 2006). Due to the challenges in logistics operations, every logistics service provider and receiver, including Eni Ghana Ltd., needs to regularly assess its operations to maintain efficiency and effectiveness in order to remain profitable and sustainable (Lee, 2017). Extant literature has shown the scantiness and inconsistencies in studies regarding logistics management and organizational performance. Additionally, studies conducted within the context of the oil industry is missing. For instance, Liu and Luo, (2008) examined the effect of logistics capabilities on performance in manufacturing firms in China. Mangan et al. (2001), explored the educational and training needs of practising logistics managers using a questionnaire survey collected from logistics

managers operating in Ireland. In their case study Keebler and Plank (2009) examined the impacts logistics performance had within the US firm's performance Based on this extant literature, it is evident that, the implementation of logistics operations and its challenges has been heavily under-explored. This current seeks to bridge this gap by evaluating the logistics operations of Eni Ghana Exploration and Production Limited.

1.3 Aim of the study

The aim of this study is to evaluate the logistics operations of Eni Ghana Exploration and Production Limited

1.4 Research objectives

The study seeks to achieve the following research objectives;

1. To evaluate the logistics operations practices in place at Eni Ghana Exploration and Production Limited.
2. To examine the logistics operation challenges faced by Eni Ghana Exploration and Production Limited.
3. To evaluate the impact of logistics operations on organizational performance in Eni Ghana Exploration and Production Limited.

1.5 Research Questions

The study provides answers to the following research questions.

1. What are the logistics operations practices in place at Eni Ghana Exploration and Production Limited?
2. What are the logistics operation challenges faced by Eni Ghana Exploration and Production Limited?

3. What is the impact of logistics operations on organizational performance in Eni Ghana Exploration and Production Limited?

1.6 Significance of the Study

This research is significant in a variety of ways, including contributing to policy development, practice in Eni Ghana Limited, and research. The study's aim is to look at the evaluation of logistics operations at Eni Ghana Limited. The observations and results would offer a more accurate analytical measure and insight into the management of cargo operations at Eni Ghana Limited. It would also be a reliable source of knowledge, bringing to light the challenges and bottlenecks faced by the company in its supply chain management activities. This would offer scientific justification for management policy decisions in many crucial aspects of their activities, as well as a justifiably legitimate and accurate roadmap to developing workable management practices that would help the company achieve a sustainable high-quality supply chain.

The findings of this study would assist administrators, especially those management staff directly involved in the logistics operations in improving supply chain activities for the sustainability of the operations of Eni Ghana Limited. As a result of the research, administrators would be able to plan their work processes and, as a result, direct Eni Ghana Exploration and Production Limited in a more flexible manner to provide a service that is both profitable and reliable. It would enable Eni Ghana Limited's executives to learn from their own mistakes in a systemic way.

The findings from this study would add to the body of literature on logistics operations in Ghana. The findings would therefore serve as reference materials for future research, helping to advance the body of knowledge about logistics operations in Ghana.

1.7 Scope of the Study

The aim of this study is to evaluate the logistics operations of Eni Ghana Exploration and Production Limited. Geographically, the study focuses on Eni Ghana Limited Logistics Base in Takoradi. The study focuses on logistics operations, specifically, the evaluation of the existing logistics operations, challenges faced by Eni Ghana Limited in its logistics operations, and the critical success factors in logistics operations in Eni Ghana Limited.

1.8 Limitations of the Study

The major limitation of this study is that the study focuses on only one company that is Eni Ghana Exploration and Producrion Limited. This implies that the outcomes of this study may be limited in terms of generalization for other oil-producing companies in Ghana. Thus, the principle of generalization is undermined by focusing on only one company.

1.9 Organization of the Study

The study is organized into five chapters. Chapter one is made up of the background information of the study, the problem statement, the purpose of the study, the significance of the study, the scope of the study, limitations and the organization of the study. Chapter Two contains a review of theories, review of key concepts, review of empirical studies and conceptual framework. Chapter three highlights the methodology of the study. This includes the research approach and design, research population, sampling and sample size, data collection, and method of data analysis. Chapter four is composed of data presentation and analysis and discussion of findings. Chapter five is the summary, conclusion, recommendation, and suggestions for further research and improvement.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The commercialization of oil in Ghana has resulted in the establishment and operations of many logistics related firms in Ghana. This study, therefore, focuses on the evaluation of logistics operations in the oil industry in Ghana. This chapter has three main sections, and these are a review of key concepts, a theoretical review, an empirical review, and a conceptual framework.

2.1 Conceptual review

This section focuses on the conceptual review for the study. This comprise of a review of the themes/concepts used in the study. The included the concept of logistics and logistics management, the challenges, and drivers to the implementation of logistics management.

2.1.1 The concept of logistics

Logistics fundamentally focus on adding ‘place utility’ to products (Islam et al., 2013). The depicts that, products must be transported from one point to another. Products may include raw materials that are to be processed in factories or finished goods to distributed to the market for consumption. Because a buyer and a seller of the product have agreed to sell and buy the product at specific circumstances, such as delivery price and time, this is known as "place utility" in logistics (Islam et al., 2013). Depending on the terms of the sale, either the buyer or

the seller will contract a transport and/or logistics service provider to move the goods as per the agreed-upon conditions from the seller's premises to the buyer's premises. Hence, logistics is a crucial aspect of the supply chain process. Various authors have described logistics in numerous ways. Table 2.1 provides an overview of the extant definitions on logistics.

Table 2.1: Definitions of logistics

Author(s)	Definition
Mangan et al., (2008)	Involves getting in the right way, the right product, in the right quantity and right quality, in the right place at the right time for the right customer at the right cost
Rushton et al., (2009)	The efficient transfer of goods from the source of supply through the place of manufacture to the point of consumption in a cost-effective way whilst providing an acceptable service to the customers
The Charter of the Institute of Logistics and Transport (CILT) (2012)	Delivering the exact needs of the customer, at the right time, in the right place and at the right price.
Waters (2021)	A function responsible for the flow of materials from suppliers into an organization, through operations within the organization, and then out to customers.
Christopher (2022)	A planning orientation and framework that seeks to create a single plan for the flow of products and information through a business

Source: Author's construct, (2023)

It is better to understand the value chain of the business as well as that of rivals, suppliers, and distribution providers in order to pursue improvement of the total while implementing logistics procedures within an organization. The value chain depicted in Figure 2.1 shows the connection between the logistics and other organizational functions as well as the overall value made up of diverse activities.

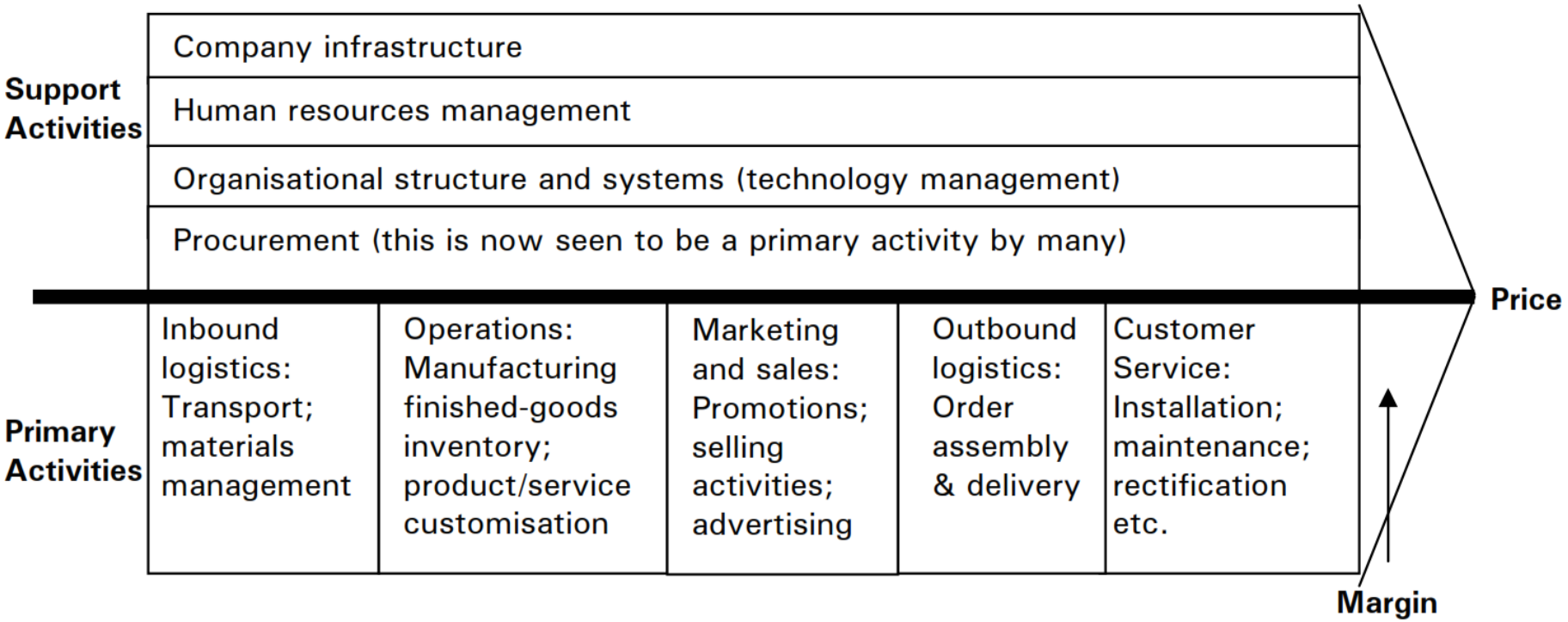

Figure 2.1: Logistics and the value chain

Source: Gattorna and Walters, (1996)

2.1.2 The concept of logistics management

Singh et al. (2021), indicated that logistics management is regarded as a subset of supply chain management. Over a long period of time, the definition of logistics management covered only product movement and distribution (Stock and Lambert, 2001; Langley et al., 2008). In recent times, logistics management is described as a management process that integrates movement of goods, services, information, and the capital from sourcing of the raw material to the consumer (Springinklee and Wallengurg, 2012). Logistics management practices includes warehousing, transportation, inventory, packaging, and information management (Ristovska et al., 2017). Logistics management aims at providing the right product with the right quality to the right consumer at the right time and the right place. According to Teppraśit and Yuvanont (2015) logistics management comprise of series activities as shown in Figure 2.2.

- Customer service focus on the determination of the needs of the customer for logistics customer service.
- Transportation refers to the management of the movement of products and includes activities such as selecting shipment method, choosing specific route, complying with various local and national transportation regulations and being aware of both domestic and international shipping requirements (Stock and Lambert, 2001).
- Inventory management focuses on trading off the level of inventory held to achieve high customer service levels, with the cost of holding inventory which includes capital tied up in inventory, variable storage costs, and obsolescence (Stock and Lambert, 2001).
- Information flow focus on the transmittal of information from producers to consumers (Teppraśit and Yuvanont, 2015).

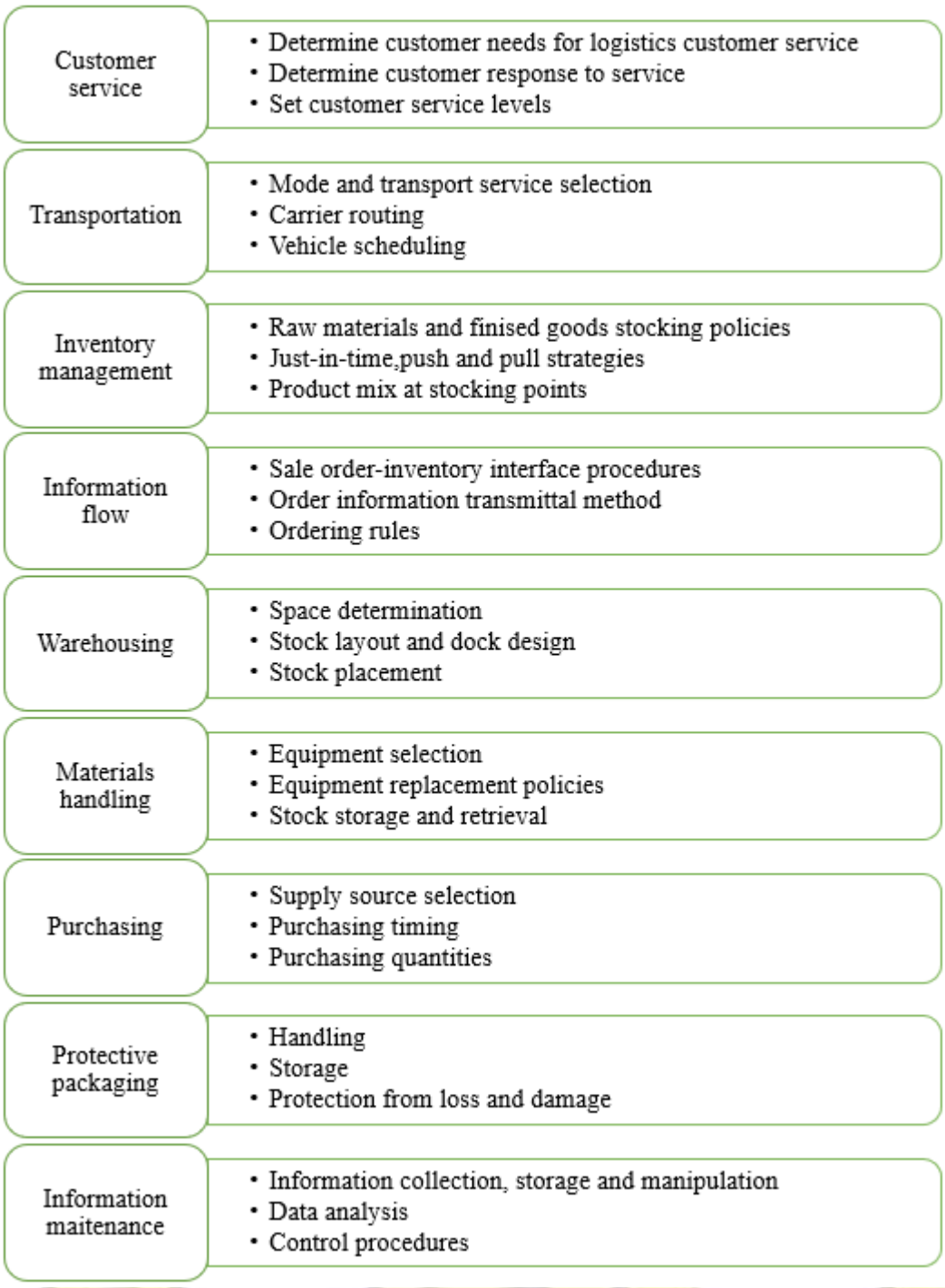

Figure 2.2: Composition of logistics management

Source: Tepprasit and Yuvanont (2015)

- Warehousing focus on storing products at and between point-of-origin and point-of-consumption and provides information to management on the status, condition, and disposition of items being stored (Stock and Lambert, 2001).

- Material handling focus on equipment selection, equipment replacement policies and stock storage and retrieval (Teppraśit and Yuvanont, 2015).
- Purchasing focus on the procurement of materials and services from external firms to support the operations of an organization from production to marketing (Stock and Lambert, 2001).
- Protective packaging focus on the handling and storage of products to protect it from loss and damage (Teppraśit and Yuvanont, 2015).
- Information maintenance focus on information collection, storage and manipulation (Teppraśit and Yuvanont, 2015).

Singh et al. (2021) classified logistics management into four categories namely:

(1) ***Inbound logistics***: Movement process of all materials, collection, shipments, and inventory management from providers to purchasing firms (21)

(2) ***Internal logistics***: This focus on information sharing among various departments as well as effective internal decision making (17).

(3) ***Outbound logistics:*** Movement and storage of products from the final production line to final users

(4) ***Reverse logistics:*** Comprise of the process adopted by a firm in the management of products from consumers.

2.1.3 Challenges in the implementation of logistics management practices

Logistics operations focus on ensuring customer satisfaction and increase in productivity (Robinson, 2017). The performance of supply chain management depends on an efficient logistics management procedure. According to Carol and Neu (2009), logistics activities are required to satisfy customers, which is demonstrated in the efficient flow of goods, services,

and information at the proper time, with the proper equipment, qualified personnel, in the proper location, with the proper quality, and with the proper quantity. However, there are many obstacles that make managing logistics operations difficult. ICT-related variables, human-related factors, time-related elements, quality-related issues, delivery-related factors, asset-related factors, and cost-related factors are only a few of the main difficulties that Bowersox et al. (1996) identified as affecting logistics operations. In a study conducted by Hellen (2004), it was realized that the major challenges to logistics management included human error, and poor use of IT processes. In another study conducted by Shashi et al. (2015), the challenges associated with logistics management included the lack of use of IT, omission of orders and inadequate information sharing with consumers. Tielman (2015) found that, the critical challenges in logistics management include inadequate warehouse space, lack of investment and poor use of materials handling processes. Schary and Larsen (1995) showed that, inaccuracies in the flow of information affects the successful implementation of supply chain negatively. This is because, the lapses in information flow reduces the proactiveness of customer service and reaction to consumer demand. Based on this, the lapses and delays in the flow of information is regarded as a critical challenges to the implementation of logistics.

2.1.4 Critical success factors in the implementation of logistics management practices

There have been numerous studies conducted on the critical success factors in the implementation of logistics management. For instance, Qureshi et al. (2008), indicated that the use of information systems is crucial to the success of logistics operations. They believed that using information system aids the progress, supervision and assessment of the logistics service providers and improves delivery performance and customer satisfaction. Additionally, the effective integration of supply chain is a critical factor to the successful implementation of logistics operations (Mothilal et al., 2012). The integration of supply chain improves the quality and performance of logistics providing firms (Han et al., 2007). In a study conducted by Bagchi

and Mitra (2008), they established that, an appropriate relationship with customers and key partners is an important success factor for logistics providing firms. Bask (2001) further suggested that logistics firms' relations aid improving customer satisfaction and accessing world distribution networks. According to van Hoek et al. (2002), the availability of skilled workers is an important indicator for the fulfilment of supply chain goals. The availability of the right human resources enhances delivery activities and customer satisfaction in the logistical firms (Wu and Chou, 2007). Murphy and Poist (2007) also mentioned human resources or workforce with sufficient skill and experience to play an important role in the success of logistics duties. The geographical reach of logistics providers highly influences the success degree of their operations (Lieb and Randall, 1999). In another study conducted by Lieb and Kendrick (2003), they indicated the breath of services as a success factor for logistics providers. Management capabilities are crucial to the successful implementation of logistics operations (Zafer, 2012). It has been noted that, appropriate management and leadership are critical to the success of logistics practices implementation. In a study conducted by Cheng et al. (2009), they identified critical success factors in the operations of logistics and classified them as past and future indicators. The past success factors included leading team, corporate system, organizational function, strategic planning, and human resource core competencies. The future success factors included information, human resources, innovation, policy influence and business expansion.

2.1.5 Organizational performance

Organizational performance focus on evaluating specific organizational results with expected targets, hence performance evaluation has acquired an international footing. Organizational performance highlights how companies accomplish their objectives, whether market-focused or financially oriented (Yamin et al., 1999). The importance of performance control in successful performance management was stressed by Damanpour and Evan (1984) when they

indicated that businesses and supply chain partners should not only establish goals, but also perform acts that facilitate the accomplishment of a set of goals. This is valid because the catalysts that can assess progress or failure in achieving targets are acts or action plans, as well as tracking processes such as periodic formal or informal evaluations, coaching, and feedback. The Strategic Management, Academy of Management and Administrative Science journals have 439 publications over a span of 3 years, according to March and Sutton (1997). The papers which modelled output as a dependent variable made up 23% of those papers. The generally accepted theory of performance measurement was mainly studied by many scholars from a dependent variable perspective (Gunasekaran et al., 2001). Assessing organizational performance based on financial measures only has been heavily criticized as numerical performance measures used as simple qualitative evaluations may not adequately describe firm's performance. Although financial measures have be widely used as a key measure of organizational performance this study measured organizational performance based on operational performance and financial performance.

2.1.5.1 Operational performance

The measurable aspects of a firm's process are regarded as operational performance and it includes production cycle, reliability and inventory time. This implies that, operational performance impacts organizational performance measures like share of the market and satisfaction of customers. The measures of operational performance focus on the ability of a firm to satisfy the needs of customers with regards to time, operational flexibility and elimination of waste (Green et al., 2012; Lai and Wong, 2012). Green et al. (2012) indicated that, the effectiveness of operational performance induces cost savings as well as satisfying the needs of customers. Consequently, operational measures may include quality, flexibility and delivery reliability as they are paramount to the satisfaction of customer needs.

2.1.5.2 Financial performance

The financial performance of an organization is a very significant determinant for organizational performance for both investors and owners of a company. Financial performance is the indicator of an organization's financial health and reflects the performance of a company's executive management (Matar and Eneizan, 2018). According to Almajali et al. (2012), the greater the organization's financial performance, the more profitable and effective the corporation is in using capital and contributing to the macro level of the country's economy. According to Xie et al. (2016), the effective use of resources aids in the achievement of financial performance. Financial performance was calculated based on revenue growth, profit growth, return on assets, return on investment, growth of market share, overall operating efficiency, and return on sales in a study conducted by Jiang et al. (2018).

2.2 Theoretical Review

The theories reviewed in this section include the resource base view theory and the risk management theory.

2.2.1 Resource-Based View Theory

The resource base view theory was originally propounded by Birger Werner Felt (1984) and was further developed by Barney (1991). The resource-based view theory argues that firms can attain a sustainable competitive advantage over other firms in the same industry through the utilization of valuable, rare, and non-substitutable resources (Barney, 1991). The resource-based view examines and interpreted the nature of resources used by an organization to ascertain how such organizations may sustain competitive advantage (Varadarajan, 2020). The main focus of the resource base view theory is on the concept of difficult to immediate paradigm. The concept of difficult to imitate is used to describe the situation whereby firms make use of resources that cannot be easily acquired or imitated by other firms (Varadarajan, 2020). Usually, the imitation of such resources demands a total change in an organization's

climate and culture, hence making it difficult for other firms or organizations to imitate such resources. The resource-based view theory holds that the differences in the performance of organizations can be determined by the possession and utilization of specific inputs and capabilities that are more difficult to imitate by other firms within the same industry (Conner, 1991).

The resource-based view is relevant to this study because it recognizes resources as an integral part of the organization and urges organizations to examine and exploit the available resources in order to gain a competitive advantage and enhance sustainability. The review of empirical studies such as Biney and Boakye (2021); Okyere et al. (2019) shows that the number of cargo service providers in Ghana is increasing due to the exploration, production, and commercialization of oil and gas and the stable micro and macroeconomic business environment in Ghana. The increasing number of cargo services in Ghana may result in increased competition within the cargo industry which may force some firms to fold up. Thus, based on the resource-based view theory, this study argues that it is significant for cargo firms in Ghana such as Eni Ghana Exploration and Production Limited to evaluate their resources and mode of operations and adopt valuable resources and capabilities to improve performance and to gain superiority over other firms and improve performance.

Critics of the RBV such as Priem and Butler (2001); Collins (1994) argue that the theory has no managerial implication because the theory does not explain how managers can attain rare, valuable, and non-imitable resources. Also, critics argue that sustained competitive advantage is not achievable because firms can be overtaken by other firms that can develop that capability better than a firm that is best in practice.

Irrespective of these criticisms, the RBV has been used by previous researchers to study the operations performance of firms. For example, Liang, You, and Liu (2010) used the resources-

based view theory to study the effects of information technology on the performance of firms. It was discovered that firms that adopted technologies in their operations were more efficient than others who had no access to such technologies. Also, Pertusa-Ortega, Molina-Azorín, and Claver-Cortés (2010) adopted the resource-based view theory to study the impact of organizational structure on a firm's competitive advantage and performance. The study found that organizational structure has no impact on performance but has an impact on competitive advantage. The findings of this study support the argument of the resource-based view theory that firms can use resources and capabilities to improve performance and gain competitive advantage.

2.3 Empirical Review

Based on the objectives of the study, the review will concentrate on several studies conducted by different authors to add knowledge to the existing literature.

Fugate, Mentzer and Stank (2010) conducted a study on logistics performance and its influence on firm performance in USA on 150 firms. The study revealed that increase in logistics efficiency, effectiveness, and differentiation decreased expenses, inventory, cash requirements and increased inventory availability, timely delivery, on-time and damage-free deliveries, lineitem fill rates and sales which improved net margin and asset turnover, which improved return on assets and overall firm performance.

Liu and Luo, (2008) examined the effect of logistics capabilities on performance in manufacturing firms in China. The study based on a survey of 1000 manufacturing firms in central south, south, and central China regions. By exploratory and confirmatory factor analyses, the scale of manufacturing firm's logistics capabilities is obtained. The results show that logistics capabilities can be conceptualized as a three-dimensional construct: process capability, flexibility capability and information integration capability.

Mangan et al. (2001), explored the educational and training needs of practising logistics managers using a questionnaire survey collected from logistics managers operating in Ireland. The analysis of the responses received suggests that the existing supply of education and training is not perceived as fully meeting either the present or future needs of logistics practitioners. There is a need to develop new education and training programmes, which should be aimed at meeting the needs of these practitioners.

Cherchata et al. (2022) researched into the development of a scientific and methodological approach for the application of logistics management innovation. The result of the innovations in logistics management appliance is effective logistic system's design, in which the coordinated material, informational and financial flows motion is carried out. In the result, it ensures efficient enterprise's business-processes functioning and organic improvement of its organizational structure.

In their case study Keebler and Plank (2009) examined the impacts logistics performance had within the US firm's performance based on delivery time, cost wise, pace of response to customers demand change & the quality of goods & services and found seven factors that had demonstrated their effect on manufacturing firm's performance of operation.

Sezhiyan and Nambirajan, (2010), examined various aspects and variables of management of logistics and firm performance of operation in India. The firm's operational performance was regressed against outbound logistics activities and the results indicated that the predictive variable had positive and significant effect on firm performance.

Darko (2021) studies reverse logistics and the benefits it provides for operational performance. The study gathered a data set of 213 from firms across the manufacturing and service sector using a structured questionnaire. The data collected was analysed using a confirmatory factor analysis in addition to partial least square structural equation modelling (PLS-SEM). The

outcome of the study showed that, the implementation of reverse logistics positively affects operational performance.

Waweru et al. (2015) studied the role of logistics in gaining superior performance. The outcome of the study showed that, for the effectiveness of logistics management it must meet customer needs, respond to customer complaints, deliver ordered consignments on timely basis and have a fill rate.

Based on this extant literature, it is evident that, the implementation of logistics operations and its challenges has been heavily under-explored. This current seeks to bridge this gap by evaluating the logistics operations of Eni Ghana Exploration and Production Limited.

2.4 Conceptual Framework

The conceptual framework that guides this study is shown in Figure 2.1. Based on existing literature and the theory of resource-based view, it has been well established that logistics operations improve the performance of an organization (Keebler and Plank, 2009; Waweru et al., 2015). However, the realization of the expected organizational performance from the implementation of logistics operations depends on its effectiveness and efficiency. This study identified the critical success factors that boost the effectiveness and efficiency of logistics operations and the challenges that hinder its effectiveness. Studies have focused on the positive influence of logistics operations on organizational performance but have failed to explore the factors that can boost or hinder the effectiveness of logistics operations. Hence, this study divert focus and explores the factors hinder the implementation of logistics operations whiles evaluating the impact of logistics operations on organizational performance. It is therefore hypothesized that:

H1: Logistics operations have a positive impact on organizational performance.

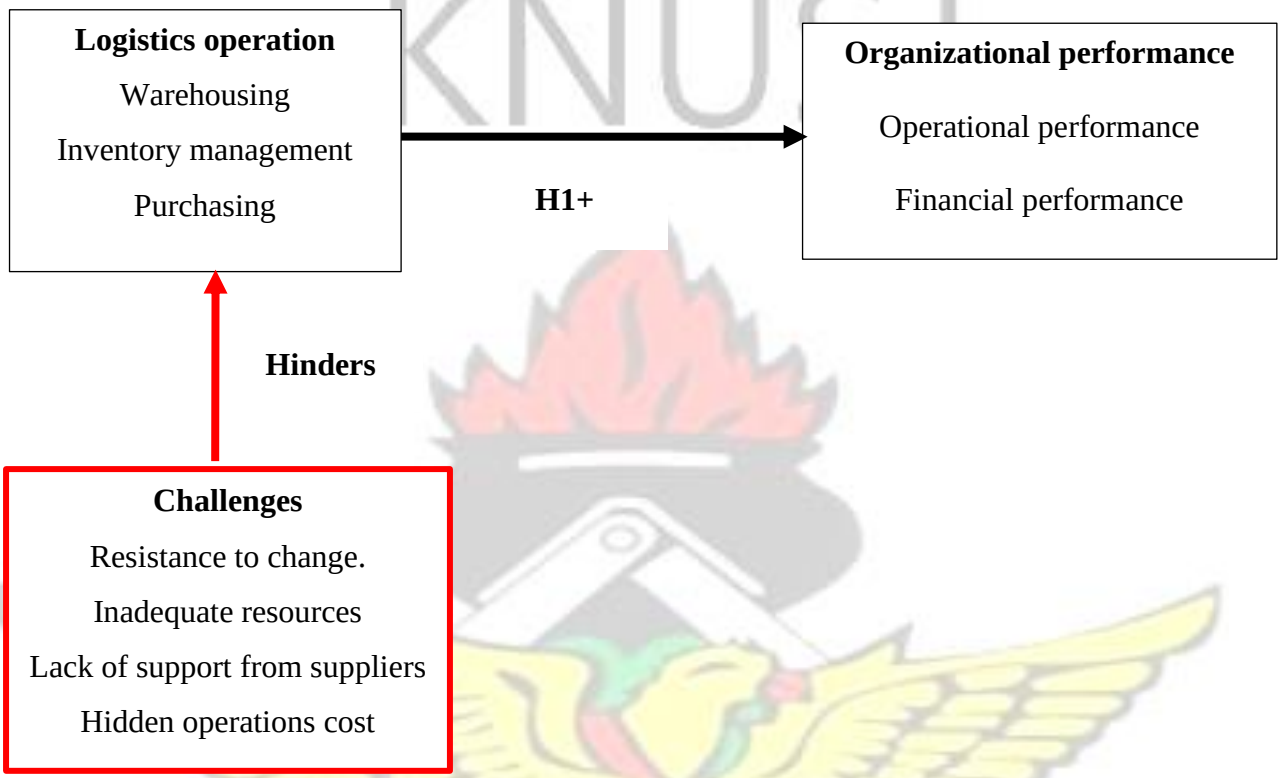

Figure 2.3: Conceptual Framework

Source: Author's construct, (2023)

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology that was adopted to evaluate logistics operations in Eni Ghana Limited. The chapter specifically contains the approach to the research, design of the

research, study population, sampling technique and sample size, data collection and data analysis.

3.1 Research Approach

Quantitative, qualitative, and mixed approaches are common in academia. Quantitative approach uses numerical data to test theories, or hypotheses or to establish relationship between two or more variables (Ezzy, 2013). Qualitative approach on the other hand uses non-numeric data to explain issues as they happen in the real world (Bhattacherjee, 2012). The mixed method approach utilises both qualitative and quantitative approaches to address a problem (Garratt, 2012). Researchers that utilise a mixed methods approach to research want to maximise the benefits of both quantitative and qualitative research procedures while minimising their shortcomings (Garratt, 2012).

Among the three approaches mentioned above, this study leverages on quantitative approach for the investigation of the logistics operations in the oil industry, with Eni Ghana Limited as a case study. This study uses quantitative research approach because, it improves impartiality, allows for more generalisations about results, and are inherently concerned with prediction (Ezzy, 2013). Using the quantitative approach, the study is able to review the logistics operations of Eni Ghana Exploration and Production Limited. Cooper and Schindler (2011) also note that a quantitative approach is undertaken when the primary emphasis is to clarify while the investigator distances himself from the research to prevent skewing the findings. Thus, with the use of a quantitative approach, the outcomes of the study are objective outcomes, reflecting the true situations within Eni Ghana Limited.

3.2 Research Design

At the outset of every good inquiry, the researcher selects a framework of processes and techniques to be applied and utilized throughout the research endeavour (Salkind, 2010). This

study uses descriptive research design to evaluate the logistics operations in Eni Ghana Limited. Singh (2010) states that descriptive study seeks to describe and assess a phenomenon. Similarly, Kumar (2011) opines that a descriptive study attempts to describe a situation, problem, phenomenon, service, or programme, or provides information about a phenomenon. It focuses on description rather than relationship assessment. Using descriptive design helps to describe a phenomenon like logistics operations in Eni Ghana Limited as they occur (Kumar, 2011).

Among the types of descriptive research designs, this study leverages on the case study research design since the study focused only on Eni Ghana Limited, and within Eni Ghana Limited, the study focuses on the logistics operations. In the view of Abbott and McKinney (2013), a case study design is an ideal when the study seeks to address a particular modern phenomenon within an organization; hence, its use in this current study. A case study method enables in-depth, multi-faceted investigations of difficult subjects in their natural environments (Crowe et al., 2011). According to Yin (2009), case studies can be used to explain, describe or explore events or phenomena in the everyday contexts. These can, for example, help to understand and explain causal links and pathways resulting from a new policy initiative or service development (Yin, 2009). The case study design lends itself well to capturing information on more explanatory '*how*', *'what'* and '*why*' questions, such as 'how is the logistics operation in Eni Ghana Limited been implemented? and what are the challenges faced by Eni Ghana Limited in cargo operations? Thus, the case study design offers additional insights into what gaps exist in logistics operations in Eni Ghana Limited and what new strategies can be adopted to enhance the logistics operations.

3.3 Target Population

The total number of persons relevant to this research is the target population (Hawe, and Potvin, 2009). As a result, a population is a set of factors from which research aims to draw

conclusions. The target population of this study comprises of employees and managers at the logistics department of Eni Ghana Limited in the Takoradi Logistics Base. According to the Human Resource Manager, Eni Ghana Exploration and Production Limited Takoradi Logistics Base had 69 staff involved in logistics and cargo operations related activities, as at February, 2023.

3.4 Sampling Technique and sample size

Sampling is inevitable in any scientific research because of two main reasons. Firstly, inadequacy of time and financial resources to cover everyone within the study population (Babbie, 2007). Secondly, the tendency of some people to willingly decline participation in the study (Babbie, 2007). However, with regards to the relatively small population size comprising of personnel of Eni Ghana Limited, Takoradi Logistics Base associated with logistics and cargo operations related activities, a census survey was used. Census survey is a sampling approach where all members of the sample frame was targeted for the study. Based on this a sample size of 69 was used for the study.

3.5 Data Collection Instrument

This section of the study focuses on the tool used to collect the data and how the tool is designed. The study uses a self-administered questionnaire to collect data from the staff. A self-administered questionnaire is among the most popular tools for quantitative studies (Chawla and Sondhi, 2016). With a self-administered questionnaire, participants are given the free space to complete the questionnaire themselves. They are more convenient to administer and relatively less costly (Bryman and Bell, 2007). More profoundly, it is easier to process and analyze data obtained through the use of questionnaires (Luong and Ha, 2011). With the use of a questionnaire, participants read the questions on its face, decode them and then respond accordingly (Kumar, 2011). The questionnaire is prepared in accordance with the research objectives. It is made up of four sections. Section I focuses on the personal data of the

respondents, comprising of sex and age. The remaining sections were designed based on the research objectives.

3.6 Pilot Study

After designing the instrument, it is demanded of the researcher as in other empirical studies, to pilot it in order to guarantee the reliability and validity of the constructs adopted in measuring the various variables under investigation. A pilot study is “a method of checking that questions work as intended and are understood by those individuals who are likely to respond to them" (Hilton, 2017). It has also been argued that piloting a survey questionnaire has the tendency to reduce sampling drawbacks and increase the response rate (Drennan, 2003; Kumar, 2011). The study pilots the instrument in BAJ Freight and Logistics Company Limited on 10 staff. The study uses their comments to reshape the instruments.

3.7 Validity and Reliability of the Instrument

Ensuring the validity and reliability of the instrument is very important in scientific studies like this one. Validity fundamentally entails the degree to which the constructs actually measure what they are expected to represent (Saunders et al., 2013). It is about how accurate a measure is and a valid measurement is generally reliable adoption (Bhattacherjee, 2012). To ensure the validity of the instrument used in this study, the study uses face and content validity methods. Face validity is about whether a test appears to measure what it's supposed to measure whiles content validity evaluates how well an instrument covers all relevant parts of the construct it aims to measure (Kumar (2011). To enhance both face and content validity, this study adapts an existing survey instrument for each research objective of the study. The instrument adapted are instruments used to measure each study variable in existing studies; hence, they are proven to have a high degree of face and content validity. Aside from the use of existing survey instruments, the study seeks expert view on the design of the instrument for each study variable. Opinions of experts in the logistics and cargo operations activities in the oil and gas industry

in western region of Ghana are sought. Similarly, the study seeks the views of the supervisor of this thesis on the content and shape of the instrument and the supervisor validates the instrument before using it to collect the data.

Reliability on the other hand, ensures the reusability of the findings of the study (Onsomu, 2018). It establishes the degree to which a study tool is devoid of bias and guarantees the consistency of the constructs under investigation over time (Bhattacherjee, 2012). In this study, the reliability of the instrument is determined by using Cronbach's Alpha test. The study uses the pilot study data to test for the reliability of the instrument. Cronbach's Alpha score for the effectiveness of cargo operation system is 0.827, cargo operation challenges is 0.818, the risk associated with cargo operations is 0.761, and the operational strategies for improving the cargo operations competitiveness in the oil and gas industry has a score of 0.843. As a rule of thumb, a coefficient greater than or equal to 0.7 is considered suitable and a clear indicator of construct reliability (Cronbach and Meehl, 1995). Thus, instrument used in this study is reliable.

3.8 Administration of the Instrument

The study seeks permission from the management of Eni Ghana Limited to collect data from the staff. Permission is granted, and the date is fixed for the data collection. The data collection is done by the researcher from 1st February 2023 to 3rd February 2023. The data collection is done on the premises of the company, Eni Ghana Limited, Takoradi Logistics Base branch during the break time period, in order to not disrupt the busy schedules of the staff.

The study randomly samples the participants, using the lottery method. However, when a selected participant is not willing to participate in the study, the study replaces the participant with another who avails himself or herself for the study. The study explains the purpose of the data collection, the extent of the engagement of the participant, and the number of minutes

required for answering the questions contained in the questionnaire. Each participant is given 30 minutes to fill in the questionnaire.

The researcher encourages all the participants to fill in the questionnaire in the presence of the researcher. This is done to ensure a high response rate and also to help the researcher to clarify any issues or questions that the participants may not understand. This approach helps to increase the response rate as many of the staff who qualify to participate in the study are motivated to fill in and return their questionnaire to the researcher on the same day. Most often, when a questionnaire is given to participants to fill in and return later, some of them fail to do so due to forgetfulness or work pressure. Thus, the study being aware of this, and adopts the face-to-face questionnaire administration where the participants fill in the questionnaire in the presence of the researcher.

3.9 Data Analysis and Presentation Technique

Field data collected are cleansed, coded, and entered into the statistical package for social sciences (SPSS) v23. The study cleanses the data by removing all incomplete questionnaires from the data set. The responses to study variables are coded based on five-point Likert scale principles where strongly disagree, disagree, neutral, agree, and strongly agree responses are coded as 1, 2, 3, 4, and 5 respectively. The study uses SPSS version 23.0 to generate the results from the data and the results are presented in the form of tables.

The study analyses the data, using mean scores, standard deviations, one sample t-test and multiple regression analysis. The study computes the mean score and standard deviation for each response. The mean score is interpreted as shown in Table 3.1.

Table 3.1: Interpretations of Likert Scale Responses

Responses	Scoring	Mean Score	Implication

Strongly Disagree	1	1.0-1.49	Disagreement to a statement
Disagree	2	1.50-2.49,	Disagreement to a statement
Neutral	3	2.50-3.49	Uncertain
Agree	4	3.50-4.49	Agreement to a statement
Strongly Agree	5	4.50-5.50	Agreement to a statement

Source: Forys and Gaca (2016)

The study further uses the one-sample t-test to determine whether an unknown population mean is different from a specific value. In a One Sample *t* test, the test variable's mean is compared against a "test value", which is a known or hypothesized value of the mean in the population. Test values may come from a literature review, a trusted research organization, legal requirements, or industry standards. The null hypothesis (H_0) and (two-tailed) alternative hypothesis (H_1) of the one sample *T* test can be expressed as:

H_0: $\mu = \mu_0$ ("the population mean is equal to the [proposed] population mean")
H_1: $\mu \neq \mu_0$ ("the population mean is not equal to the [proposed] population mean")

Where μ is the "true" population mean and μ_0 is the proposed value of the population mean.

3.12 Ethical Consideration

As with any other research project, some ethical considerations are observed. The only reason respondents take part in the study is because they want to. Every respondent who take part in the study have the option to quit at any time if they want to. Also, the respondents who take part give their consent. So, the respondents who take part in this study are not forced but they voluntarily take part in the study. Also, respondents' privacy and anonymity are ensured in this

study and the study did not link the responses or the findings to any of the participants. Also, no information provided by the participants are disclosed to any third party. Throughout the study, the highest level of objectivity is kept, and all of the literature that are used for the study are properly cited.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF RESULTS

4.0 Introduction

This chapter focuses on the data analysis and discussion of the results from the data analysis. The data was collected with the aid of a structured questionnaire from staff involved in logistics

and cargo operations at Eni Ghana Limited, Takoradi Logistics Base. With a population of sixty-nine (69), a census survey was applied, hence, 69 questionnaires were distributed and 66 were retrieved for the analysis representing a response rate of 95.65%. This chapter had five sections beginning with an introduction to the chapter. This was followed by an analysis of the demographic data and descriptive statistics of the data collected. Additionally, an inferential analysis was conducted and finally the discussion of the results from the analysis.

4.1 Demographic data analysis

Regarding the demographic data, the respondents were asked to indicate their age category, gender, highest academic qualification and number of years of work experience. Table 4.1 shows a summary of the results, and they are discussed as follows:

With the age category of the respondents, 10.60% were between 20 to 29 years whiles 45.50% were between 30-39 years. 37.90% were between 40 to 49 years and only 6.10% were between 50-59 years. Regarding the gender of the respondents, 66.70% were males and 33.30% were females. With respect to the academic qualification of the respondents, 9.10% had diploma whiles 36.40% had a first degree. 51.50% had masters and only 3.00% of the respondents had PhD. Finally, regarding the years of experience of the respondents, 33.30% had 5 years and below while 27.30% had between 6 to 10 years of experience. 24.20% of the respondents had 11-15 years of experience and 15.20% of the respondents had above 15 years of experience.

Table 4.1: Background of the respondents

Description	**Frequency**	**Percentage**
Age		
20-29 years	7	10.60
30-39 years	30	45.50

40-49 years	25	37.90
50-59 years	4	6.10
Gender		
Male	44	66.70
Female	22	33.30
Highest academic qualification		
Diploma	6	9.10
First degree	24	36.40
Masters	34	51.50
PhD	2	3.00
Years of experience		
5 years and below	22	33.30
6-10 years	18	27.30
11-15 years	16	24.20
Above 15 years	10	15.20

Source: Field survey, (2023).

4.2 Descriptive statistics

The descriptive statistics involved the assessment of the reliability of the variables using the Cronbach Alpha value as well as the assessment of the central tendency of the variables using mean scores and standard deviation.

4.2.1 Reliability analysis

In assessing the reliability of the latent variables, the Cronbach Alpha value was used. According to Collins, (2007), Cronbach's Alpha is a way of assessing reliability by comparing the amount of shared variance, or covariance among items making up an instrument to the

amount of overall variance. Table 4.2 shows the Cronbach Alpha values for the latent variables. The results of the reliability analysis depict that all the variables had a satisfactory level of Alpha value (> 0.700) based on the recommendation of Hair et al. (2018).

Table 4.2: Reliability test

Latent variables	No. of items	Alpha Value
Logistics operations practices	13	0.977
Challenges to logistics operations	10	0.956
Operational performance	3	0.880
Financial performance	4	0.960

Source: Field survey, (2023)

4.2.2 Central tendency of variables

The mean and standard deviation for each variable were assessed to aid in measuring the respondents' perception of each variable. The result of the analysis is shown in Table 4.3 and are discussed as follows:

Regarding the logistics operations practices, the overall mean was 4.14. This depicts that, the respondents were in strong agreement to the implementation of logistics operation practices with ENI Ghana. The variable with the highest level of respondents' agreement was "*Incoming shipments are compared to the requirements at purchase order*" [Mean = 4.23; SD = 0.941]. This was followed by "*All the purchased materials/services are subject to receiving inspection*" [Mean = 4.21; SD = 0.969] and "*We conduct needs assessment in other to meet customer needs*" [Mean = 4.20; SD = 0.967].Table

Table 4.3: Central tendency of variables

Items	Mean	SD
Logistics operations practices	**4.14**	**0.982**
We conduct needs assessment in other to meet customer needs	4.20	0.967
We determine the most appropriate route for logistics transportation	4.15	0.965
Purchase orders provide an adequate description of the material/service required	4.15	0.996
Procurement is made only from approved suppliers	4.08	1.086
There are policies on raw materials and finished goods stocking	4.11	0.994
All the purchased materials/services are subject to receiving inspection	4.21	0.969
We ensure the adequate flow of information	4.11	0.930
Incoming shipments are compared to the requirements at purchase order	4.23	0.941
Items are stored under proper environmental conditions as applicable	4.12	1.031
There is enough space for warehousing, inventory and material handling needs	4.09	1.063
Non-conforming materials are promptly identified and segregated.	4.11	0.963
Products are protected against transport damage by adequate packaging	4.15	0.916
We collect and use data collected on logistics processes	4.14	0.943
Challenges to logistics operations	**3.25**	**1.318**
Resistance to change	3.35	1.234
Unavailability of required resources	3.12	1.387
Unavailability of required human skills	3.05	1.375
Inadequate support from suppliers	3.24	1.190
Hidden costs associated with logistics operations	3.67	1.207

Barriers to information exchange	3.39	1.214
Inadequate financial support for logistics operations	3.24	1.359
Poor use of IT processes	3.14	1.369
Inadequate warehouse space	3.15	1.428
Poor material handling processes	3.14	1.413
Operational performance	**3.94**	**0.954**
Our organization quickly respond to market demands	4.00	0.894
Our organization make rapid product/service mix changes	3.79	1.015
Our organization have a good on-time goods/service delivery record	4.02	0.953
Financial performance	**3.86**	**0.908**
Our organization has a high average return over the past three years	3.83	0.954
Our organization has a high average profit over the past three years	3.80	0.845
Our organization's profit growth has increased over the past three years	3.92	0.847
Our organization has had a high average sale over the past three years	3.88	0.985

Source: Field survey, (2023).

For the challenges to logistics operations, the overall mean was 3.25. This depicts that the respondents agreed to the existence of the challenges to logistics operations in ENI. The most agreed on challenge was "*Hidden costs associated with logistics operations*" [Mean = 3.67; SD = 1.207]. This was followed by "*barriers to information exchange"* [Mean = 3.39; SD = 1.214] and "*resistance to change*" [Mean = 3.35; SD = 1.234].

Regarding operational performance, the overall mean was 3.94. This shows that the respondents agreed with the statements regarding operational performance. The respondents' highest level of agreement was with regards to the good on-time delivery record of ENI Ghana [Mean = 4.02; SD = 0.953]. For financial performance, the overall mean was 3.86, which showed that the respondents agreed with statements regarding financial performance. The respondents' highest level of agreement was with regards to growth in profit of ENI Ghana over the past three years [Mean = 3.92; SD = 0.847].

4.3 Inferential statistics

The inferential analysis was done for each established objective of the study. They are discussed in the subsequent sub-sections as follows.

4.3.1 Logistics operation practices

For the logistics operation practices, the respondents were asked to rate their level of agreement with the statements on the practices. One-sample t-test was used to assess the significance of the practices at a 95% confidence level, one-tailed, and a test value (μ_o) of 2.50. This test value ensures that only statements with at least a minimum level of agreement are deemed significant. The following hypothesis were made:

- *Ho:* $\mu_o = \mu_1$*; Mean values are not statistical different from test value*
- H_1*:* $\mu_o \neq \mu_1$*; Mean values are statistical different from test value.*

At one tailed, rejecting the null hypothesis implies that the mean value is significantly higher than the test-value hence the respondents deemed the practice to be significantly used within ENI Ghana. Table 4.4 shows a summary of the results. The inferences made from the results are as follows:

1. All the statements had p-values < 0.05 hence we reject the null hypothesis (*Ho)* and conclude that all the mean values are statistically different from the test value.
2. All the statements had positive t-values depicting that, the statistical difference were all positive values. Thus, all the statements had mean values greater than 2.50.
3. The respondents deemed the logistics operation practices to the significantly used within ENI Ghana.
4. The logistics operations practice with the highest level of significant use among the respondents was "*Incoming shipments are compared to the requirements at purchase order*" [T-value = 14.908]. This was followed by "*All the purchased materials/services are subject to receiving inspection*" [T-value = 14.355] and "*We conduct needs assessment in other to meet customer needs*" [T-value = 14.320].

Table 4.4: Logistics operation practices (Significance test)

Items	**T-value**	**p-value**
We conduct needs assessment in other to meet customer needs	14.320	0.000
We determine the most appropriate route for logistics transportation	13.909	0.000
Purchase orders provide an adequate description of the material/service required	13.470	0.000
Procurement is made only from approved suppliers	11.791	0.000
There are policies on raw materials and finished goods stocking	13.123	0.000

All the purchased materials/services are subject to receiving inspection	14.355	0.000
We ensure the adequate flow of information	14.025	0.000
Incoming shipments are compared to the requirements at purchase order	14.908	0.000
Items are stored under proper environmental conditions as applicable	12.781	0.000
There is enough space for warehousing, inventory and material handling needs	12.158	0.000
Non-conforming materials are promptly identified and segregated.	13.551	0.000
Products are protected against transport damage by adequate packaging	14.655	0.000
We collect and use data collected on logistics processes	14.101	0.000

Source: Field survey, (2023).

4.3.2 Challenges to logistics operations

For the challenges to logistics operation, the respondents were asked to rate their level of agreement with the statement. One-sample t-test was used to assess the significance of the challenges at a 95% confidence level, one-tailed, and a test value (μ_o) of 2.50. This test value ensures that only statements with at least a minimum level of agreement are deemed significant. The following hypothesis were made:

- *Ho: $\mu_o = \mu_1$; Mean values are not statistical different from test value*
- *H_1: $\mu_o \neq \mu_1$; Mean values are statistical different from test value.*

At one tailed, rejecting the null hypothesis implies that the mean value is significantly higher than the test-value hence the respondents deemed the challenge to be significant within ENI Ghana. Table 4.5 shows a summary of the results. The inferences made from the results are as follows:

1. All the statements had p-values < 0.05 hence we reject the null hypothesis (*Ho)* and conclude that all the mean values are statistically different from the test value.
2. All the statements had positive t-values depicting that, the statistical difference were all positive values. Thus, all the statements had mean values greater than 2.50.
3. The respondents deemed the challenges to logistics operation to be significant within ENI Ghana.
4. The challenges to logistics operations with the highest level of significance among the respondents was "*Hidden costs associated with logistics operations*" [T-value = 7.854]. This was followed by "*barriers to information exchange*" [T-value = 5.983] and "*resistance to change*" [T-value = 5.586].

Table 4.5: Challenges to logistics operation (Significance test)

Items	**T-value**	**p-value**
Resistance to change	5.586	0.000
Unavailability of required resources	3.639	0.001
Unavailability of required human skills	3.223	0.002
Inadequate support from suppliers	5.066	0.000
Hidden cost associated with logistics operations	7.854	0.000
Barriers in information exchange	5.983	0.000
Inadequate financial support for logistics operations	4.437	0.000
Poor use of IT processes	3.777	0.000
Inadequate warehouse space	3.707	0.000
Poor material handling processes	3.659	0.001

Source: Field survey, (2023).

4.3.3 Impact of logistics operations on organizational performance

A multiple regression analysis was conducted to evaluate the impact of logistics operations practices on organizational performance. The results of the regression analysis are shown in Table 4.6. Based on the results, it was realized that logistics operation practices have a significant impact on organizational performance [T-value = 6.497; Sig-value = 0.000].

Table 4.6: Logistics operations and organizational performance (Regression analysis)

Independent variable	Dependent variable	R-square	Beta	T-value	Sig-value
Logistics operations practices	Organizational performance	0.388	0.630	6.497	0.000

Source: Field survey, (2023).

4.4 Discussion of results

The first objective of the study was to evaluate the logistics operations practices in place at Eni Ghana Exploration and Production Limited. The data collected from the respondents were analyzed using both descriptive and inferential statistics namely mean scores, standard deviation and one-sample t-test. The outcome of the analysis was that the respondents were in strong agreement to the implementation of logistics operation practices with ENI Ghana. Additionally, the respondents deemed the logistics operation practices to the significantly used within ENI Ghana. The logistics operations practice with the highest level of significant use among the respondents was "*Incoming shipments are compared to the requirements at purchase order*" [T-value = 14.908]. This was followed by "*All the purchased materials/services are subject to receiving inspection*" [T-value = 14.355] and "*We conduct needs assessment in other to meet customer needs*" [T-value = 14.320]. The effective implementation of logistics operations practices aids in serving consumers with the right product at the right time and the right place (Ristovska et al., 2017). According to Ristovska et al., (2017), logistics management practices include warehousing, transportation, inventory,

packaging, and information management. Tepprasit and Yuvanont (2015) described the logistics operations practices and was agreed on by the logistics professionals in ENI Ghana.

The second objective of the study was to examine the logistics operation challenges faced by Eni Ghana Exploration and Production Limited. The data collected from the respondents were analyzed using both descriptive and inferential statistics namely mean scores, standard deviation and one-sample t-test. The outcome of the analysis was that the respondents agreed to the existence of the challenges to logistics operations in ENI. Additionally, the respondents deemed the challenges to logistics operation to be significant within ENI Ghana. The challenges to logistics operations with the highest level of significance among the respondents was "*Hidden costs associated with logistics operations*" [T-value = 7.854]. This was followed by "*barriers to information exchange*" [T-value = 5.983] and "*resistance to change*" [T-value = 5.586]. Logistics operations focus on ensuring customer satisfaction and increase in productivity (Robinson, 2017). However, there are numerous setbacks that hinders logistics operations management. Browersox et al. (1996), identified a significant challenge to logistics operations to include hidden cost. A similar assertion was made by Shashi et al. (2015) indicating the significant effect of hidden cost in hindering the implementation of logistics operations. Tielman (2015) found that, the critical challenges in logistics management include inadequate warehouse space, lack of investment and poor use of materials handling processes. Schary and Larsen (1995) showed that, information flow inaccuracy creates a negative impact to the success of supply chain & logistics in terms of providing proactive customer service and to reacting more quickly to customers' demand. These setbacks were deemed critical by the logistics professionals of ENI Ghana.

The third objective of the study was to evaluate the impact of logistics operations on organizational performance in Eni Ghana Exploration and Production Limited. The data collected from the respondents were analyzed using both descriptive and inferential statistics,

namely mean scores, standard deviation and multiple regression analysis. The outcome of the analysis was that logistics operation practices have a significant impact on organizational performance [T-value = 6.497; Sig-value = 0.000]. Sezhiyan and Nambirajan, (2010), examined various aspects and variables of management of logistics and firm performance of operation in India. The firm's operational performance was regressed against outbound logistics activities and the results indicated that the predictive variable had positive and significant effect on firm performance. Waweru et al. (2015) studied the role of logistics in gaining superior performance. The outcome of the study showed that, for the effectiveness of logistics management it must meet customer needs, respond to customer complaints, deliver ordered consignments on timely basis and have a fill rate. Based on existing literature and the theory of resource-based view, it has been well established that logistics operations improve the performance of an organization (Keebler and Plank, 2009; Waweru et al., 2015). Thus, the results are in line with extant literature.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter concentrates on summarizing the findings of the study, conclusion and recommendations made based on the study outcome. The sections of this chapter include summary of findings, conclusion and recommendation. The summary of findings was discussed based on the objectives of the study subsequently leading to the conclusion and recommendations.

5.1 Summary of findings

The aim of the study was to evaluate the logistics operations of Eni Ghana Exploration and Production Limited. Based on the aim, three objectives were established. The process of the achievement of each objective and their outcomes are discussed as follows:

5.2.1 Objective one: Logistics operations practices in place at Eni Ghana Exploration and Production Limited.

For the objective one, a literature review was conducted which aided in identifying the existing logistics operation practices. The was used in the development of a structured questionnaire targeted at ENI staff involved in logistics and cargo operations. The data collected were analysed using both descriptive and inferential statistics namely mean scores, standard deviation and one-sample t-test. The outcome of the analysis was that the respondents were in strong agreement to the implementation of logistics operation practices with ENI Ghana. Additionally, the respondents deemed the logistics operation practices to the significantly used within ENI Ghana. The logistics operations practice with the highest level of significant use among the respondents was "*Incoming shipments are compared to the requirements at purchase order*" [T-value = 14.908]. This was followed by "*All the purchased*

materials/services are subject to receiving inspection" [T-value = 14.355] and "*We conduct needs assessment in other to meet customer needs*" [T-value = 14.320].

5.2.2 Objective two: Logistics operation challenges faced by Eni Ghana Exploration and Production Limited.

For the objective one, a literature review was conducted which aided in identifying the existing logistics operation practices. The was used in the development of a structured questionnaire targeted at ENI staff involved in logistics and cargo operations. The data collected were analysed using both descriptive and inferential statistics namely mean scores, standard deviation and one-sample t-test. The outcome of the analysis was that the respondents agreed to the existence of the challenges to logistics operations in ENI. Additionally, the respondents deemed the challenges to logistics operation to be significant within ENI Ghana. The challenges to logistics operations with the highest level of significance among the respondents was "*Hidden costs associated with logistics operations*" [T-value = 7.854]. This was followed by "*barriers to information exchange*" [T-value = 5.983] and "*resistance to change*" [T-value = 5.586].

5.2.3 Objective three: Impact of logistics operations on organizational performance in Eni Ghana Exploration and Production Limited.

For the objective one, a literature review was conducted which aided in identifying the existing logistics operation practices. The was used in the development of a structured questionnaire targeted at ENI staff involved in logistics and cargo operations. The data collected were analysed using both descriptive and inferential statistics namely mean scores, standard deviation and multiple regression analysis. The outcome of the analysis was that logistics operation practices have a significant impact on organizational performance [T-value = 6.497; Sig-value = 0.000].

5.3 Conclusion

The aim of the study was to evaluate the logistics operations of Eni Ghana Exploration and Production Limited. With the achievement of the aim of the study, it was realized that ENI Ghana adequately implemented the logistics operations practices. This was mostly in the form of comparing incoming shipments with requirements of the purchase order, conducting a needs assessment of consumers and inspection of all purchased products. The effective implementation of logistics operations practices aids in serving consumers with the right product at the right time and the right place. Additionally, it was shown that, the implementation of logistics operations in ENI faced numerous challenges with the critical ones been the hidden cost associated with logistics operations, resistance to change and information exchange barrier. These challenges can hinder the achievement of performance associated with logistics operations. Finally, the study showed that logistics operations practices have a significant impact on organizational performance. This outcome offers a more accurate analytical measure and insight into the management of cargo operations at Eni Ghana Limited. It would also be a reliable source of knowledge, bringing to light the challenges and bottlenecks faced by the company in its supply chain management activities. Additionally, the outcome of the study will assist administrators, especially those management staff directly involved in the logistics operations in improving supply chain activities for the sustainability of the operations of Eni Ghana Limited.

5.4 Recommendations

This section elaborates on the recommendations made from the outcome of the study;

1. The study showed a positive significant impact of logistics operation practices on organizational performance. Hence, it is recommended that logistics related firms must endeavor to improve the effectiveness of their logistics operations through training to boost their organizational performance.

2. A critical challenge to the implementation of logistics operations was information exchange barrier. It is recommended that; management invest in the use of ICT to facilitate information sharing in an effective and efficient manner.

3. The study focused on only ENI Ghana; it is recommended that further studies explore logistics operations practices among other firms in Ghana as a way of comparing results.

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APPENDIX

SAMPLE QUESTIONNAIRE

This study is about the evaluation of logistics operations in the oil industry, using ENI Ghana Exploration and Production Limited as a case study. I am undertaking this research in partial fulfilment of the requirements to obtain an MSc Degree in Logistics and Supply Chain Management from Kwame Nkrumah University of Science and Technology. This study when completed would help provide a better understanding of the logistics operations in the oil industry, with ENI Ghana Exploration and Production Limited as the focal point of study. I would be glad if you could spare a few minutes to respond to the following questions. Any information you provide shall be treated with the utmost confidentiality and your identity shall be anonymous.

SECTION A: PERSONAL INFORMATION OF THE RESPONDENTS

1. What is your age? 1= 20-29 years [ ] 2= 30– 39 years [ ] 3=40 – 49 years [ ] 4=50-59 years [ ]
2. What is your gender? 1=Male [ ] 2=Female [ ]
3. What is your highest Educational Level? 1= Diploma [ ] 2=First Degree [ ] 3=Masters [ ] 4=PhD [ ] 5=Others, please specify[ ]
4. How many years have you worked in this company?

   5 years and below [ ] 6 to 10 years [ ] 11 -15 years [ ] Above 15 years [ ]

SECTION B: LOGISTICS OPERATION PRACTICES

The following are logistics operation practices identified from the study. To what extent do you agree or disagree with each of the following statements based on logistics operations in ENI Ghana. Use the scale below;

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statements	1	2	3	4	5
1	We conduct needs assessment in other to meet customer needs					
2	We determine the most appropriate route for logistics transportation					
3	Purchase orders provide an adequate description of material/service required					
4	Procurement is made only from approved suppliers					
5	There are policies on raw materials and finished goods stocking					
6	All the purchased materials/services are subject to receiving inspection					
7	We ensure the adequate flow of information					
8	Incoming shipments are compared to the requirements at purchase order					
9	Items are stored under proper environmental conditions as applicable					
10	There is enough space for warehousing, inventory and material handling needs					
11	Non-conforming materials promptly identified and segregated.					
12	Products are protected against transport damage by adequate packaging					
13	We collect and use data collected on logistics processes					

SECTION C: CHALLENGES OF LOGISTICS OPERATIONS

The following are challenges associated with logistics operations. To what extent do you agree to these challenges in terms of ENI Ghana Limited. Use the scale below;

1=strongly disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statements	1	2	3	4	5
1	Resistance to change					
2	Unavailability of required resources					
3	Unavailability of required human skills					
4	Inadequate support from suppliers					
5	Hidden cost associated with logistics operations					
6	Barriers in information exchange					
7	Inadequate financial support for logistics operations					
8	Poor use of IT processes					
9	Inadequate warehouse space					
10	Poor material handling processes					

SECTION D: ORGANIZATIONAL PERFORMANCE

The following are statements on organizational performance. To what extent do you agree to these factors in terms of ENI Ghana Limited. Use the scale below;

1=strongly disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statements	1	2	3	4	5
OPP	**Operational performance**					
1	Our organization quickly respond market demands					
2	Our organization make rapid product/service mix changes					
3	Our organization have good on-time goods/service delivery record					
FPP	**Financial performance**					
1	Our organization has a high average return over the past three years					
2	Our organization has a high average profit over the past three years					
3	Our organization's profit growth has increased over the past three years					
4	Our organization has a high average sale over the past three years					